



Guidance is urgently needed for disease endemic countries (DEC) to consider objectively the possible benefits of innovative genetic control of mosquito vectors of human diseases. Approximately 50% of the world's population, mostly those living in the world's poorest countries, are at risk of malaria or dengue fever.

Drawing on risk/benefit methodologies from related fields, extensive consultation and personal experience in this novel field, the project aims to develop a modular approach on best practices for testing, import, deployment and monitoring of genetically modified mosquitoes designed for the control of malaria and dengue.

Objectives

The overall goal of the **MosqGuide** project is

To develop and validate best practice guidance relating to the range of requirements for deployment of genetically modified (GM) mosquitoes to control mosquito-borne disease, specifically malaria and dengue.

Specific Project objectives are the development and validation of:

- 1: Procedures for the pre and post deployment evaluation of human and environmental safety of genetic control of malaria and dengue fever.
- 2: Guidance to DEC's on Ethical, Legal and Social Issues (ELSI) of a genetic control method policy and their relationship to relevant regulatory principles.
- 3: Identification of characteristics of potential release sites affecting efficacy and risk benefit.
- 4: Relevance, suitability and accessibility of the guidance in order to enhance the capacity for DEC's for application of best practice.

The four objectives will be achieved through a series of modules (M1-7), with expert subgroups from the Project drafting each module based on experience, external consultation, literature, and any new findings over the period of the Project.

Funding

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Modules

Module 1: Overview of technology options, social and regulatory issues

Module 2: Technology research and production phase decisions

Module 3: Pre-deployment country decisions

Module 4: Data handling and environmental monitoring (baseline and post deployment)

Module 5: Field survey on attitudes for alternative control methods

Module 6: Capacity building curricula from Modules 1-5

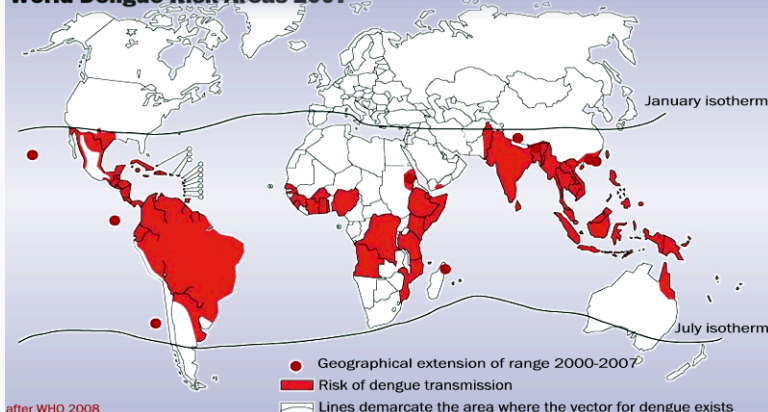
Module 7: Prototype issues/response model



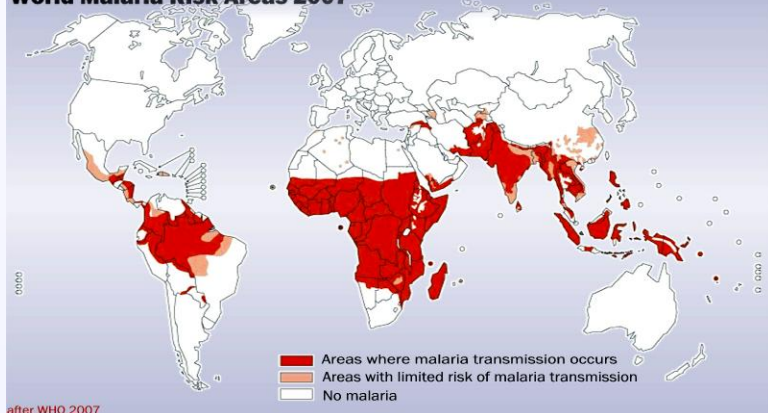
Facts about dengue and malaria

- Dengue is a mosquito-borne infection that causes a severe flu-like illness, and sometimes a potentially lethal complication called dengue haemorrhagic fever (DHF).
- There are an estimated 50 000 000 cases every year, with 500 000 cases of DHF and 22 000 deaths, mainly among children.
- Global incidence of dengue has grown dramatically in recent decades and explosive outbreaks are occurring. Before 1970 only 9 countries had experienced DHF epidemics, a number that had increased more than four-fold by 1995 and is continuing to rise with 100 countries now being disease endemic.
- About two fifths of the world's population in tropical and sub-tropical climates worldwide, mostly in urban and semi-urban areas, are now at risk.
- There is no specific treatment for dengue, but appropriate medical care frequently saves the lives of patients with the more serious dengue haemorrhagic fever.
- The only way to prevent dengue virus transmission is to combat the mosquito vectors.
- Malaria is a preventable and curable disease, although resistance to all available forms of treatment has emerged in some instances.
- There were an estimated 881 000 malaria deaths in 2006, of which 91% were in Africa and 85% were of children under 5 years of age.
- While some countries in Africa have achieved a 50% reduction in malaria cases since 2000, links between interventions and mortality and morbidity trends remain ambiguous in that region and elsewhere.
- Access to malaria diagnosis and treatment, was inadequate in all countries surveyed in 2006 despite a sharp increase in procurement of antimalarial medicines through public health services.
- The WHO recommended focus for prevention and control is with long lasting insecticidal nets and artemisinin-based combination therapy, plus a revival of support for indoor residual spraying of insecticide. Resistance to preferred insecticides for vector control is a huge challenge.

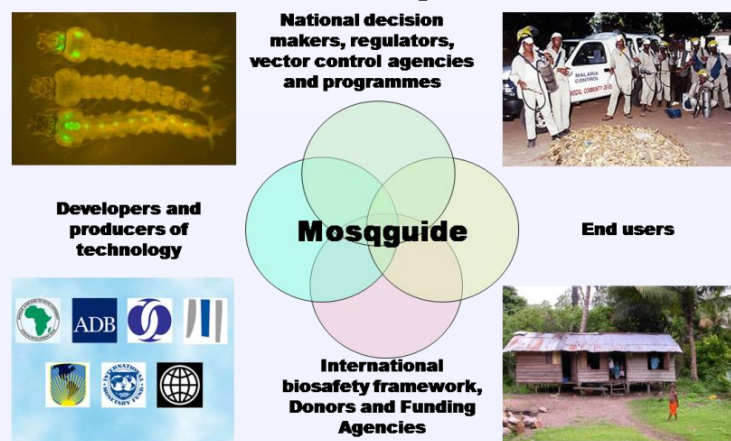
World Dengue Risk Areas 2007



World Malaria Risk Areas 2007



The consultation process



Vector control strategies using GM insects

Genetically modified insects can be used to reduce the number of vector insects using either of the following strategies

POPULATION SUPPRESSION

Goal: reduce numerical size of vector population

POPULATION REPLACEMENT or "REFRACTORY INSECT STRATEGY"

Goal: change vector population to less harmful form

Contact

Please visit our website for FAQs and contact details
www.mosqguide.org.uk

