A Global Report on Population Mobility and Malaria:
Moving towards elimination with migration in mind

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Population Mobility and Malaria

Today’s globalised world is witnessing unprecedented human mobility and migration trends. There are 214 million international migrants, along with 740 million internal migrants. One out of 7 persons is on the move. The increasingly multi-directional massive movements of people with marked feminisation raise complex implications on global health throughout the phases of migration – before departure, during travel and transit, at destination and upon return.

As societies become more culturally and ethnically diverse, migrants’ health is often determined by factors outside the health sector. Migrants and mobile populations face many obstacles in accessing equitable essential health care services due to factors such as living and working conditions, education level, gender, irregular migration status, language and cultural barriers, anti-migrant sentiments, and lack of migrant-inclusive health policies among others. Thus migration is considered a social determinant of health for migrants and other marginalized and vulnerable groups.

Migrant labour is an integral part of many country economies such as in the mining, transportation and construction industries, or in health care or domestic work. Development is contingent upon a healthy workforce and thereby healthy migrant and mobile populations. Health in the post-2015 Development Agenda should highlight the importance of migrants’ health as a crucial enabling factor in sustainable and equitable economic development.

Malaria poses a global threat to this progress and growth. As of 2011, 99 countries and territories faced on-going transmission of malaria. It is the fifth leading cause of death from infectious disease worldwide, and the second leading cause of death in Africa. There were 216 million cases of malaria worldwide in 2010, 174 million cases in the African Region. Migration is often cyclical and seasonal. When populations move from low malaria transmission areas to high transmissions areas, they are more susceptible than the resident population. Migration from these high transmission areas to the low transmission area can expose previously malaria-free vectors to the disease. This cycle of re-introduction threatens progress towards malaria elimination and the control of artemisinin resistance.

Increasingly governments and health actors are recognising the need for a wide-ranging approach to migration and health. In addressing malaria control and elimination among migrants and mobile populations, several considerations need to be in place. These include access to vector control programming and services, prevention and early access to malaria diagnosis and treatment using culturally-understood methods as well as surveillance of artemisinin resistance. Efforts should be directed towards implementation of integrated interventions through multi-lateral partnerships across health and non-health sectors.

More dialogue is needed to enhance understanding of migrants’ right to health and the concept that health and social costs are reduced when healthy migrants are fully integrated into their host communities. Furthermore, these discussions should take place at all levels of government as addressing malaria across the migration continuum requires critical inter-country coordination for sharing of information and good practices among all key stakeholders.
Operational Framework on the Health of Migrants

The 61st World Health Assembly Resolution on the Health of Migrants (WHA 61.17)\footnote{Operational Framework on the Health of Migrants – The Way Forward, IOM, WHO and the Government of Spain, 2010.}, 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”.


Malaria through the Operational Framework

**Monitoring migrant health**

Research and information dissemination will strengthen knowledge on health of migrants, mobile populations, marginalized and other hard-to-reach communities to ensure evidence-based programming and policy development. Collected data should be disaggregated by gender, age, socio-economic status, geographic location, migration status among others. Indicators should reflect any progress achieved in removing the various social barriers that determine the health outcomes in the context of migration as well as those that measure universal health coverage for marginalized individuals and populations, such as migrants and mobile populations regardless of legal status.

**Policy and legal framework**

Governments and policy makers are assisted in advocacy efforts and development of migrant-inclusive health policies including malaria programmes at national, regional and global levels to promote and protect the health of migrants. To improve health equity for migrants and implementation of universal health coverage, policies outside the health sector (such as social welfare, transportation, immigration, labour, etc) need to be adapted and integrated into a holistic response.

**Migrant sensitive health systems**

Actions are directed to address and facilitate rights-based health service delivery, build capacity of local authorities, key stakeholders as well as migrant communities to promote equitable access to comprehensive health services including malaria prevention, diagnosis and treatment as well vector control practices. With the aim of achieving universal health coverage, programmes and actions should include public health and non-health sector interventions that address the underlying migration-related determinants of health.

**Partnerships, networks & multi-country frameworks**

Country, regional frameworks and international coordination and partnerships with international, national and civil society partners as well as migrant communities aim to ensure that multi-sectoral malaria actions are programmatically integrated across countries.
Southern Africa

The challenges that migration poses to malaria elimination are recognised by governments throughout Southern Africa. Multi-sectoral partnerships continue to be built and operationalization of existing partnerships has been made a priority.

