IOM Briefing Note 4: Population Mobility and Malaria in Southern Africa

This briefing note provides an overview of **the relationship between population mobility and Malaria in the Southern African Development Community (SADC)**. Population mobility within the SADC region is growing, both inter and intra-regionally. The region is affected by a high prevalence of communicable diseases, in particular the human immunodeficiency virus (HIV), tuberculosis (TB) and malaria. **Population mobility is increasingly recognised as a central determinant of health,** affecting health outcomes in various ways.[1-6]

Population mobility impacts on the health vulnerability not just of the individual that moves but also on the communities that are left behind, lived in, passed through and returned to. An individual's health profile stems not just from his or her behaviour but also from a range of social, economic and structural factors specific to the unique conditions of a location, hence a "**spaces of vulnerability**" approach is promoted when addressing migration and health.

While underscoring the benefits of migration, it has also been linked to changes in health seeking behaviour of the migrant. Migration as a process tends to delay or prevent health seeking behaviour, and – as a result - can be associated with the transmission of undiagnosed and untreated communicable diseases. Therefore, effective disease control programmes must actively engage with the reality of diverse population movements and its impact on programming.

The Southern Africa region is urged to adopt a multi-sectoral and multi-level approach whereby stakeholders become active participants in design, implementation, and monitoring **communicable disease control programmes that address the health needs of migrants and communities affected by the migration process.**

Box 1: Spaces of Vulnerability

The spaces of vulnerability approach is based on the understanding that health vulnerability stems not only from individual but also a range of societal and economic factors specific to the unique conditions of a location, including the relationship dynamics among migrants and sedentary populations. These factors must be taken into consideration when addressing migration health concerns and interventions must consider and target both migrants and the communities with which they interact, including families in communities of origin. Spaces of vulnerability are those areas where migrants live, work, pass-through or from which they originate or return to. They may include: land and water border posts, and ports, truck stops or hot spots along transport corridors, construction sites, commercial farms, fishing communities, mines, informal settlements, migrant communities of origin, detention centres, and emergency settlements. [7]

Malaria in Southern Africa

Malaria is endemic in most Southern African Development Community (SADC) member states, with only Lesotho and Mauritius being malaria free. The rest of the countries are labouring to control malaria through their national malaria control programmes while four countries (Botswana, Namibia, South Africa and Swaziland) are in the Malaria "pre-elimination" phase. To achieve elimination, a country must have zero locally acquired malaria cases for at least three consecutive years after which it can request the World Health Organisation to certify its malaria-free status. The SADC Malaria Elimination 8 Initiative (E8) promotes coordination and collaboration between the pre – elimination countries of Botswana, Namibia, South Africa and Swaziland and their neighbours to the north with a relatively higher transmission of malaria and thus still at control phase – Angola, Mozambique, Zambia and Zimbabwe.

The E8 has recognised that in order to achieve elimination in Botswana, Namibia, South Africa and Lesotho, simultaneous regional effort is required and that malaria transmission dynamics among these eight countries are highly connected, being linked through population movement and malaria ecologies.

