



HEALTH DIALOGUE

Case Study

Malaria Control and Elimination: Zanzibar



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Case Study 2

Malaria Control and Elimination: Zanzibar



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Abbreviations

ACT	artemisinin-based combination therapy
CABRI	Collaborative African Budget Reform Initiative
CSO	civil society organisation
DHMT	district health management team
DPs	development partners
FBO	faith-based organisation
GBS	general budget support
GDP	gross domestic product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
IRS	indoor residual spraying
ITN	insecticide treated nets
NGO	non-governmental organisation
NSSF	National Social Security Fund
OPM	Oxford Policy Management
PMI	President's Malaria Initiative
RGZ	Revolutionary Government of Zanzibar
RTI	Research Triangle Institute
WHO	World Health Organisation
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
ZMCP	Zanzibar Malaria Control Programme
ZSSF	Zanzibar Social Security Fund



Preface

This case study was developed for use in the CABRI dialogue on 'Value for Money in the Health Sector: Planning and Policy'. The team to support the dialogue is led by John Kruger. Other team members are: Orvill Adams (health expert), Ramlatu Attah (case study researcher) and Clara Picanyol (case study researcher). Tim Ensor and Alex Matheson provide guidance and quality assurance.

The aim of the case studies developed for the seminar is not to present a research report but to allow participants to apply the approaches, concepts, frameworks and tools presented in the main papers to real life situations. The purpose of the case studies is to present a real life problem to the participants which they should address and work through, using the information presented in the case study, the knowledge from the seminar presentation and their experience.

The case study was developed through an initial desk review of documentation and a country visit to interview the personnel involved in the policy design and implementation of the health sector in Zanzibar.

The author¹ would like to thank everyone who has made themselves available to provide information and share their thoughts for the case study from the Ministry of Health, the Ministry of Finance and Economic Affairs, the Zanzibar Malaria Control Programme and the District Health Management Team. The author is especially thankful to Moritz Piatti for his support throughout the mission and subsequent revisions of the case study, as well as Ranil Dissanayake for assisting in arranging meetings.

Responsibility for errors in interpretation or facts remains with the author.

¹ Clara Picanyol



1. Introduction

Zanzibar finds itself at a crossroads: it can seek to maintain and marginally improve its current control operations in order to indefinitely keep malaria suppressed or it can attempt to eliminate malaria from the islands altogether. Zanzibar has already achieved a high degree of control, achieving a prevalence rate of 1% and indoor residual spraying (IRS) coverage of 96% of households (ZMCP, 2009). To reach an informed decision, the Ministry of Health and Social Welfare, conducted a comprehensive assessment of the feasibility of elimination on Zanzibar, drawing on international best practice and in-depth analysis of conditions on the islands. The resulting feasibility assessment carried out by the Zanzibar Malaria Control Programme has been recommended to others as good practice prior to making a decision (see Feachem et al., 2010a).

Table 1.1: Population, GDP and poverty indicators in Zanzibar

Population	981 754 (2002)
Population density	370 inhabitants per square km (2002)
GDP	US\$ 583 million (2008)
GDP per capita	US\$ 496 (2008)
Poverty (population below the poverty line)	49% (2004)

Source: UN data series.

The choice between continued control and elimination of malaria in Zanzibar presents a unique case study to illustrate approaches to planning and assessing feasibility and cost effectiveness with regard to health interventions as key components of the planning process. However, it raises wider issues regarding the dynamics of decision-making around the malaria programme in Zanzibar.

You have just been appointed jointly by the Minister of Health and Minister of Finance in your country to do a preliminary analysis of the limitations of the current malaria programme in your country and provide recommendations on relative priority of fighting malaria and potential strategies going forward. You are requested to incorporate perspectives from Zanzibar's experience in considering the issue of sustained control versus elimination. Examples of areas where it is felt the Zanzibar example could elucidate are: what are the policy alternatives with regard to fighting malaria and how would they differ in different contexts; what are the state of the art tools to be used in assessing options and some of the constraints; what are the issues around donor coordination and donor dependence; what are the financing alternatives, and; how do we reconcile a disease focus with that of strengthening the health system.

Section 2 (the case study) is structured as follows: Section 2.1 gives a background of malaria in Africa; Section 2.2 describes the main features of the health system in Zanzibar, focused on the malaria programme; Section 2.3 discusses the key issues and dynamics around the malaria strategy raised by the interviewees and to be discussed by the participants; and Section 2.4 presents some finding on other countries.



2. The case study

2.1 Background: Malaria in Africa

Malaria presents major obstacles to social and economic development in sub-Saharan Africa. It has been estimated to cost Africa more than US\$ 12 billion every year in lost GDP, even though it could be controlled for a fraction of that sum. Malaria is Africa's leading cause of under-five mortality (20%) and constitutes 10% of the continent's overall disease burden. It accounts for 40% of public health expenditure, 30–50% of inpatient admissions, and up to 50% of outpatient visits in areas with high malaria transmission. Some economists believe that malaria is responsible for a growth penalty of up to 1.3% per year in some African countries (Roll Back Malaria, 2011), although causality is difficult to establish.

This state of affairs exists in spite of 'remarkable progress' (Feachem et al., 2010) in fighting the disease over the last 100 years. In recent years there has been renewed focus on fighting malaria, especially in Africa with the launching of international campaigns, increased funding and intensification of certain strategies. A number of African countries have made significant progress and ambitious plans are in place. The WHO recently reported that 'as a result of the scale-up of use of insecticide-treated nets, indoor residual spraying, intermittent preventive treatment during pregnancy and artemisinin-based combination therapy (ACT), 10 countries in the WHO African region have reduced malaria cases by at least 50% between 2000 and 2008' (WHO, 2011).

The fight against malaria has been highly dependent on international funding. International advocacy has been remarkably successful over the last decade. In 1998, worldwide spending on malaria control was around US\$ 100 million. By the end of 2009, the Global Fund had approved US\$ 5.3 billion for 191 malaria grants in 82 countries, almost 75% of all external financing for health for these countries. The new funds have been used to support a fairly consistent set of priority interventions across most African countries, including use of insecticide-treated nets (ITN), selective use of indoor residual spraying (IRS), reduction of maternal and neonatal consequences of infection during pregnancy, replacement of failing drugs with ACT, and improvement of diagnostic capacities at the point of care with rapid tests. The scale of the increased funding for malaria control and prevention has led to an exponential rise in the importation of bed nets and ACTs. Policies to support free mass-distribution of insecticide-treated nets have been established in an increasing number of African countries, supported by the WHO. More countries are adopting IRS to augment use of insecticide-treated nets. In 2003, only four countries in Africa had adopted ACTs as first-line treatment; by 2010 ACTs were first-line treatment in every malaria-endemic country in Africa. (Snow and Marsh, 2010)

There is agreement on a three-pronged approach to eradicate malaria: (1) 'aggressive control in high-burden regions'; (2) 'progressive elimination from endemic margins to shrink the malaria map'; and (3) 'research and development to develop new tools and techniques that reach all at-risk population' (Feachem et al., 2010a; Kahn, 2009). While there is clearly a need for further development of tools (among other things, vaccines) there is also agreement about key tools to control the disease: bed nets, effective combination treatment based on artemisinin, and insecticides (Yamey 2004).