The Southern Africa Development Community (SADC) is composed of 15 southern African countries: Angola, Botswana, the Democratic Republic of the Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. Within SADC there is varying success at combating and controlling malaria.

The Malaria Elimination (E-8)

In 2007, four mainland countries in Africa were identified by SADC as having the greatest potential to achieve malaria elimination by 2015: Botswana, Namibia, South Africa, and Swaziland. Together with the four neighboring countries to the north – Angola, Mozambique, Zambia and Zimbabwe – they form the Malaria Elimination (E-8). The E-8 is a coordinated effort amongst the eight countries to bring the four southern countries closer to malaria elimination by 2015 and reduce malaria incidence amongst all eight nations (Figure 1.1). The effort is a salient example of a regional body recognising the role of migration and the need for trans-border collaboration to combat malaria.

For example, in the northern South Africa province of Mpumalanga, from 2001 to 2009, 48% of malaria cases were acquired in Mozambique.²

Migrants often have limited access to healthcare services. They are less likely to receive treatment and thereby remain contagious for longer periods of time. Persons on the move have limited knowledge of and are not able to practice malaria-prevention measures. SARN reported that 82% of travelers in the region do not use prevention measures (Figure 1.2).

Figure 1.1: Rationale for the E-8; South to North Elimination Model

Figure 1.2: Use of Preventive Measures Amongst Travellers

Health Vulnerability Study of Mixed Migration Flows from the East and Horn of Africa and the Great Lakes to Southern Africa – IOM South Africa

In response to an increasingly complex migration landscape in Southern Africa, IOM in August 2012 commissioned the study. It aims to expand IOM knowledge of population mobility in Southern Africa and elucidate the experiences, health vulnerabilities and challenges for irregular migrants in transit.

Formative Stage Results:
The study looked at air, sea and land routes. Migrants often utilised different means of transport for different legs of the journey. Land routes have become more popular as governments increased their efforts to stop the sea routes via the Indian Ocean and Lake Malawi.

Migrants faced various health risks inherent in their modes of travel. Lack of access to food, water and shelter; frequent contact with violence; and imprisonment were all major risks for migrants in transit. Imprisonment notably holds risk of exposure to multi-drug resistant tuberculosis (MDR-TB).

Relevance to Malaria:
Understanding the risks and routes of migrants can provide predictive evidence of population movements and needs. This evidence can be used to predict the movement of malaria in the Southern African region.
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Malaria in the E-8

The southernmost nations of Botswana, Namibia, South Africa and Swaziland have had marked a dramatic decrease in malaria incidence over the past decade.

A pronounced disparity between north and south is seen in the population distribution by malaria risk zone¹ and cases per 1,000 population in 2011² (Figure 1.3, 1.4, Table 1.1).

Table 1.1: E-8 Country Malaria Cases per 1,000 Population in 2011

<table>
<thead>
<tr>
<th>Country</th>
<th>Cases per 1,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>129.19</td>
</tr>
<tr>
<td>Mozambique</td>
<td>73.42</td>
</tr>
<tr>
<td>Zambia</td>
<td>341.96</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>25.08</td>
</tr>
<tr>
<td>Namibia</td>
<td>6.20</td>
</tr>
<tr>
<td>Botswana</td>
<td>0.56</td>
</tr>
<tr>
<td>South Africa</td>
<td>0.20</td>
</tr>
<tr>
<td>Swaziland</td>
<td>0.66</td>
</tr>
</tbody>
</table>

¹ WHO Malaria defines “high risk” as incidence ≥1 case per 1000 population, “low risk” as 0-1 cases per 1000 population and “malaria-free” as 0 cases per 1000 population.

² Cases per 1000 population calculated using ‘reported and presumed cases’ and ‘UN population’ from the WHO World Malaria Report 2012.

Meeting on Population Mobility and Malaria Elimination in Southern Africa

An informal meeting hosted by IOM on 22 May 2013 aimed to strengthen regional collaborative efforts to reduce and eliminate malaria among migrants, mobile populations and hard-to-reach communities. The participants discussed support for malaria elimination in E-8 countries through a focus on universal access to malaria treatment and essential health services for these vulnerable populations in Southern Africa.