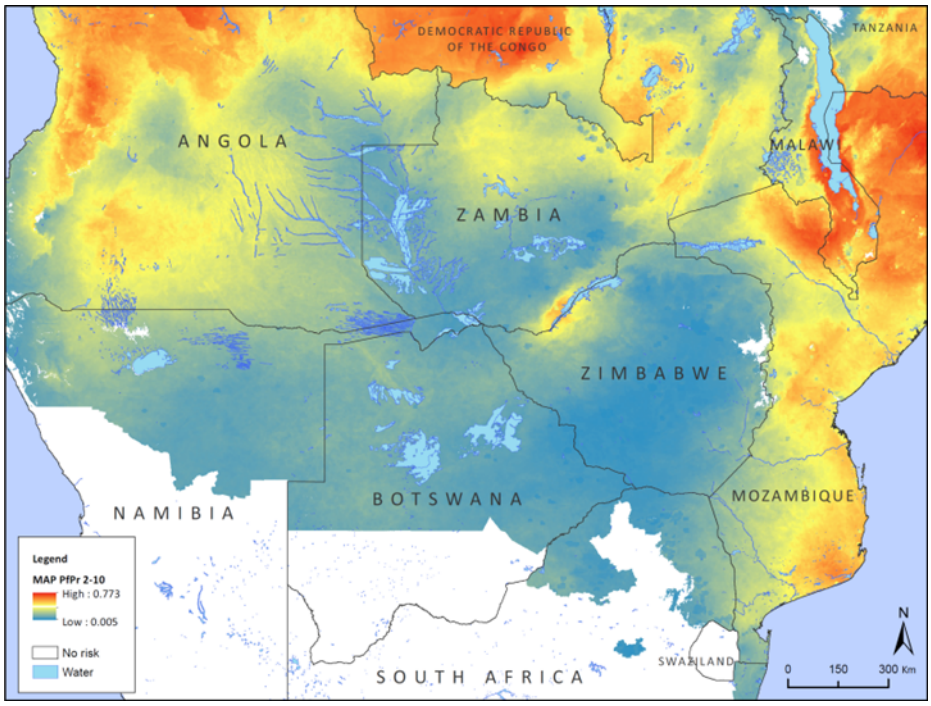

Figure 1: Map of Plasmodium falciparum prevalence (among 2 – 10 year olds) among the countries of the E8
Source: Malaria Atlas Project. (2013). Incidence Among the countries of the E8. Oxford, UK

Biology of Malaria

The natural ecology of malaria involves malaria parasites infecting successively two types of hosts: humans and female Anopheles mosquitoes. In humans, the parasite grow and multiply first in the liver cells and then in the red cells of the blood; and it is in the latter stage that a human can experience symptoms of malaria. When the Anopheles mosquito takes a blood meal on another human, the sporozoites are injected with the mosquito's saliva and start another human infection when they parasitize the liver cells. Thus the mosquito carries the disease from one human to another (acting as a "vector"). Contrary to the human host, the mosquito vector does not suffer from the presence of the parasites.

The association between population mobility and malaria are summarised below:

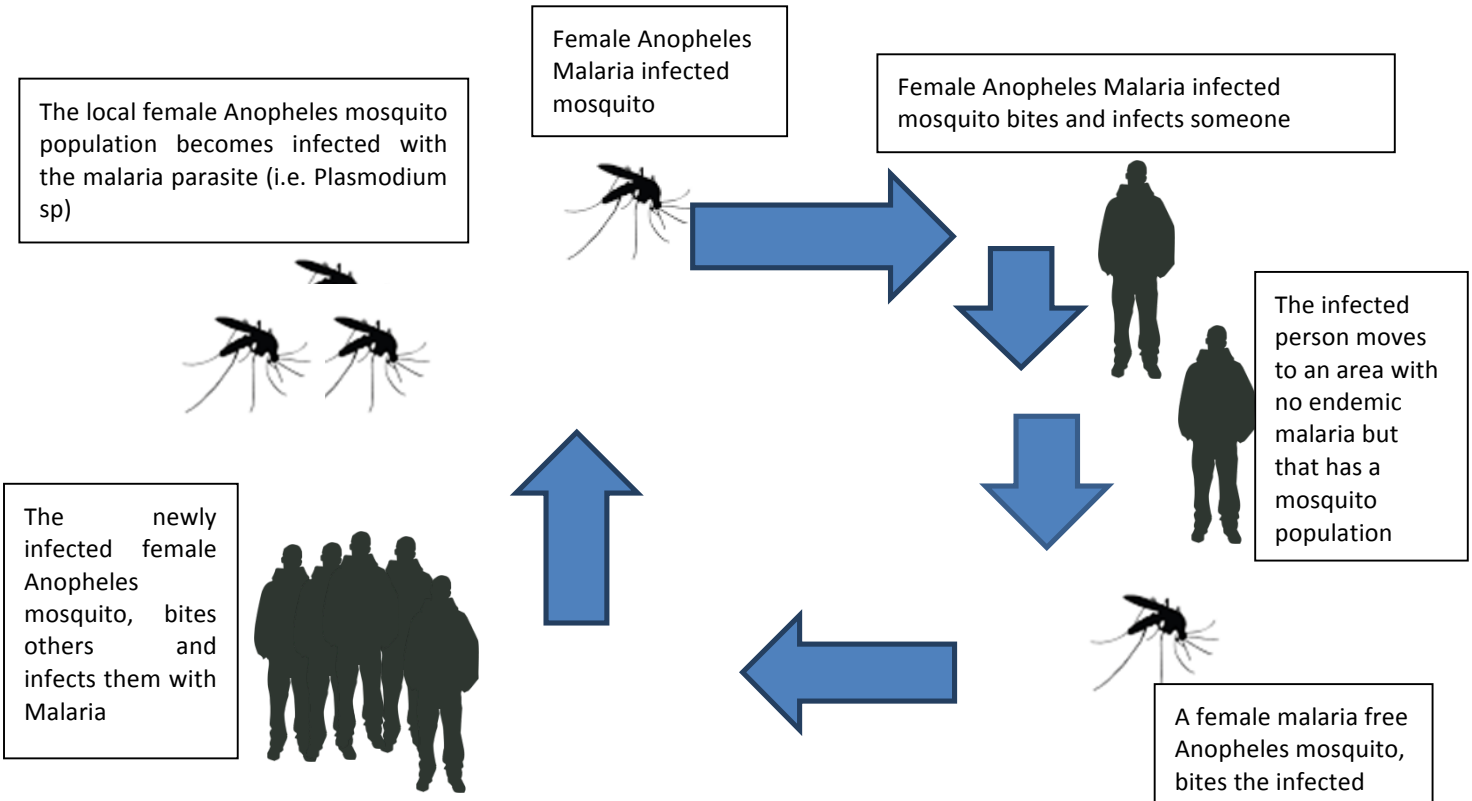

Figure 2: Malaria Importation and Re-Introduction

- **Population mobility from high to low or non-malaria endemic countries can result in imported malaria cases**, whereby a person who was infected elsewhere travels to a low or non-endemic area and is diagnosed with malaria in the host location. This has implications for malarial control programmes.[8, 9]
- **Malaria can be re-introduced into low or non-malaria endemic countries through population mobility**. This happens when local mosquitoes in low or non-endemic areas become infected by ingesting blood from a person with malaria, (i.e. someone carrying the malaria parasite acquired in endemic areas) and then transmitting malaria to local residents, thereby "re-introducing" malaria to the mosquito and human population.
- **Migrants and mobile populations travelling from low to high transmission areas are also likely to be more vulnerable to malaria** as they may not have naturally acquired immunity[1] (NAI) to the disease and migrants returning to endemic areas may have lost their NAI.[11, 12][10]. They may also develop more severe forms of malaria [31].
- Global migration across continents has serious implications for the spread of malaria such as the **possible spread of artemisinin resistant plasmodium falciparum strains from Asia to Africa**.
- **Mobility may also contribute to poor treatment adherence, which in turn may expedite antimalarial drug resistance**.[11]
- **Migrants and mobile populations are often excluded or not considered in malaria control interventions.**

[1] Naturally Acquired Immunity (NAI) is the result of constant exposure to the parasite. Adults in endemic areas often have NAI but this is often compromised in pregnant women, infant and young children.