Some fear that the momentum gained over the last few years could be lost unless donors and countries align resources behind a common approach. If each donor and agency pursues their own agenda, the momentum gathered over the past five years will be lost and the fatalism and inaction that characterised the last decades of the 20th century will return. (Feachem and Sabot, 2008)



For a large proportion of countries in Africa the challenge is to intensify the control of malaria but a significant number will also have to confront the choice of either continuing the control of malaria or moving to a policy of eliminating malaria. 'Elimination' is a 'state where interventions have interrupted endemic transmission and limited onward transmission from imported infections below a threshold at which risk of re-establishment is minimised. Both capacity and commitment to sustain this status indefinitely are required' (Lancet, 2010).

Currently a number of African countries are malaria-free: Lesotho, Libya, Morocco, Mauritius, Tunisia and the Seychelles. Six countries in Africa are currently on the list of 32 'malaria-eliminating countries' (Feachem et al., 2010b): Cape Verde, Swaziland, Algeria, Botswana, Namibia and South Africa. Zanzibar is another state facing the choice between sustained control and elimination.

Figure 2.1: Categorisation of countries as malaria free, eliminating malaria, or controlling malaria, 2009



Source: Feachem et al., (2009b).

2.2 Delivery of health and malaria programmes in Zanzibar

2.2.1 The Zanzibar healthcare system

The organisation of public healthcare system is based on a district model consisting of a network of primary healthcare units complemented by a number of secondary (primary healthcare centres, district hospitals) and a tertiary referral hospital situated in Stonetown (Unguja). Primary healthcare centres provide inpatient care (30 beds), some more advanced services such as x-rays, and they also serve a larger populations. The three district hospitals are the second line referral level and have surgical capacity. They are all located in Pemba.

Human resources: The 2008 Performance Report of the Ministry of Health and Social Welfare reported that staff performance at all levels is inefficient and ineffective due to unexplained absence, unclear job descriptions, staff competencies not properly exploited, no reward or disciplinary system in place, high turnover, lack of commitment and no culture of mentoring and managing junior staff. Although numbers might vary for Zanzibar specifically, in Tanzania, there are 0.01 physicians per 1 000 people (2006 est), 0.37 nurse-midwives per 1 000 people (2006 est), 0.82 other health workers per 1 000 people and 0.9 hospital beds per 1 000 people (WRA, 2007).



Health access: A survey on whether people seek healthcare when they feel ill and the stated reason for not doing so showed that, unlike many countries, geographical access is not a primary barrier to public sector care in Zanzibar. Ninety-five percent of the population lives within a 5km radius from a public health facility, but only at certain hours of the day as not all facilities are open all hours.

Cost-sharing: Cost-sharing or user fees have not been officially introduced but do exist at all levels of the public healthcare system. Malaria-related diagnostic testing is free of charge in most facilities, but patients are commonly charged for certain laboratory tests. These services include referrals which are potentially important for malaria treatment. These 'unofficial' charges vary between facilities and are mostly collected at the point of service (ZMCP, 2009). The MoH produced cost-sharing guidelines at the end of 2007 but these were neither circulated to hospitals nor made official.

2.2.2 Financing flows

There are four main sources of finance for the health sector in Zanzibar:

- General government funds;
- Development partners (including non-governmental organisations, civil society organisations and faith-based organisations);
- Social health insurance institutions; and
- Patients.

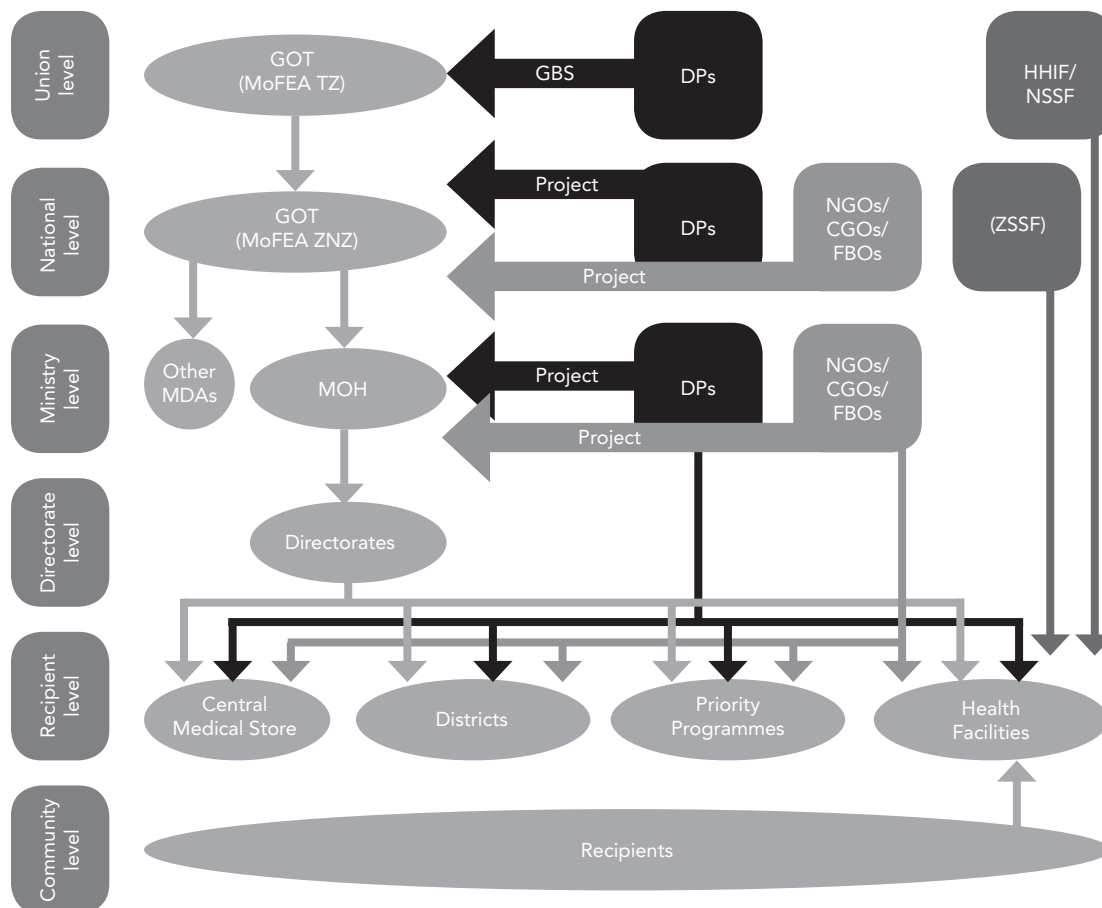
The final recipients of these funds are the Central Medical Store, the districts, the priority programmes and the health facilities (including hospitals and primary healthcare units).