Key challenges in addressing malaria control in the Southern African region:

1. Barriers to malaria funding
2. General lack of data and research
3. Lack of communication between countries of origin and destination

Funding remains a major barrier to the operationalization of trans-border initiatives. Several countries noted the inflexibility of partners with disease specific funds. Additionally middle income countries like South Africa and Botswana are ineligible for some funding (e.g. Global Fund) even as the disease burden remains high. Multi-country proposals face a lower acceptance rate than single country proposals for Technical Review Panel (TRP) funding from the Global Fund (25.3% vs. 44.9%).³¹

Recommendations for effective implementation of malaria programmes in E-8 countries:

1. Operationalise trans-border initiatives
2. Prioritise access and coverage of health services for migrants and mobile populations in the Post 2015 Health Agenda
3. Support further study of health vulnerability in mixed migration flows

All countries agreed that operationalisation of existing cross-border initiatives was critical moving forward (Table 1.2). Coordination will enable E-8 nations to appropriately allocate resources and implement best practices in border regions.
Table 1.2: Cross-border Malaria Initiatives in the E-8

<table>
<thead>
<tr>
<th>Name</th>
<th>Acronym</th>
<th>Countries Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubombo Spatial Development Initiative</td>
<td>LSDI</td>
<td>Swaziland, Mozambique and South Africa</td>
</tr>
<tr>
<td>Trans-Zambezi Malaria Initiative</td>
<td>TZMI</td>
<td>Angola, Botswana, Namibia, Zambia and Zimbabwe</td>
</tr>
<tr>
<td>Zam-Zim Malaria Initiative</td>
<td>ZAM-ZIM</td>
<td>Zambia and Zimbabwe</td>
</tr>
<tr>
<td>MOZIZA Malaria Initiative</td>
<td>MOZIZA</td>
<td>Mozambique, Zimbabwe and South Africa</td>
</tr>
<tr>
<td>Trans-Kunene Malaria Initiative</td>
<td>TKMI</td>
<td>Angola and Namibia</td>
</tr>
</tbody>
</table>

Other African Contexts

**South Sudan: malaria deaths in the world’s youngest state**

Since its independence in 2011, an estimated 2.5 million South Sudanese have returned to their homeland, mainly from Sudan.

Malaria is endemic in South Sudan. Those who grow up in the country learn best practices for prevention and treatment. However, returnees from non-endemic regions lack this knowledge, as well as, disease immunities, increasing their vulnerability. In communities already struggling with limited health resources, adoption of malaria-safe practices, early treatment and continuity of care remains a challenge.

South Sudan reported a case incidence of 77.16 per 1,000 population in 2011. However, in 2012 the Upper Nile State reported 1 in 5 deaths were a result of malaria.

**Mali: internal displacement and malaria**

Conflict in northern Mali broke out in early 2012. Internally displaced persons (IDPs) are projected to rise to 350,000 by then end of 2013. The northern regions of the country are non-endemic and IDPs seeking refuge in the south arrive into these malaria endemic areas with no natural immunities (Figure 2.1).

**Djibouti and Mauritius: re-introduction and resurgence**

In Mauritius, elimination of local transmission was achieved in 1969, followed by re-emergence in 1975, and second elimination period in 1998. Work now focuses on maintaining elimination. The re-introduction in 1975 was linked to an outbreak of 41 cases in a community of migrant workers outside the capital.

Djibouti reported only 624 presumed and confirmed malaria cases in 2011. However, in 2013, Djibouti experienced more than 800 cases of malaria in less than 2 months period. The re-emergence is linked to migration.

Djibouti originally also achieved elimination decades ago, with re-emergence suspected to have occurred sometime in the early 1970’s. Early in 2013, the country experienced a spike of malaria cases in Dikhil region (one of the main migrants’ entry points to Djibouti). Malaria quickly spread to Djibouti-Ville. Among the highest incidence areas were areas hosting large numbers of migrants.

**IOM Spotlight: Djibouti**

In 2013, IOM and the Government of Djibouti jointly collaborated on malaria interventions.

Main activities included: 1) sensitization of local population and migrants on the prevention of malaria, 2) conducted fumigation services, 3) training of medical staff on malaria diagnosis and, 4) mosquito net distribution.