- **Migrants and mobile populations are often difficult to reach and may have limited access to malaria control interventions.**

Key Messages

- **Current national and regional attempts at controlling – and ultimately eliminating- malaria in the SADC region need to consider the nature and impact of population mobility if they are to succeed**.[13]
- **Interventions need to consider how spaces of vulnerability can be addressed for successful control and eradication of malaria.** In most instances access to malaria prevention, rapid diagnosis and treatment programmes are limited in these spaces where migrants and mobile populations are found.
- **Movement has been shown to affect diagnosis of disease, access to care and continuity of care which may contribute the spread of antimalarial drug resistance.**[12] There is a need to ensure that resistance is properly monitored.
- Regional collaborative initiatives such as the **Elimination 8 (E8)**[2] are central to the elimination of malaria in the southern African region.[14-16,14] Cross-border initiatives between countries linked by significant human population movement from high to low transmission areas are more likely to succeed in both achieving and maintaining elimination than single country strategies…"[9: 13]
- To sustain elimination efforts in neighbouring countries **national Malaria Control Programmes need to be sensitive to the regional context** and programme around border areas and spaces of vulnerability. These spaces may not necessarily have the highest malaria burden but have a direct impact on elimination efforts of the region.
- **Targeting interventions** for maximum impact to ensure services reach particular groups, such as mobile populations that cross between high and low transmission areas

IOM's Approach to Addressing Population Mobility and Malaria

The 61st World Health Assembly Resolution on the Health of Migrants (WHA 61.17), adopted in May 2008, calls upon governments to "promote migrant-sensitive health policies" and "to promote equitable access to health promotion and care for migrants". Guided by this resolution, IOM, WHO and the Government of Spain organised a Global Consultation on the Health of Migrants – The Way Forward in March 2010. The consultation developed a four pronged operational framework through which health issues could be viewed with migrants - including displaced and conflict populations - in mind.

Addressing Population Mobility and Malaria	
Monitoring migrant health	***Policy and legal framework***
In order to ensure evidence based programming and policy development, IOM strengthens existing knowledge on the health of migrants via research and	**In order to create an enabling policy and legislative environment that facilitates the realisation of migrants' right to health, IOM works closely with government**

[2] The Elimination 8 (E8) is a collaborative initiative targeting the elimination of malaria in the SADC Member States Botswana, Namibia, South Africa and Swaziland and high transmission countries, Angola, Mozambique, Zambia and Zimbabwe.

information dissemination.	**counterparts and UN partners to ensure that regional and national level policies and legal instruments, or national strategic plans, are developed, amended and finalised with migration health concerns incorporated.**
Within the context of Malaria: • Ensure improved disaggregated data on internal and cross-border population movements and cross-border malarial transmission, is collected and analysed to develop effective malaria prevention, control and response. • Promote appropriate cross-border and regional monitoring systems are in place to monitor resistance to antimalarial drugs. • Ensure that monitoring systems are adapted to the specific realities of migration and mobility	***Within the context of Malaria:*** • Ensure national health policies provide migrants' access to preventative and curative health care services including for malaria on an equal basis to the native population • Raise awareness among policymakers and key stakeholders on the health rights of migrants and the importance of developing responses to malaria that engage with migration and mobility. • Increase awareness and knowledge about the linkages between population movement and malaria among healthcare providers and non-health providers (e.g. education, environment, and public works) in low or non-endemic areas.
Migration sensitive health systems **Recognising that services, even if available, may not be sensitive to the needs and rights of migrants or to the vulnerabilities associated to the migration process, IOM takes a public health approach that supports strengthening community and other health systems to facilitate social and behaviour change and support improved utilization of health services**	***Partnerships, networks & multi-country frameworks*** **IOM focuses on establishing and strengthening multi-sectorial partnerships, information sharing/ communication, coordination and collaboration, with the ultimate aim of increasing sustainability of interventions that promote and support realisation of migrants' right to health.**
Within the context of Malaria: • Ensure access to rapid screening and treatment for people on the move both pre-departure and on arrival. • Integrate malaria into existing migration and health interventions. • Support the development of migration sensitive capacity building tools. • Support the development of migration sensitive awareness raising and behaviour change communication materials. • Promote provision of referrals to treatment services in other areas of the country/region, and disseminate information on such services. • Promote the provision of patient-held records (health passports) that indicate medication regimens, clinical findings and drug sensitivities.	***Within the context of Malaria:*** • Foster partnerships between various governmental sectors, private sectors (private healthcare providers, pharmaceutical companies, insurance sector and employers), civil society (including migrant groups), humanitarian and development agencies and the international donor community. • Promote regional and cross-border collaboration and communications to harmonize key malaria messaging • Facilitate smooth exchange of information and ensure coordinated responses to malaria screening, treatment and follow up. • Ensure bilateral or regional agreements on migration (e.g. labour migration and border management) include health issues especially, the management of communicable diseases like malaria.