Most of the funding at some point goes through the MoH. The DPs do not channel most of their support for health through the MoFEA (in FY2008/09, only UNICEF did), except for the General Budget Support funds that are transferred from the Government of Tanzania. They either channel funds through the MoH or directly to the recipient level. This is similar to the case of NGOs, CSOs, and FBOs. In addition, health facilities receive direct funding from the National Health Insurance Institutions, which include the National Health Insurance Fund (NHIF), the National Social Security Fund (NSSF) – both Union institutions – and the Zanzibar Social Security Fund (ZSSF). These are meant to refund health facilities for its members. The NHIF has accredited two hospitals in Zanzibar as service providers that may receive reimbursements, of which one is public (the Mnazi Mmoja Hospital) and the other one private. In FY2008/09 the public hospital received a total of TSh 434 175. Up to December 2009, no health facilities had received any funds from either the NSSF or the ZSSF, although the NSSF is ahead of the ZSSF in terms of preparedness for making payments (MoH, 2010).

In addition, health facilities also receive funds through the user-fees that are charged by all hospitals (MoH, 2010). The funding flow is shown in Figure 2.2.



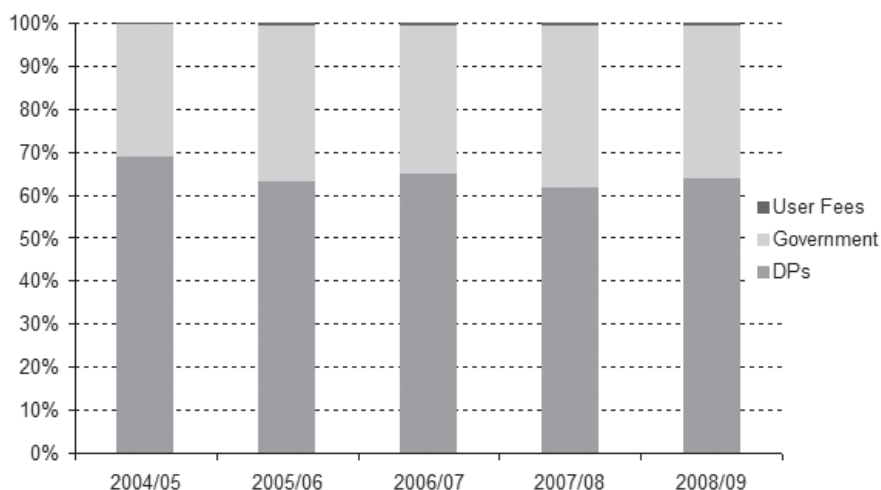
Figure 2.2: Flow of funds in the health sector



Source: MOH (2010).

In terms of the proportion of funds by source, DPs have been accounting for about two-thirds of the health sector funds for the past five years. It is therefore a heavily aid-dependent sector which is a matter of great concern to the MoH. This is discussed further in Section 2.3.5.

Figure 2.3: Proportion of funds to the health sector by source, FY2004/05 to FY2008/09



Source: MoH (2010).

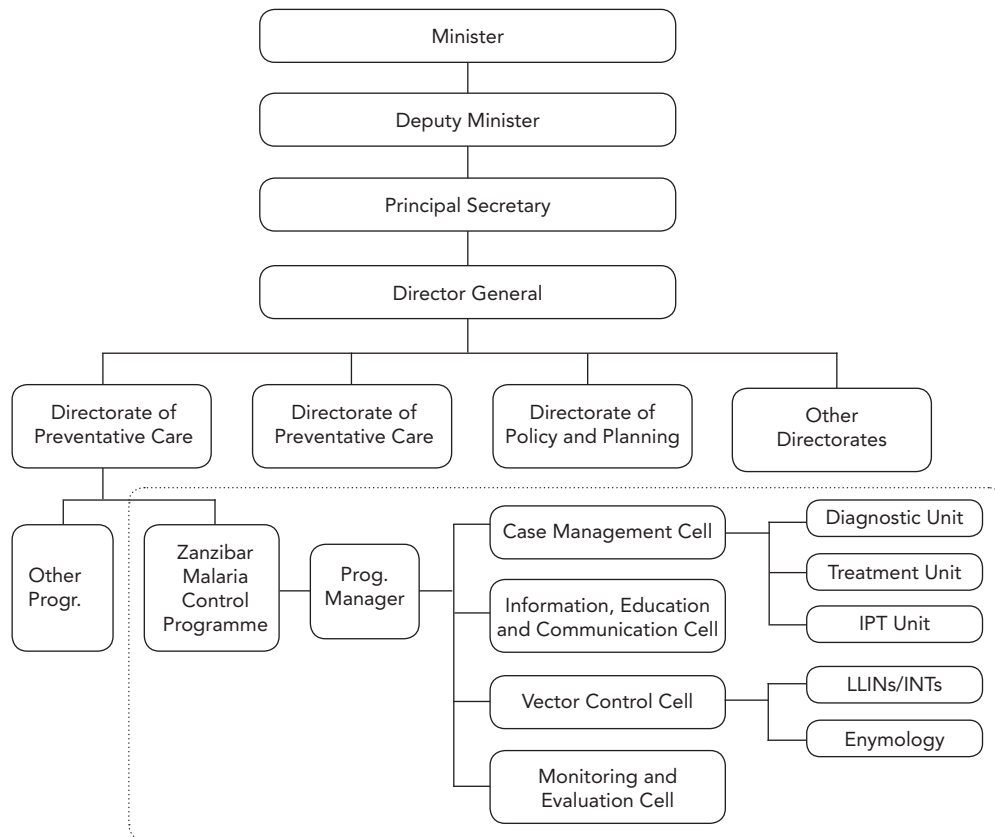


2.2.3 The malaria programme

The Zanzibar Strategy for Growth and Reduction of Poverty stated that ‘malaria is by far the most common diagnosis and remains the most important public health problem in Zanzibar ... It constitutes about 34 % of all deaths in hospitals and is still the major cause of morbidity in the Islands’ (RGZ, 2007). Since 2002, Zanzibar has enjoyed a well-funded programme thanks to the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and the President’s Malaria Initiative (PMI) funded by the US government. This has contributed to the parasite prevalence being driven down from historic levels of more than 70% to less than 1% currently.

The Zanzibar Malaria Control Programme (ZMCP) is located within the Directorate of Preventative Services in the MoH. It is divided in four departments: case management; information, education and communication; vector control; and monitoring and evaluation. Figure 2.4 shows the organisational structure of the ZMCP within the MoH. The programme is integrated within the ministry structure and operates through the existing health facilities. However, although it is not a vertical programme, in practice, the MoH intervenes very little on the programme activities. Despite perhaps deterring potential synergies that could be achieved by linking its services to other programmes, the current arrangement has achieved remarkable results so there have been no strong arguments against it.

Figure 2.4: Organisational structure of the ZMCP within the MoH



Source: ZMCP (2009) and MoH, personal communication.