In 2014, IOM intends to continue these activities including training of volunteers on RDTs within migrant transit centers and destination sites, as well as distribution of long lasting insecticide-treated nets (LLINs) and repellants.
Southeast Asia: Greater Mekong Sub-region

The Greater Mekong Sub-region (GMS) is an economic area composed of six countries, namely, Cambodia, the People’s Republic of China (PRC, specifically Yunnan Province and Guangxi Zhuang Autonomous Region), Lao People’s Democratic Republic (Lao PDR), Myanmar, Thailand and Vietnam along the Mekong River.

Migration in the GMS

Intra-regional migration has been a growing phenomenon in the GMS. Largely driven by poverty and widening economic disparities within and between neighbouring countries, people in this region are increasingly migrating internally and internationally for employment to improve human security. In the past decade, investment in road infrastructure to promote and facilitate the Association of Southeast Asian Nations (ASEAN) economic integration have opened new routes for the movement of people and goods, but have also exposed communities to a range of environmental issues and related behaviours. Across GMS countries, there are significant mixed migration flows, which are characterised predominantly by international migrants, seasonal and permanent migrant workers, as well as internal migrants, displaced persons and refugees. Internally displaced persons and refugees are found in these countries as are mobile and migrant populations moving within and across countries of the GMS. Thailand hosts over 1.6 million officially registered migrants from Cambodia (17%), Myanmar (76%) and Laos (7%)xviii. However, these official figures do not take into consideration migrants that are unregistered and undocumented. Unofficial estimates indicate the number of migrants in Thailand could be closer to 2.6 million.

Malaria in the GMS

At least 50% of the population in all countries are at some risk of malaria transmission (Figure 3.1), yet the vast majority of malaria cases (79%) are in Myanmar (Figure 3.2). Country level incidence per 1,000 population remains relatively low in the GMS (Cambodia: 4.01, Myanmar: 11.74, Thailand: 2.85, Vietnam 0.51, Yunnan: 0.03). Only Myanmar is above 10. However, case incidence was noticeably higher in certain border provinces. In 2007, the incidence of malaria reached over 40 cases per 1,000 population in Mondulkiri and Pailin provinces in Cambodia and the Sekong province in Laos.

Population Mobility, Malaria and Artemisinin Resistance

The link between migration and the spread of malaria is well documented in the sub-region, particularly at the Thai-Myanmar, Thai-Cambodia, Laos-Yunnan (China) and Laos-Vietnam bordersxix. In the Yunnan Province of China, 98.8% of total malaria cases and 75% of P. falciparum malaria cases were found to be imported from neighbouring countries.xx Migrants particularly those working in forested areas are highly vulnerable to malaria due to lack of access to prevention and knowledge of symptoms. xx Studies have shown though that their limited options for available or affordable diagnosis and effective treatment, tendency to self-medicate with fake drugs or monotherapy given their remote and inaccessible locations, as well as weak malaria programming are also important factors affecting their vulnerability.
Emerging strains of artemisinin-resistant malaria at the border areas have further complicated the problem and threaten regional and global efforts to control and eliminate malaria (Figure 3.4).

Recent confirmation of artemisinin resistance in *P. falciparum* malaria parasites in the Thai-Cambodia border led to the World Health Organization (WHO) Global Plan for Artemisinin Resistance Containment (GPARC) that classified the geographical ‘priority’ areas into tiers according to the location where resistance is noted and the populations in the area, thus implying the importance of migration data xxii, xxiii, xxiv.

**Control of Artemisinin Resistance**

The first response to artemisinin resistance along the Cambodia-Thailand border began in 2008 and aimed to contain the problem by eliminating the resistant parasites. This aggressive and innovative approach developed originally in Cambodia has significantly reduced and in some areas such as Pailin, once one of the highest transmission areas, interrupted transmission of *P. falciparum* (Figure 3.5).

The fact that evidence of resistance has now been detected in several other sites indicates that the initial hopes of containment have not been realised, either due to spread of resistance or its spontaneous emergence elsewhere.

Containment activities are now ongoing in a number of areas across the region, although all of these efforts are significantly under resourced.