Box 2:SADC Malaria Strategic Framework (2007-2015) [28]

The strategic framework aims to provide a policy framework, guidelines and strategies to accelerate the prevention and control of malaria with the ultimate aim of eliminating malaria in the SADC region.

The framework aims to reach its goal through the implementation of harmonized policies, guidelines and

protocols for the provision of malaria control services in all SADC Member States; Mobilization and access to funding for malaria programs and have it accessible to countries for specific priorities; establishment of solid partnerships and collaboration mechanisms in Malaria control among Member States and other stake holders (private sector, NGOs, donors): energizing and supporting Member States to eliminate malaria within their national boundaries.

Box 3: The DRAFT SADC Framework on Population Mobility and Communicable Diseases. [21]

This *Draft* framework aims to improve harmonisation and coordination of responses; improve access to healthcare services – including prevention programmes; improve disease surveillance and epidemic preparedness; improve information, education and participation of mobile people; increase operations research and sharing of information; and, address legal and administrative barriers.[21][3] The Framework provides guidance on:

- The protection of the health of cross-border mobile populations in the face of communicable diseases, including source, transit and destination communities; and
- The control of communicable diseases in the face of movement of people across borders in the region.

Box 4: The E8 and the E8 Strategic Plan 2015-2020

The concept behind the Elimination 8 (E8) is the provision of a platform for coordinating a regional approach to malaria elimination. The E8 brings together the four mainland countries of the six countries targeted for malaria elimination within the SADC Framework – Botswana, Namibia, South Africa, and Swaziland.[4] These four counties - considered the front-line countries – are well positioned to begin the reorientation towards elimination within Southern Africa. In order to successfully eliminate malaria, these four countries will need to collaborate closely with their neighbours to the north - Angola, Mozambique, Zambia, and Zimbabwe - who face a relatively higher transmission of malaria. This "second" line of countries will follow suit in the elimination of malaria, and lay the foundation for the gradual expansion of malaria-free areas within SADC.

The E8 was formally established by Member States in 2009 with the goal to accelerate zero local transmission in the four frontline countries by 2020 through the provision of a mechanism for collaboration and joint strategic programming.

The E8 Strategic Plan (2015-2020) outlines a series of strategic objectives and activities designed to coordinate member states and partners as they jointly pursue elimination strategies. While some effort will be made to strengthen implementation at the country level, the objectives of the E8 largely focus on enhancing activities at the cross-border and regional level and are aligned to the overarching goals and principles of the SADC Protocol on Health, SADC Malaria Strategic Framework (2007 – 2015), SADC Malaria Elimination Framework, and the SADC Malaria Advocacy and Communication Framework.

The core strategic objectives of the E8 are as follows:

1) To strengthen regional coordination in order to achieve elimination in each of the E8 member countries;

[3] The 2009 Framework has not yet been adopted by SADC Member States. A costing exercise is underway to provide possibilities for a regional funding and implementation system.

[4] In 2007, SADC identified six countries as having the greatest potential to eliminate malaria by 2015 –Botswana, Namibia, South Africa and Swaziland, as well as the island states of Zanzibar and Madagascar.