The malaria programme is almost entirely funded by donors, to the extent that in FY2009/10, there were no government funds spent on the development budget of the ZMCP. Table 2.1 shows the budget of the ZMCP by source of funds. The implications of this aid dependency are discussed in Section 2.3.5 and it affects the health sector as a whole. In FY2009/10, the actual amount spent with respect to budget was less than 10%, mainly driven by the little spending from the Global Fund. This is discussed in Table 2.2 below.

Table 2.1: Budget of the ZMCP by source of funds, FY2008/09 and FY2009/10 in US\$ '000

	FY2008/09			FY2009/10		
	Budget	Actual	% of total	Budget	Actual	% of total
Global Fund	2,649.6	2,649.6	68.5%	4,592.3	140.9	33.0%
USAID	126.7	126.7	3.3%	111.2	110.7	25.9%
PMI	1,056.4	1,056.4	27.3%	149.3	134.7	31.5%
UNICEF	16.4	16.4	0.4%	-	35.6	8.3%
CHAI	16.5	16.5	0.4%	-	-	0.0%
Uni. California	-	-	0.0%	-	5.1	1.2%
Government	15.9	0.5	0.0%	-	-	0.0%
Total	3,881.4	3,866.0	100.0%	4,852.7	427.0	100.0%

Source: MoH (2010) and MoH (2011). Converted at USD 1 = TZS 1,511.

The programme included various interventions, including the use of ACT, IRS, ITN, among others. Its five specific objectives are (ZMCP, 2009):

- To prevent infections with malaria by reaching and maintain coverage of ITNs at above 80% for pregnant women and children under five years, complemented by other vector control methods;¹
- To ensure effective case management by providing prompt access for all to parasitological diagnosis and ACT;
- To prevent and control malaria in pregnancy, by increasing and maintaining coverage of intermittent preventative treatment for pregnant women to 80% by promoting the regular and correct use of long-lasting insecticide-treated bed nets;
- To provide effective epidemic preparedness and response, by ensuring that for >90% of health facilities, reports are on time, investigation of reported epidemics is initiated within 24 hours and supplies are at hand to mount a response if necessary; and
- To assess the potential for sustainable elimination of malaria from Zanzibar, using newly available data from surveillance and operational research, as well as experience from implementation.

Other key interventions include (RTI, 2009):

- Encouraging behaviour change and improving communication: The Zanzibar School Malaria Programme provided teachers, education officials, and district with information and skills that enabled them to better educate students on malaria control and prevention techniques, as well as on symptoms and treatments for the disease. Primary and selected pre-primary and secondary schools from 95% of all schools were trained. It also included a mass media malaria campaign.

¹ Vector control methods are those that limit or eradicate the insects which transmit the disease. The principal objective of vector control is the reduction of malaria morbidity and mortality by reducing the levels of transmission.



- Preventing outbreaks through surveillance: The Malaria Epidemic Early Detection System aims to detect the early stages of an epidemic, within two weeks of onset, by measuring weekly changes in frequency and incidence rates of new, laboratory-diagnosed malaria cases at 52 health facilities (40% of primary healthcare facilities). A public-private partnership facilitates data transmission from health facilities via SMS messages on cell phones and delivery of weekly updates to ZMCP and other Ministry of Health authorities.
- Capacity-building and training: Efforts to build local capacity in Zanzibar for IRS activities have been ongoing. Local staff is involved throughout the planning process for IRS rounds, from conducting logistical assessments to accurately estimating the required quantities of materials, human resources, and training costs for an IRS programme. Each round of the IRS involves new or refresher training for over 500 people. All the facilities have malaria diagnostic capacity and dispense ACTs. Almost 95% of facilities have at least one staff member trained on malaria.

Table 2.2 shows the breakdown of expenditure by category. It can be readily seen how drugs and medical supplies accounted for almost half of the budget in FY2009/10. It is worth noting, however, the differences in spending trends across the years so, for example, while 'in-service training' accounted for nearly half of the funds in FY2008/09, it was reduced to 6.4% the following year's budget and only 4.6% of amounts spent. Similarly, capital costs in FY2008/09 accounted for about 30% of total budget and over 50% in the budget of FY2009/10, but these monies were not spent. Indoor residual spraying (IRS) is the chief driver of expenditure in the malaria programme. It is usually done just before the rainy season (between January and March) as that's when it's most effective and lasts longest. However, there was power shortage for almost three months at the end of 2009 and early 2010. Power is needed to access clean water for the IRS and for the water-pumps to work. It was then decided to postpone the activity to later in the year, falling outside FY2009/10 which goes up to June 2010. This explains a large part of the difference between budget and actual expenditure in FY2009/10 and the difference between budget and actual funds from the Global Fund shown in Table 2.1, which is the entity that funds this activity.

Table 2.2: Breakdown of expenditure of the ZMCP by category, FY2008/09 and FY2009/10 in US\$ '000

	FY2008/09			FY2009/10		
	Budget	Actual	% of total	Budget	Actual	% of total
Recurrent costs						
Staff costs	392.3	392.3	10.1%	30.9	214.9	50.3%
Technical Assistance	34.2	34.2	0.9%	3.8	-	0.0%
In-service training	1,656.1	1,656.1	42.8%	313.0	19.6	4.6%
Drugs and medical supplies	281.4	281.4	7.3%	2,006.7	11.6	2.7%
Transport and fuel	241.1	241.1	6.2%	25.0	43.5	10.2%
Other running costs	102.2	86.8	2.2%	60.8	137.4	32.2%
Sub-total running costs	2,707.2	2,691.8	69.6%	2,440.2	427.0	100.0%
Capital costs						
Purchase of equipment	614.1	614.1	15.9%	740.8	-	0.0%
Physical Infrastructure	560.2	560.2	14.5%	1,673.7	-	0.0%
Sub-total Capital costs	1,174.2	1,174.2	30.4%	2,414.5	-	0.0%
TOTAL COSTS	3,881.4	3,866.0	100.0%	4,854.7	427.0	100.0%

Source: MoH (2010), unpublished PER data and MoH (2011), forthcoming. Converted at USD 1 = TZS 1,511.



2.3 Key Issues and dynamics around the malaria strategy

During the case study, it became apparent that there were a number of issues around the malaria strategy which were of concern to policy-makers. Beyond whether elimination should be pursued or not, the government expressed concerns over the high aid dependency of the health sector, and related issues such as coordination challenges, allocative efficiency and how to ensure donor funded programmes strengthened the health system as a whole.

2.3.1 Continued control versus elimination in Zanzibar

Although this particular case study reviews the experience in Zanzibar to make a decision between continued control versus elimination, it is important to emphasise that this decision is only faced by a limited number of countries and a prior and more important challenge for most countries will be to secure sustained funding for continued control, as funds could run out once low endemic levels have been achieved. It was difficult to see strong ownership of the decision around malaria from the government in Zanzibar also because it mainly depends on donor funding. Elimination is therefore not the central issue, but it has been placed on the agenda in some countries. The feasibility of achieving elimination should be well assessed to make an informed decision.