**IOM Spotlight: Thailand**

**Partnership for Containment of Artemisinin Resistance and Moving Towards the Elimination of Plasmodium Falciparum in Thailand (Global Fund 10, 2011 - 2013)**

IOM and partners conducted:

- Community mapping and long lasting insecticide-treated nets (LLINs) pre-distribution survey of 34,018 migrant households in 1,531 villages in 20 provinces
- LLINs distribution using migrant household survey.
- 5,706 migrant workers in workplaces and 102,620 migrants in communities reached by community health workers and volunteers trained on malaria prevention and directly observed treatment in follow-up confirmed *P. falciparum* malaria cases
- Provincial migrant networks were strengthened to improve malaria information sharing in source, transit and destination sites.

**IOM Spotlight: Myanmar**

**Community Based Malaria Control Programme in South-East Myanmar (2006 - present):**

- Extending reach of the national malaria control and artemisinin containment strategies
- Community mapping undertaken in partnership with the National Malaria Control Programme, as well as the development of the National Migrant Malaria guidelines in 2012
- 273 community groups addressing malaria at migrant work sites and in ‘malarious’ villages
- 368 rapid diagnostic and testing (RDT) volunteers presently deployed, as well as mobile teams and fixed microscopy units
- From 2012 to mid-2013, 26,000 RDTs and thick smears performed; 1,000 persons treated for *P. falciparum* and 1,000 for non-*falciparum* malaria
- Prevention includes targeted awareness raising, distribution of LLINs, provision of insect repellants
- Improved messaging needs for migrants in urban areas of GMS to raise awareness of incubation period and to promote testing within two weeks of visiting forest areas.
South Asia: India and Sri Lanka

India and Sri Lanka currently operate in very distinct malaria contexts, but the challenges of human mobility are still very pertinent to the malaria prevention and control efforts in both countries. India continues to be an up-hill battle, though the country recently achieved control of malaria transmissions. Meanwhile, Sri Lanka is working to achieve complete elimination.

India: Malaria Context

India has a malaria incidence per 1,000 population of 1.06. However, the following figure illustrates the transmission diversity within the country, showing the different incidence ratios according to area (Figure 4.1). The Orissa (Odisha) state, which contains only 3.4% of the country’s population, contributed 24% of the total malaria cases. Together the states of Orissa, Jharkhand, North Eastern States, Chhattisgarh, Madhya Pradesh, Maharashtra and Rajasthan accounted for roughly 80% of the country’s cases, yet only 20% of the population (Figure 4.2).

India: Role of Migration

India recently recognized that mobile populations are an overlooked group in India’s malaria control efforts. In urban areas, which account for 15% of India’s malaria disease burden, the disease is primarily associated with internal migrant workers, who move between provinces searching for work in the construction sector. A study of over 500 migrant workers in Gujurat, found 25.3% of the workers tested positive in 2007 and 34.3% tested positive in 2010.

India: Control Activities

The National Vector Borne Diseases Control Programme (NVBDCP) began in 2002, bringing all control efforts for vector-borne diseases under a single programme.

The malaria prevention and control efforts of the NVBDCP include: 1) early detection and completion of treatment, 2) vector control, and 3) interventions on behavior change, capacity building and monitoring programs.

Continued rural to urban migration has increased the importance of focusing on malaria control efforts in urban areas. The Urban Malaria Scheme (UMS), originally sanctioned in 1972, now includes 131 towns and covering a population of 130.3 million. The programme has achieved parasite control through treatment in public and private sector health care facilities, as well as, mega-city malaria clinics (Figure 4.3).
Sri Lanka currently has 93% of its population living in malaria-free areas. Yet, conflict, as well as, socioeconomic, health and environmental factors have all threatened to derail the countries steady progress towards elimination over the past decade (Figure 4.4).

Sri Lanka’s control efforts fall under the Anti-Malaria Campaign (AMC) which is funded by the Sri Lankan Government and the Global Fund. From 1999-2011, the AMC achieved a 99.9% reduction in confirmed infections (Figure 4.5).

Proper preparedness plans emphasizing diligence in surveillance, indoor residual spraying, distribution insecticide-treated nets and focused treatment strategies enabled Sri Lanka to achieve pre-elimination in such adverse conditions.

Today, malaria in Sri Lanka is mostly found amongst travelers returning from endemic countries such as African countries and India. A recent study of Sri Lankan migrants returned by IOM from a human smuggling operation in West Africa found increased incidence of malaria amongst this group (IOM Spotlight below).