2) To elevate and maintain the regional elimination agenda at the highest political levels within the E8 countries;
3) To promote policy harmonization, quality control, and knowledge management to accelerate progress towards elimination;
4) To reduce cross-border malaria transmission through expanded access to early diagnosis and treatment in border districts; and
5) To secure resources to support the regional elimination plan, and to ensure long-term sustainable financing for the region's elimination ambitions.

IOM is a member of the E8 technical Committee.

Box 5: Southern Africa Roll Back Malaria Network (SARN)

Southern Africa Roll Back Malaria Network (SARN)coordinates partner support on technical and operational issues for going to scale with effective malaria control interventions to 10 Southern African countries: Botswana, Madagascar, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, Zimbabwe and United Republic of Tanzania (Zanzibar) and also supports Angola, DRC and United Republic of Tanzania (Mainland) by bringing programme managers, Not for Profit Organisations and military managers to the annual consultative meetings and through cross border collaboration initiatives, SADC Malaria Day and World Malaria Day.

SARN was established and launched by the SADC Health Ministers in November 2007 in Victoria falls, Zimbabwe. The partnership for the SARN involves government, private sector, NGOs, UN Agencies and Communities. The SARN network is coordinated by a team of elected members, for which the financial support for much of this work is provided by their parent organisations.

IOM is a member of SARN and is a co-chair of SARN for 2015.

References

1. Gushulak, B., *Monitoring migrants' health*, in *Background paper for National Consultation on Migrants Health, Madrid, 3-5 March 2010*. 2010, WHO.
2. MacPherson, D.W. and B.D. Gushulak, *Human Mobility and Population Health: new approaches in a globalizing world* Perspectives in Biology and Medicine, 2001. 44(3): p. 390.
3. Anarfi, J., *Reversing the spread of HIV/AIDS: What role has migration?*, in *International Migration and the Millenium Development Goals. Selected papers of the UNFPA Expert Group Meeting, Marrakech, Morocco, 11-12 May 2005*, UNFPA, Editor. 2005, UNFPA: New York.
4. Gushulak, B. and D.W. MacPherson, *Population Mobility and Health: An Overview of the Relationships Between Movement and Population Health.* J Travel Med, 2004. 11(3): p. 171-178.
5. MacPherson, D.W., B. Gushulak, and L. Macdonald, *Health and foreign policy: influences of migration and population mobility.* Bulletin of the World Health Organization, 2007. 85(3): p. 200-206.
6. WHO, *Closing the gap in a generation. Health equity through action on the social determinants of health*. 2008, Commission on Social Determinants of Health,: Geneva.
7. IOM, Regional Assessment on HIV Prevention Needs of Migrants and Mobile Populations in Southern Africa, 2010
8. Martens, P. and L. Hall, *Malaria on the Move: Human Population Movement and Malaria Transmission.* Emerging Infectious Diseases, 2000. 6(2): p. 103-109.
9. Pindolia, D., et al., *Human movement data for malaria control and elimination strategic planning.* Malaria Journal, 2012. 11(205): p. http://www.malariajournal.com/content/11/1/205.
10. Doolan, D., C. Dobaño, and J. Baird, *Acquired immunity to malaria.* Clinicial Microbiology Reviews, 2009. 22(1): p. 13-36.
11. Prothero, R., *Migration and malaria risk.* Health, Risk & Society, 2001. 3(1): p. 19-38.
12. Lynch, C. and C. Roper, *The Transit Phase of Migration: Circulation of Malaria and Its Multidrug-Resistant Forms in Africa.* PLOS Medicine, 2011. 8(5): p. e1001040.
13. Tatem, A. and D. Smith, *International population movements and regional Plasmodium falciparum malaria elimination strategies.* PNAS, 2010. doi: 10.1073/pnas.1002971107/-/DCSupplemental.
14. Cotter, C., et al., *The changing epidemiology of malaria elimination: new strategies for new challenges.* The Lancet, 2013.
15. Caholo, E., *Regional Integration in the Context of HIV and AIDS, TB and the Malaria: The Case of SADC*. 2012: Presentation at the XIX International AIDS Conference, Washington DC.
16. Feachem, R.G.A., et al., *Shrinking the malaria map: progress and prospects.* The Lancet, 2010. 376(9752): p. 1566-1578.
17. WHO, *International Health Regulations. Second edition*. 2005, WHO: Geneva.
18. World Health Assembly, *Resolution 61.17 'Health of Migrants'* in *A61/VR/8 Sixty-first World Health Assembly*. 2008, WHA: Geneva.
19. Ghent, A., *Overcoming migrants' barriers to health.* Bull World Health Organ, 2008. 86(8): p. 583 - 584.
20. WHO, *Health of Migrants -The Way Forward: Report of a global consultation, Madrid, Spain, 3-5 March 2010*. 2010, World Health Organization (WHO): Geneva.