Most of the activities of a malaria programme should be well established before launching an elimination effort as the activities needed to achieve elimination are similar to those needed for sustained control. It is important to be specific on what 'sustained control' and 'elimination' comprise. The first one is considered to be the status quo, with no interventions being scaled back. The latter can be divided into two-stages: elimination and prevention of reintroduction (i.e., maintaining the malaria-free status). The three key dimensions to assess the feasibility of elimination are technical, operational and financial feasibility. The results of the feasibility assessment in Zanzibar and the required interventions that elimination would require are summarised below (ZMCP, 2009).

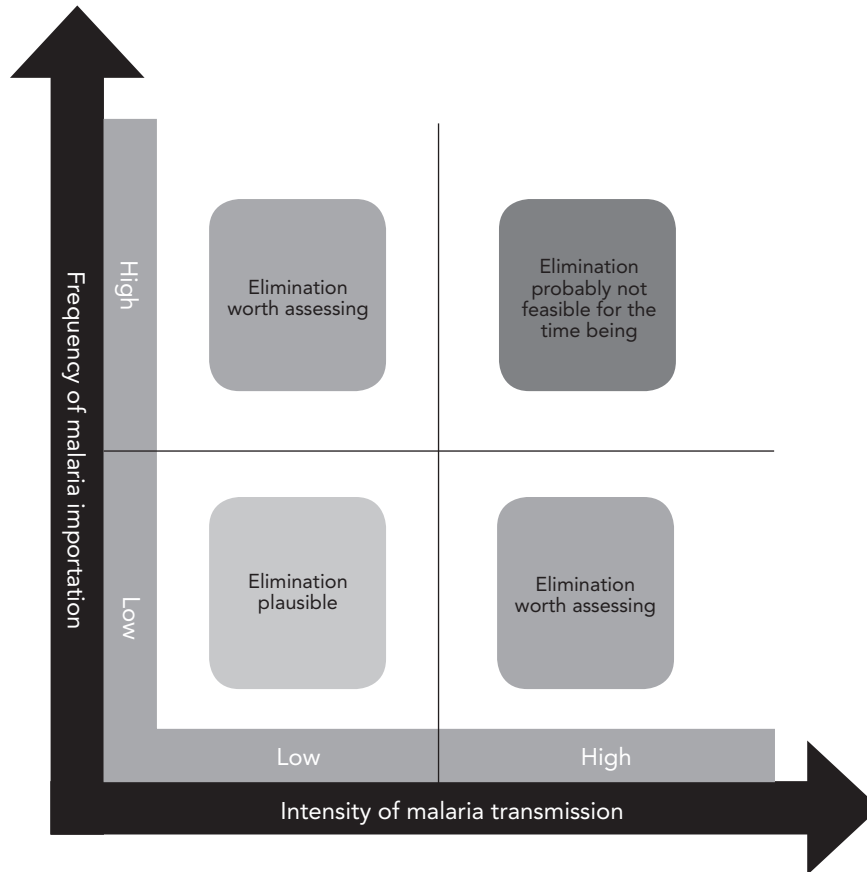
Technical feasibility

The two main factors that determine the technical feasibility of elimination are the frequency of malaria importation and the intensity of malaria transmission (see Figure 2.5). It was found that:

- Local malaria transmission in Zanzibar can be reduced to zero maintaining current interventions;
- To achieve and maintain malaria-free status, the passive case detection system would need to be capable of detecting at least 75% of the population and every new case will need to be immediately investigated; and
- Importation risk will need to be substantially diminished either by reduction in mainland Tanzania or through screening of travellers (more investigation is needed in this area).



Figure 2.5: Factors that determine technical feasibility of elimination



Source: Reproduced from ZMCP (2009).

Operational feasibility

Perhaps one of the greatest challenges of running a sustained control programme or sustained elimination is the capability of the country's surveillance system. While distributing bed-nets or indoor spraying is relatively straightforward, maintaining disease control surveillance system is much more challenging and is seen as one of the pillars for a successful programme. The surveillance system depends on the capacity of the health system as well as the propensity of people to use the health system.

In the case of Zanzibar, these factors were assessed and it was found that achieving and sustaining elimination would require:

- Increasing the proportion of people that receive prompt and effective fever treatment (improving health-seeking behaviour, universal financial access and adequate human resources and supplies);
- Improving the facility-based surveillance system and a complementary one to proactively detect additional cases not presented at the health facilities;
- Increasing the capacity and skill mix of ZMCP;
- Forming an inter-ministerial committee to ensure continued leadership and financing of the programme; and
- Applying measures that restrict individual liberties, but only once all other measures have been exhausted.



Financing feasibility

Defining the costs and benefits of sustained control or elimination can be very complex. Most of the work that has been done is around costing the different interventions required for each stage of the process. However, calculating the benefits presents greater challenges. Ideally, you would not only want to calculate the financial benefits of implementing a programme (in terms of future costs savings), but also the 'socio-economic benefits'. This happens at two levels: at the household level – increased school enrolment, lower health costs, etc.; and at the macroeconomic level – increased tourism, economic activity, productivity, etc.

Beyond the direct impact on micro and macro socio-economic indicators, there are also a number of indirect effects from malaria that affect the country's development. For example, in a malaria intense region, people could grow suboptimal crops if the optimal ones harvest during a malaria intense season, as there would be a high chance of losing it by getting ill. Also, firms avoid training or hiring specialised workers as the chances of losing them due to malaria are high. Getting malaria during childhood can leave lasting cognitive effects.

The complexity of modelling these largely explains why cost effectiveness analysis done on malaria elimination has focused on the financial side. The findings show that malaria elimination cannot be defended primarily on financial grounds, but that elimination might still be a worthy investment if total benefits were able to be calculated and show that they are higher than the marginal cost from moving from sustained control to elimination.

In Zanzibar, it was opted to calculate purely the financial costs of the alternatives to estimate the benefits of choosing one or the other. The assessment concluded that (ZMCP, 2009):

- 'Elimination will not be cost-saving in the medium-term (25 years) under any scenarios';
- 'Increased spending on surveillance and diagnosis is the primary driver of the higher cost of elimination, comprising between 35–65% of annual average costs compared to just 15% of sustained control costs';
- 'The period of achieving elimination will be 60–89% more expensive than sustained control';
- After elimination 'the cost of preventing reintroduction will be 5% higher (for the most feasible and likely scenario)' compared to sustained control';
- 'The average annual per capita cost of elimination over the 25-year period will be US\$ 2.97 under the most likely elimination scenario'. This compares to an estimated US\$ 1.88 annual per capita cost for sustained control; and
- Regardless of whether Zanzibar decides to push for elimination or remain focused on sustained control, '[s]ignificant changes in the approach to malaria funding are required to enable long-term financial commitments not tied to the burden of the disease' (see Section 2.3.6) (ZMCP 2009).

2.3.2 Strengthening the health system

Some of the interventions of the malaria programme are independent on the capability of the health system: distributing bed-nets, spraying houses, etc. However, others require strengthening the health system: surveillance, diagnosis capabilities, etc. How does the malaria programme strengthen or undermine the health system? Sustainability will depend on it.