**Sri Lanka: Challenges going forward**

Rapid Diagnostic Screening (RDT) is considered a cost effective replacement for “gold standard” microscopy methods of detection. However, the use of RDT alone without follow-up can lead to missed cases. This is true in the case of RDTs used to monitor inbound migration flows and the result can be malaria re-introduction.

Given this enhanced understanding on the dynamics of migration into and within Sri Lanka, AMC has revised its guidelines on follow-up care to include repeat RDTs for select populations, including IOM-assisted returnees and Sri Lankan UN Peace Keepers returning from endemic areas.

From January to June 2012, IOM assisted in the voluntary return of 287 Sri Lankans. The migrants had been smuggled through seven malaria endemic West African countries. The malaria risk was 14 per 1000. Normal travel risk is 3 per 1000. High malaria incidence in the group drew attention to the challenge migration poses to Sri Lanka as it enters nears the elimination phase for malaria.

[Photo: IOM Sri Lanka]
The Americas

Within the 21 malaria endemic countries in the Region of the Americas, the malaria threat varies widely. Six countries are in the pre-elimination stage (Argentina, Costa Rica, Ecuador, El Salvador, Mexico and Paraguay), while four countries reported an increased incidence during the period of 2000 – 2011 (The Dominican Republic, Guyana, Venezuela and Haiti). A further 13 countries reported reductions in case incidence of more than 75% from 2000 to 2011 (Figure 5.1). About 30% of the malaria endemic countries are at some risk, while about 8% of these populations are at high risk (Figure 5.21).

Historical Context

One study speaks of the introduction of malaria to the highlands near Quito Ecuador by workers and passengers of the Guayaquil to Quito Railway as early as 1890.³⁹

Another study shows evidence that migration into the Amazon basin during the large scale colonisation project in Brazil from 1965 to 1985 was marked by dramatic increase in malaria incidence.⁴¹ As of 1999, there were 600,000 malaria cases in Brazil, 99.7% of which were concentrated in the Legal Amazon (Figure 5.3).⁴²

Malaria and Population Mobility in the Americas

There is strong evidence linking increased of malaria with migration in the Americas.

“A study in Quibdó, Colombia found among 679 P. falciparum cases 75% were amongst foreign nationals.”⁴³ In Suriname, an investigation in the spread of Artemisinin resistance was recommended by PAHO due to “active trans-border migration” between the Suriname and French Guyana.

In the Dominican Republic, the high levels of migration from Haiti as a result of the 2010 earthquake- some 30,000 to 50,000 persons in the first month, are expected to increase malaria transmission into the country, a low-endemic area.⁴⁴

The migration of non-immune populations to endemic areas impacts the cadence of malaria transmission.⁴⁵ Seasonal and short-term migrant workers can play an important role in this respect. For instance, loggers and agriculturalists who migrate into rainforest areas for work often risk not only their own exposure to malaria, but also risk transmitting the disease upon their return to their home villages. The impact, can be significant, and include...
the secondary infection of non-migrant members of these communities from the newly infected vectors (i.e. the migrants themselves).

A series of epidemiologic studies further support the malaria-migration link through evidence correlating higher malaria prevalence with higher levels of immigration into communities in the Amazon. Prevalence of malaria was 1-2% at the Fort, a stable community with little to no immigrants versus 8-9% at Costa Marques, a growing community, and 14-26% in the new settlements in the Amazon forest.xlv

The Guyana Shield: Building a Multi-Country Framework

The Guyana Shield is the most northern region of the Amazon Rainforest incorporating French Guyana, Guyana, Suriname, Eastern Venezuela, and Northern Brazil. It is characterised by dense forests and gold deposits. Trans-border malaria efforts between French Guyana, Suriname, Guyana and Brazil are ongoing and efforts to bring Venezuela on board are underway.

Suriname: State progress but cross-border problems

Suriname implemented a five year program titled, the Medical Mission Malaria Programme (MM-MP) from 2005-2009. The interventions of the MM-MP included new strategies for prevention, vector control, case management, behavioural change and strengthening of the health system (surveillance, monitoring and evaluation and epidemic detection system). Through these efforts, malaria has been reduced to pre-elimination levels in most stable communities with the disease largely confined to the interior locations of the country. Populations at risk are mobile miners xlvii who may not easily access malaria services and among whom 81% of the estimated 15,000 mobile miner population have been diagnosed and treated for malaria.xlviii

However, regional inconsistency and service gaps remain. Many miners work in French Guyana, but cross the border into Suriname or Brazil to access malaria diagnostic and treatment services.

