

# New tools to defeat malaria

## A framework for decision-makers

**Malaria is a disease of poverty. The main weapons currently used against the mosquito vectors are long-lasting insecticidal nets (LLINs) and indoor residual spraying (IRS) of insecticides.** Treatment relies on artemisinin-based combination therapies (ACTs). According to the 2012 World Malaria Report, numbers of LLINs delivered halved in 2012 from a peak in 2010 and IRS has reached only 11% of the population at risk in Africa. Current funding is less than half that needed to implement these approaches to populations at risk. Resistance to pesticides and to ACTs is a major concern.<sup>1</sup>

**A different approach, known as Integrated Vector Management (IVM), can be successful, long-lasting and show value for money.** IVM promotes ecosystem management, healthy housing and community training. It is compatible with use of bed nets and medical treatment such as ACTs, but reduces exposure to harmful pesticides and can eliminate use of DDT. A new decision-making framework guides donors, programme initiators and project managers to promote key aspects of IVM in malaria control programmes.



◀ Programmes to combat malaria must first establish the main vectors and their biting and resting behaviour.  
▶ Affected communities are often ignorant of the cause and prevention of vector-borne diseases. With accurate information on health protection, treatment and ecosystem management, people can combat malaria.



▶ Mosquitoes can breed in pools and puddles. Instead of spraying, community teams can tackle these dangers.



◀ Water is the breeding ground of the mosquito disease-vectors. Malaria programmes can give farmers and householders strategies to manage water sources, storage and sanitation effectively to minimise mosquito breeding sites and risks.



◀ 'Healthy housing' is part of IVM. Programmes can help householders add screens on doors, windows and ventilation gaps in walls or roofs to reduce human-vector contact. Sanitation improvements reduce vector-breeding grounds.



◀ Children are curious. They can easily learn how mosquitoes cause vector-borne diseases. Schools can help. Knowledge of breeding cycles and local solutions is the foundation for life-long actions to beat debilitating diseases.

## Integrated Vector Management can reduce cases of malaria and enrich communities

Strategies to combat malaria need to relate to people's lives and livelihoods. Governments and experts recognise the need for innovative malaria programmes. Roll Back Malaria has asked for collaboration to achieve this.<sup>2</sup> IVM can combat malaria. It begins with an evidence-base for ecosystem management and community information and training. It encourages coordination with sectors in health, environment, water, agriculture and construction. An active holistic IVM programme will:

- ▶ Start by understanding local needs and resources so that programmes are based on evidence
- ▶ Use ecosystem-based controls of vectors
- ▶ Eliminate use of harmful pesticides, especially DDT
- ▶ Provide material and train community members to educate fellow citizens about symptoms, treatment and prevention
- ▶ Train local people to destroy *Anopheles* mosquito breeding sites and breeding sites of other vectors
- ▶ Help establish healthy housing with screens on windows, doors and gaps to minimise indoor mosquito risks
- ▶ Improve sanitation and minimize pools of standing water where vectors breed
- ▶ Reduce mosquito populations and extend the life of ACT drugs
- ▶ Work in a coordinated approach with local health, environment, agriculture, water and development agencies

## A disease of poverty compounded by ignorance

The highest malaria mortality rates are in countries with the highest rates of extreme poverty. The 219 million cases of malaria in 2010 resulted in 660,000 deaths of which 596,000 are in Africa.<sup>1</sup> In a Senegal village, a project found that almost none of the population (93%) had received information about malaria. While most knew the symptoms, 63% had no knowledge of how to prevent it.<sup>3</sup>

## DDT and health hazards

Some countries use DDT routinely or intermittently for IRS. This is the last allowed use under the Stockholm Convention on Persistent Organic Pollutants (POPs) and it should be phased out. Exposure to DDT is linked to breast cancer, spontaneous abortions, decreased semen quality and impaired child neuro-development.

## IVM works in Kenya

Malindi, on the Kenyan coast, was one of the worst malarial areas in the country. Since adopting IVM in 2002, cases at the local hospital have dropped from 10,000 a year to 500-600. The government provides bed nets and medical treatment but there is no indoor spraying. The community is well-informed by fellow citizens trained on symptoms, treatment and prevention of malaria. Community scouts are employed to search for and destroy *Anopheles* mosquito breeding sites using bacterial controls. Smaller *Anopheles* populations reduce transmission of malaria and so extend the life of effective treatments.

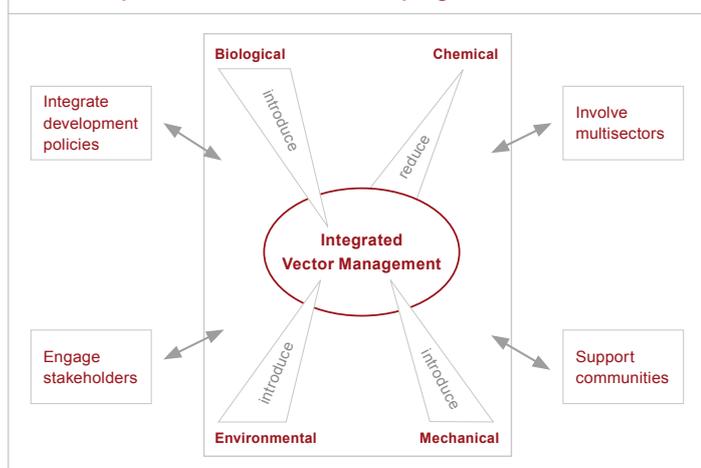
## Coordination between sectors

Joined-up planning of development with malaria strategies is critical. For example irrigation projects should avoid proliferating mosquito breeding sites; road construction is economically critical, but poor planning can create mosquito breeding sites through deforestation or other environmental changes.

## Effective and affordable – village level controls

Non-chemical vector controls are incorporated in IVM strategies. They can be cheap and help people reduce mosquito populations locally. For example mosquitoes can be attracted to a trap when baited with human scent. A recent low-cost invention is a solar-powered trap that runs an electric fan and mosquito zapper.<sup>4</sup>

### Route map for IVM in malaria control programmes



- References: 1 WHO World Malaria Report 2012.  
2 Roll Back Malaria and UNDP, Consultation on Developing a Multisectoral Approach to Malaria. Geneva, Switzerland, 1-3 July 2013.  
3 PAN Africa, PAN Germany. Combating Malaria without DDT in Beer, Senegal, Project Report, 2013.  
4 ICIPE, Quarterly E-Bulletin, 2:2, 2012.

**Download the Framework for strengthening Integrated Vector Management in malaria control programmes at:**  
[www.pan-germany.org/download/ddt/malaria\\_framework\\_131031.pdf](http://www.pan-germany.org/download/ddt/malaria_framework_131031.pdf)

More information is available at: [www.tinyurl.com/75nuepa](http://www.tinyurl.com/75nuepa)

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