In Zanzibar, it was agreed that the main operations of the malaria programme such as the surveillance system had to be run vertically during and even after the period of aggressive control. The alternative, having an integrated system for disease control, which included



malaria, is currently not being developed as similar to most of the malaria programme activities, it has worked well under the current arrangement and there is no guarantee that an integrated system would work.

It can be argued that this in turn, does not contribute to the strengthening of the health system. As the capacity of the health system conditions the chances of sustaining low endemic levels, a lot of efforts are also being put into building the capacity of the sector as a whole. The human capacity for health planning is also reported to be low which reflects on the coherence of programmes and strategies. The MoH is taking steps to address this, for example, by placing a planning officer in every directorate.

Another concern raised by the MoH is that staff at the health facilities is constantly attending trainings or kept busy with programme activities, leaving their placements empty. This operational challenge is discussed Section 2.3.3 below.

2.2.3 Coordination challenges

The programmes implement their activities at the district level through the health facilities and also directly with the communities. The district health management team (DHMT) is responsible for coordinating the activities that take place in the district. However, they have great difficulties to plan in advance for programme activities. Although all the programmes prepare an action plan specifying the activities they will implement in each programme, these are not fully integrated with the comprehensive district health plan developed by the DHMT. The latter, is a recent development (as of January 2011) as before there was no tool integrating the activities from the programmes into the district plans. Despite the efforts to increase coordination, the timing of the planning at the district level and at the programme level differs and information is often not provided at the time that is needed.

Health facilities are sometimes challenged to meet all the requirements by the programmes as there is a frequent overload of activities in individual health facilities. This happens, for example, if two different programmes are running training courses simultaneously and invite health staff to attend. The DHMT and health facilities solve these issues on an ad hoc basis by juggling with their staff's time. Perhaps with time, coordination can be strengthened so activities from the different programmes can be phased along the year in a way that it does not disrupt the day-to-day duties.

The MoH has recently established an External Aid Coordination Unit which is expected to help on some of the operational challenges. For example, if donor programmes went always through the ministry first, some of the overlaps, duplication of activities or timing incompatibilities could be avoided.

The programmes prepare their own budgets and strategic plans which are included in the MTEF and action plan of the ministry. However, some of the programmes that are so heavily funded by donors often by-pass some of the budget and planning procedures. For example, while the MoH is responsible for submitting a 'Project Profile Form' for each one of its programmes, it was found that this had not been completed for the ZMCP as there were no government counterpart funds required through the development budget.

Similarly, the ZMCP did not appear in the Budget and Economic Performance Review for 2009/10, which compares the actual expenditure of all the development projects against its budget. This shows that despite being located under the MoH, the programme is not integrated in all the steps of the planning and budgeting cycle. The implications of this on the allocative efficiency of the budget are discussed in 2.3.4 below.

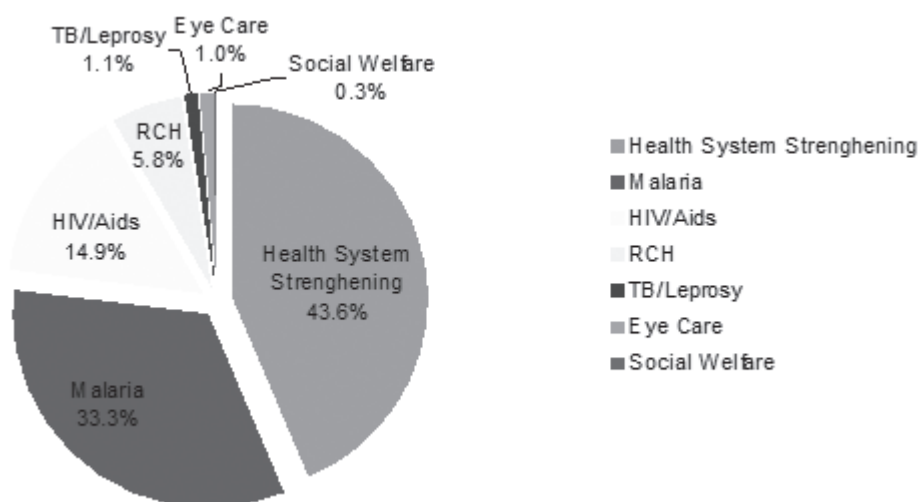


2.3.4 Allocative efficiency

Running a programme outside the budget and planning cycle can undermine the allocative efficiency of the budget and fragment the financing and operations of health expenditure. However, accepting non-fungible money is often seen as a necessary condition to attract large amounts of donor funds or when a particular intervention wants to be given priority. Currently, the MoH has little discretion over the allocation of the funds received for the health sector as these are usually discussed with the programmes directly. For example, while preparing the budget, the MoH feels that instead of playing a coordination role, it sometimes only limits itself to 'compiling' the programmes budgets, rather than guiding them or planning them from above.

Figure 2.6 shows development partners' (DPs) spending by health area in FY2008/09. This shows the relative funds going to the programmes and compares them to the priorities of government. Health system strengthening benefits all areas of health and so occupies the first place. However, looking at the more specific health areas, malaria received 59% of the remaining funds, HIV/AIDS received 26%, and Reproductive Child Care only 10%, despite being the top priority of government. This is, despite the low prevalence rates in malaria (less than 1%) and in HIV/AIDS (3.5% in woman and 2.7% in men in 2009). As the MoH (2010) notes, one questions whether the fund allocation would be the same if all funds were fully fungible, i.e., if the MoH could decide on the relative spending in each area (notwithstanding the importance of malaria and HIV/AIDS and the still insufficiency in all areas in absolute terms).

Figure 2.6: Development partner spending by health area, FY2008/09



Source: MoH (2010).

This has consequences on the cost-effectiveness of the health expenditure as in practice, programmes do not compete for funds. In an integrated system, ideally, one should be able to demonstrate whether spending money on malaria programmes is more cost-effective than spending it in other interventions, for example, on maternal and child health. Other countries have attempted to overcome this challenge by establishing a sector-wide approach (SWAp) which provides for a common results framework that both donors and governments agree on which then guide the budget allocations. A SWAp is not on the Zanzibar health sector agenda but there are some initiatives by the MoH to harmonise procedures and reporting mechanisms to improve the sector coordination.