Progress in regional collaboration in the Americas

There is recognition of the need for enhanced regional and bilateral efforts to address malaria. A meeting from 21 to 23 February 2011 between French Guyana, Guyana, Suriname, Brazil, as well as, PAHO and the Global Fund reported three areas for intensified multi- and bilateral efforts on cross-border malaria control.xlix

1. Joint preparation and planning
2. Joint management and delivery
3. Joint reporting on progress and performance

The meeting highlighted the need to incorporate Venezuela into the anti-malarial efforts of the Guyana Shield. Border regions in the Venezuelan Amazon have reported incidence as high as 68.4 cases per 1000 population.xlix

More recently concerns over possible emergence of artemisinin resistance malaria have both encouraged and mobilized regional collaboration.1 A consultation on the emergence of artemisinin resistance in South America was held in Washington, 21 February 2013 and was attended by the Suriname and Guyana Ministries of Health. The discussions held supported further evaluation of the presence of artemisinin resistance in those countries and the need for a full meeting of the Guyana Shield to be planned for the second half of 2013.

Other Containment Efforts in the Region

Ecuador: Global Fund Project

A campaign in Ecuador focusing on indoor residual spraying for targeted vulnerable populations including migrant communities near the Colombian border was successfully implemented from 2000-2009. During this period, Ecuador saw a 96% reduction in reported malaria cases and as a result, today, only 4% of the 13.8 million people who live in Ecuador are at high risk for malaria.
Europe

Malaria was largely eliminated from the European continent following the advent of Dichloro-Diphenyl-Trichloroethane (DDT) in the post-World War II era. However, rising population mobility and migration trends have led to an increase of imported malaria in the European Region from 1,500 cases in 1970 to 15,500 cases in 2000iii. While considerable progress has been made in reducing this number over the past decade – 6,244 cases in 2010iii – recent cases of non-imported malaria in Italy, as well as small outbreaks in Greece and Albania are causes for concern.

Italy

WHO deemed the country malaria-free on November 1970. The last holdout was in Palermo, Sicily where sporadic cases of *P. vivax* continued until 1962.iv

Imported cases of malaria have remained in the country as people return from malaria endemic regions. Few of them however carry the gametocytes, necessary for the host to spread the malaria to local vectors (Figure 6.1).

![Graph: Annual Imported Malaria Cases and Gametocyte Carriers in Italy, 2000 – 2011](image)

Recently, concerns about the re-emergence of locally acquired malaria have been raised as two cases in 2009 and 2011 were most likely linked with transmission from local vectorsiv,v.

Lampedusa and Linosa

A 2012 joint report from the Italian Ministry of Health, the Regional Health Authority of Sicily and the WHO Regional Office for Europe identified “outbreaks of malaria” as a threat to the islands’ health system. The ongoing large influx of refugees and migrants from Northern Africa could also lead to outbreaks, so preparedness and risk management strategies are being developed.vii

Greece

Malaria was officially eradicated from Greece in 1974, yet, cases of imported malaria have continued at a pace of approximately 30 to 50 cases per year.ivi Recently there have been outbreaks of locally acquired malaria.

Three cases of locally acquired malaria were reported in 2010 and 40 cases in 2011. The original hosts of the disease were migrant workers from Pakistan. Local authorities are taking active steps to contain the outbreaks and prevent re-emergence of malaria in the country.iv As of 3 September 2012, eight cases of locally acquired malaria were reported in Greece.iv

Albania

Eradication was achieved in 1967.vii However, the first cases of malaria in Albania were reported in 2010. The two cases were registered in two males with a travel history to Greece. In 2012, five more cases of imported malaria were registered in individuals returning from Equatorial Guinea.vi

Risks of Re-emergence

Full reemergence in Europe is unlikely. However, there is a risk that migration could bring small-scale outbreaks back to Mediterranean states. Risk management strategies must be implemented to prevent future outbreaks. Moreover, active monitoring and reporting of imported cases must continue to be supported.
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