21. SADC Directorate for Social and Human Development and Special Programs, *SADC Policy Framework for Population Mobility and Communicable Diseases in the SADC Region: Final Draft April 2009*, in *Available from: http://www.arasa.info/files/pub_SADC%20Policy_Framework_FINAL.pdf*. 2009, SADC Secretariat: Gaborone.

22. Klopper, M., et al., *Emergence and spread of extensively and totally drug-resistant tuberculosis, South Africa.* Emerg Infect Dis, 2013. http://dx.doi.org/10.3201/eid1903.120246.

23. Stuckler, D., et al., *Mining and Risk of Tuberculosis in Sub-Saharan Africa.* American Journal of Public Health, 2010. doi:10.2105/AJPH.2009.175646.

24. MSF, *Providing antiretroviral therapy for mobile populations: Lesson learned from a cross border ARV programme in Musina, South Africa*. 2012.

25. Arnaud Le Menach, Andrew J. Tatem, Justin M. Cohen, Simon I. Hay, Heather Randell,Anand P. Patil & David L. Smith, *Travel Risk, malaria importation and malaria transmission in Zanzibar* http://www.nature.com/srep/2011/110915/srep00093/full/srep00093.html?WT.i_dcsvid=%%LIST_ID%%-%%RECIPIENT_ID%%&WT.ec_id=MARKETING&WT.mc_id=SR1202E11BS0 (accessed 30-09-14)

26. Sharp BL, Kleinschmidt I, Streat E, Maharaj R, Barnes KI, Durrheim DN, Ridl FC, Morris N, Seocharan I, Kunene S, LA Grange JJ, Mthembu JD, Maartens F, Martin CL, Barreto *A Seven years of regional malaria control collaboration--Mozambique, South Africa, and Swaziland* Malaria Research Programme, Medical Research Council, Durban, South Africa 2007 http://www.ncbi.nlm.nih.gov/pubmed/17255227 (accessed 07-10-2014)

27. Laas A. A REGIONAL APPROACH TO MALARIA CONTROL – THE LSDI SUCCESS STORY http://www.malariaworld.org/blog/regional-approach-malaria-control-%E2%80%93-lsdi-success-story (accessed 07-10-2014)

28. South African Development Community *SADC Malaria Strategic Framework* 2007- 2015. 2007 https://tis.sadc.int/files/6613/4001/9240/SADC_Malaria_Strategic_Framework.pdf (accessed 08-10-2014)

29. South African Development Community *Implementation Plan for the Trans-Zambezi Malaria Initiative (TZMI) a multi-national cross-border control and elimination initiative involving Angola, Botswana, Namibia, Zambia and Zimbabwe- The conceptual framework* https://tis.sadc.int/files/4013/1824/0952/TZMI_CONCEPT_-_SEND.pdf (accessed 08-10-2014)

30. MOZIZA *Malaria Initiative* http://moziza.wordpress.com/moziza-malaria-cross-border-malaria-initiative/ (accessed 08-10-2014)

31 Centre for Disease Control (CDC). Human factors and malaria. http://www.cdc.gov/malaria/about/biology/human_factors.html