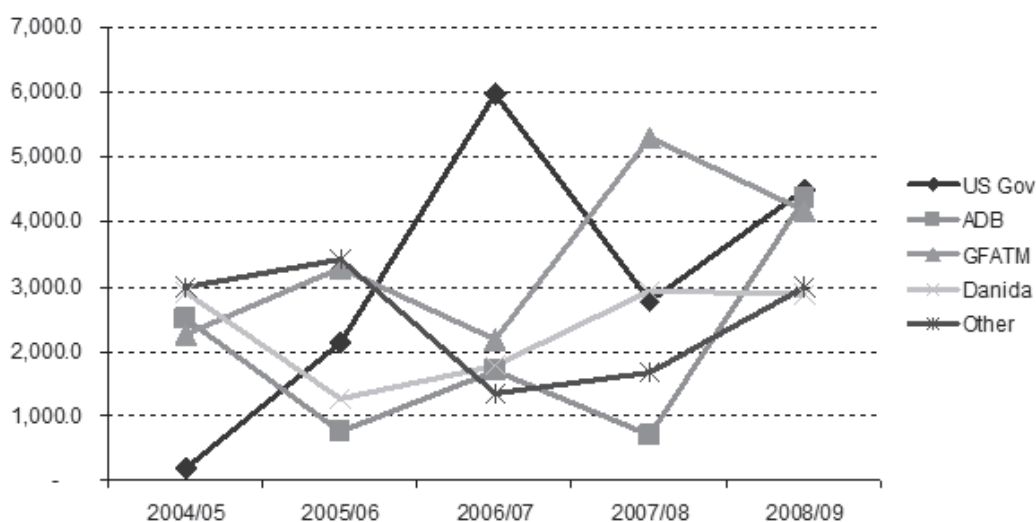


Inter-ministerial budget allocations are also affected by the heavy funding received by certain sectors. The government tends to focus on other areas that donors do not favour. Similarly, the sectors that have large amounts of donor funds (like health) tend to pay less attention to allocations from the government.

2.3.5 Aid dependency

As highlighted throughout, the health sector in Zanzibar is highly dependent on donor aid. In FY2008/09, DPs accounted for about two-thirds of funds to the health sector (see Section 2.2). The four largest DPs are the US government (USG), the African Development Bank (ADB), the Global Fund (GF) and Danida. Among them, they account for 83% of the total DPs funding in the health sector. On the one hand, having a smaller number of big DPs in the sector imposes a huge risk if one of them decided to pull out. On the other hand, this helps reduce transaction costs (MoHSW, 2010). Either way, the aid dependency of the sector is very high and it's an area of great concern to the government policy-makers. Figure 2.7 shows the health sector foreign funding trends from FY2004/05 to FY2008/09 from the main DPs in the sector. Although funding has been very high over the past few years, it has also been significantly volatile and the predictability of funds is weak. While some donors provide information on their medium-term commitments, others project funding on an annual basis which of course limits the ability of the MoH to integrate their programmes in the medium-term plan.

Figure 2.7: Health sector foreign funding by DP, FY2004/05 to FY2008/09



Source: MoHSW (2010). In TSH.

In the case of the malaria programme, the government funds currently only cover the salaries. The whole of the development budget of the ZMCP is funded by donors. As malaria becomes less of a public health burden in Zanzibar, donors are likely to switch to other funding priorities and funding for the programme is likely to fall significantly (see also Snow et al., 2010).

Donors are constrained by their local political environment and the opinion of the general public: it is easier for them to defend malaria programmes in high burden countries as the result (reduced morbidity and mortality) is more visible. So, when faced with the choice of putting money into countries with high malaria prevalence rates (e.g. Nigeria) or put them in countries that have less than 1% prevalence rates (e.g. Zanzibar), they can more easily defend politically the case for Nigeria. The argument for countries that need sustainable financing to



maintain their controlled low endemic status is that the result of the money in both countries is the same: avoiding death caused by malaria. On one case (high burden countries), you are reducing existing cases and on the other one (controlled low endemic countries), you are avoiding potential cases. It is of course easier politically to defend saving lives of existing malaria threats than avoiding deaths due to threats that have been contained. By prioritising those countries with a high burden, donors could be penalising those countries that have successfully achieved a low endemic level. This would mean, in part, seeing the funds used to achieve low endemic levels as a sunk cost. However, in a resource constraint environment, choices necessarily need to be made.

The argument for 'preventive' treatment, as it would be the case for those countries arguing for additional funds to maintain their 'sustained control' status is not new in the health sector. For example, vaccination for measles is not questioned and funds are provided so that children can be immunised. However, in the case of malaria, there is no historical record of countries having had sustained preventative treatment for malaria. In the 50s and 60s, the global programme for eradication failed (despite some successes) and the overall objective shifted to control. In addition to this challenge, the measures to maintain sustained control are not as straightforward as vaccination, as they include a more complex set of interventions including a strong surveillance system and response mechanisms when malaria cases are detected (see also ZMCP, 2009 and Feachem et al., 2009a).

2.3.6 Financing alternatives

Government could of course, decide to fund a malaria programme themselves beyond an 'aggressive control' stage. However, history shows that this did not happen after low levels of prevalence were achieved in the past and government could not justify spending large amounts of money in maintaining the low endemic levels, similar to the challenge donors can face in their own countries.

Donor support in Zanzibar has fluctuated over the years, and it is particularly important to remark that after the 1995 failed elections, external donors began to suspend aid disbursements due to the continuing political conflicts and did not resume aid until 2003. There is therefore a recent reference of aid stopping. But the cost per capita of development investment in Zanzibar is relatively high due to the small population. The high poverty levels (49% below the poverty line), low tax base, and limited revenue potential limit the capacity to raise funds locally. Proposing a strategy for sustained financing and convincing donors to collaborate, independently of wider development issues, is probably the greatest challenge for those countries with low endemic malaria.

One option is to consider earmarking funds for the malaria programme. Earmarking is the practice of assigning revenue from specific taxes or general revenue, to specific government activities or areas. However, for the comprehensiveness of the budget, all resources should be directed to a common pool or fund, to be allocated and used for expenditures according to the current priorities of government. In general, earmarking of resources for specific purposes is thus to be discouraged but are often used with this type of programme. Box 1.1 raises key questions concerning earmarked funds. If Zanzibar chose to earmark funds for the malaria programme, this would probably need to remain in place for a very long period of time, even once elimination is achieved as the costs to avoid resurgence would remain high.



Box 1.1 Key questions concerning earmarked funds

What is the purpose of the earmarked fund? What is the rationale for keeping such a fund off-budget?

Financing issues

What is the source of funding? Does the source of funding make sense; does it help to relate marginal benefits to marginal costs, for example, user fees? How are user fees determined; are there limits to prevent abuse of monopoly power (especially if demand is inelastic)? Are there general benefits (positive or negative externalities, public goods arguments) in addition to user benefits that justify support from general budget revenues? If there is a split, how is the share of financing determined? Is the source of financing an important government revenue, and can the government afford to lose the associated degree of flexibility in prioritising expenditures? Do earmarked revenues detract from the government's capacity to collect traditional revenues?

Expenditure decisions

How are expenditure decisions made by the earmarked fund? What use is made of cost effectiveness or cost-benefit analysis? Does the management of the earmarked fund promote efficiency, for example through quasi-market mechanisms or through mission statements, objectives, performance measures? How are consumer interests represented and taken into account in expenditure decisions? If governed by a board, is membership of the board biased toward certain needs, for example, regional needs?

Management issues

Does the management of the earmarked fund meet good governance requirements? Is it free of political interference or unduly influenced by suppliers or trade unions? Is it possible for funds to be diverted to other uses? Can these accounts be 'raided' for other uses? Is the earmarked fund independently audited?

How are the cash resources of the earmarked fund handled? Does the government have access to these funds for overnight borrowing to minimise government borrowing needs? Does the treasury or ministry of finance have the legal right to reduce funds available for expenditure in earmarked funds if the budget is under severe pressure?

Source: Adapted from Potter, B. et al. (1999) on the use of extra-budgetary funds.

Some ways to earmark funds that were proposed (but have not been developed) in the feasibility assessment for malaria elimination in Zanzibar are (ZMCP, 2009):

- **Tourism tax:** A tourism tax can be applied through an airline ticket tax, which would provide a steady and predictable form of revenue and it is progressive (impacting higher-income people most). This is attractive for Zanzibar as the current taxation is quite low and it is anticipated that tourists would be willing to pay more because: (1) Zanzibar is a highly attractive tourist destination; (2) this is a very small sum relative to the cost of travelling to Zanzibar; and (3) maintaining malaria-free status is in the economic self-interest of travellers.
- **Endowment fund:** In an endowment (trust) fund, there is typically some core level of endowment, established with funds from donors and government that is not used for funding, but is invested to generate interest income used to fund recurring costs. However, it is important to note that there may be years when the endowment makes



little or no money from its investments so other types of financing for malaria programmes need to be ensured in case investment income is down.

- **Emergency debit fund:** An emergency debit fund would be similar to a bank account that can be drawn on by the Zanzibar government to prevent or control outbreaks. The fund would be donor-managed and the government would be permitted to draw on this account under certain conditions. The risk of this type of financing mechanisms is that it could lead donors to place less priority on funding preventive activities, since there is financial security in case of an emergency.
- **Regional funding pool:** Many tourists and migrant workers travel between Zanzibar and other countries, so the vulnerable population crosses borders. These people might be willing to contribute to a fund to control/eliminate malaria. Zanzibar also benefits from its partners eliminating malaria as well, so it is therefore sensible to create a regional partnership.

2.4 Contrasting examples from the rest of Africa: Control and elimination

One of the countries that has made a lot of progress in fighting malaria in recent years is Zambia, through the massive, rapid scale-up of proven malaria control interventions. The key activities have been (ZNMCC, 2009):

- Improving and expanding integrated vector control interventions;
- Preventing malaria during pregnancy through intermittent preventive treatment;
- Providing prompt and effective case management, including the diagnosis and treatment of malaria within 24 hours of the onset of symptoms; and
- Strengthening the country's capacity for scale-up through increased financial support and improved planning.

The programme in Zambia has benefited from strong leadership and commitment by all stakeholders and guided by the principles of the *three ones*: working from one national plan, one coordination mechanism, and one monitoring and evaluation system.

A comparison of past and present malaria eliminating countries raises two important questions (Feachem et al., 2010a):

- When they were in the process of eliminating malaria, were the countries that have achieved elimination wealthier than the countries that are currently trying to eliminate?; and
- At the time, did they have stronger healthcare systems than malaria-eliminating countries do at present?

Feachem et al. (2010a) found that: of the 50 countries that successfully eliminated malaria, only four (8%) had a GDP of less than US\$ 2 500 per head at the time that they were declared malaria free; and of the 50 countries that successfully eliminated malaria, 20% had less than 0.5 physicians per 1 000 people at the time they eliminated, which is the minimum number of physicians per head needed for low-level health services.

Kahn et al. (2009) estimate the costs of eliminating malaria in three places: Hainan Island (China), Jiangsu Province (China) and Swaziland. These are shown in Table 2.3. In the case of Swaziland, for example, it is estimated that eliminating malaria would cost 343% more than sustaining a high level of control during the transition phase (five years), and after that the annual costs would still be 79% higher than in sustained control. However, in the cases of Hainan Island and Jiangsu Province, calculations showed cost savings once elimination was achieved, being 17% and 33% lower respectively than the cost of sustained control. The



feasibility assessment estimated that the average cost of sustained control in Zanzibar is US\$ 2.9 million per year. The assessment estimates that, in the most likely scenario, the additional investment needed to move towards elimination in the initial five years represent almost a 85% increase in average annual expenditure compared with sustained control, with costs remaining 45–50% more expensive over the course of the remainder of the effort to reach elimination, i.e., for the next 15 years. Even during the elimination period, costs would remain 5% higher than in the current sustained control period (ZMCP, 2009).

Table 1.3: Estimated costs of eliminating malaria in three locales

Cost parameter	Hainan Island, China	Jiangsu Province, China	Swaziland
C: Cost of sustaining high level of control (US\$ million per year)	2.9	9.1	0.7
T: Transition cost of getting to zero (US\$ million per year for 5 years, averaged)	5.8	13.9	2.4
E: Annual cost of sustaining elimination (US\$ million per year)	2.4	6.13	1.25
Elimination cost ratio, i.e., cost of elimination phase as a fraction of sustaining control = T/C %	200%	153%	343%
Annual cost savings as a fraction of cost of sustained control = (C-E)/C %	17%	33%	-79%*

Source: Reproduced from Kath et al. (2009). *i.e., increasing by 79%.

The experience so far provides a good source of evidence to guide the way forward. Prior to considering eliminating malaria in a particular country, a feasibility assessment of the different dimensions is seen as a key step to inform a decision.

As indicated above, prior to launching an elimination effort, most of the activities of a sustained control programme should be well established as the activities needed to achieve elimination are similar to those needed for sustained control.



3. The task

You have just been appointed jointly by the Minister of Health and Minister of Finance in your country to do a preliminary analysis of the limitations of the current malaria programme in your country and provide recommendations on the way forward. You are also requested to take into account the experience in Zanzibar around prioritising malaria control and the issue of sustained control versus elimination. With regard to example of Zanzibar, the key questions you are asked to address are:

- **Relevance:** Is elimination or sustained control of malaria possible in your countries? Can this be done without massive donor support?
- **Tools for choosing between alternatives:** What assessments are required to make these decisions?
- **Context as driver of cost and benefits:** For different countries and regions, the ratios of cost of elimination versus cost of sustained control differ significantly. What could lie behind these differences?
- **Health system strengthening versus disease focus.** Once malaria has been eliminated, continued elimination will depend to a large extent on the surveillance and case detection system so that if new malaria cases are identified, they are adequately reported and followed up. The detection levels are influenced by the fraction of infections that become symptomatic, people's health-seeking behaviour for fever, testing rates at the health facilities and the sensitivity of test used. Detection therefore depends heavily on the strength of the general health system. What are the implications of this for the relative priority we give to specific programmes (such as malaria control or elimination) and general system strengthening? Are there strategies to reconcile potential conflicts? When would vertical programmes be justified?
- **Coordination challenges:** Is there evidence of coordination challenges in the context of high donor dependency in the Zanzibar case study? How can such challenges be addressed and are there good examples?
- **Financing alternatives:** Are there arguments for trying to secure the prioritisation of malaria control or elimination over time through dedicated, earmarked funding options? Can you give examples where such a mechanism has been applied with success?
- Except for increasing local revenue, are there any other mechanisms to deal with high donor dependency in priority programmes.



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