

# waterpoints

## Mobile mosquito ID

Mosquito species that carry malaria can now be swiftly identified with a DNA test-kit developed by researchers in Australia, according to a report in the *New Scientist*.

The kit will be part of a mobile laboratory that can identify offending mosquitoes on the spot, allowing disease-carrying species to be eradicated more quickly and cheaply.

Up to 2.7 million people worldwide die from malaria every year. But not all species of mosquito carry malaria and identifying the culprits is difficult, making control hit and miss. DNA probes are a more reliable way of identifying species but, until now, samples have had to be taken to laboratories hundreds of kilometres away from an outbreak of malaria.

The Australian team's portable version is an extension of seven years' work by Nigel Beebe from the Molecular Parasitology Unit at the University of Technology, Sydney. The University and the Australian Army Malaria Institute are partners in an exercise called Operation Anopheles, which aims to map the distribution of malaria vectors in the south-western Pacific, including Papua New Guinea and the islands of Indonesia.

At least 10 species of mosquito in the region, known as the *Anopheles punctulatus* group, carry the disease. Only the female mosquitoes bite, because they need a meal of blood to sustain their eggs. The disease is transmitted to humans when a mosquito injects its saliva to dilate the victim's blood vessels. The malaria parasite lives in the insect's salivary gland.

The Australian scientists have developed DNA probes for each of the 10 species. To do this, the team used a technique called the mosquito squash blot. In this procedure, the abdomen of the mosquito is squashed on a nylon membrane dampened with detergent. The detergent ruptures the insect's tissue, releasing the DNA that binds to the membrane.

At any one time, the researchers can check the DNA of mosquitoes against DNA probes — radioactively tagged DNA from the 10 species that carry the disease. The tagged DNA will bind only to DNA from the same species, so its behaviour on contact with the DNA of the squashed mosquitoes identifies the suspects. The scientists can then discover if *Anopheles* mosquitoes are

carrying the malaria parasite by tracing a tell-tale protein that is secreted by the malaria parasite in the insect's saliva.

Later this year, the researchers hope to have a mobile laboratory ready. 'We want to make it possible to use the probes in the field as well — in essence, to have a laboratory on the back of a truck,' says Beebe.

The laboratory will contain water baths to incubate the membrane and the tagged DNA at 42°C, and freeze-dried DNA probes that can be reconstituted. 'The results should be known in five to six hours,' says Beebe. 'That could save days in identifying the mosquitoes.' He also plans to develop probes to detect the mosquito species that transmit other diseases, such as Ross River fever, dengue fever, and Japanese encephalitis. For more information on the prevention and control of mosquito-breeding sites in urban areas, see *Waterlines*, Vol 16, No 2.

## Conference call

Is this one for the record-books? Conference organizers actively soliciting participation from 'people who have actually carried out field projects'. Anil Agarwal, Director of New Delhi's Centre for Science and Environment, is planning a major conference on rainwater-harvesting systems. If you have an academic, technical, or purely practical interest in RWS — and would like to know more about the conference plans, please contact: Anil Agarwal, Centre for Science and Environment, 41 Tughlakabad Institutional Area, New Delhi-110 062, India. Fax: +91 11 6985879. E-mail: cse@sdalt.ernet.in. Visit their website on: [www.oneworld.org/cse](http://www.oneworld.org/cse)

## African forum

The newly named African Chapter of the Water Supply and Sanitation Collaborative Council — Water and Sanitation African Initiative (WASAI), is holding an African Consultative Forum on Water Supply and Sanitation in Cote d'Ivoire's capital, Abidjan, between 17-20 November 1998.

WASAI is anxious that the continent's many existing WSS activities are combined into a concerted action programme, endorsed by sector professionals, policymakers and the donor community.

All external support agencies active in the sector are invited to take part in a panel discussion. We'll have more details in the October issue, but for more information now, contact Dennis Mwanza, 11th Floor, Indeco House, P/Bag RW 291X, Lusaka, Zambia. Fax: +260 1 226904. E-mail: ddmwanza@zamnet.zm



## SimTanka software

Vikram Vyas, a researcher based at Jaipur's Ajit Foundation, has been developing software for those interested in building covered tanks for rainwater harvesting systems.

The software, Sim Tanka, can now be downloaded from the Net — free of charge — at: <http://www.geocities.com/RainForest/Canopy/4805/>

The site also contains instructions for installing SimTanka and a help-file in the form of frequently asked questions. Vikram is currently developing an integrated model for monitoring and simulating all the water sources available to small rural communities. The resulting software will also be free. For more information e-mail: [visquar@jpl.vsnl.net.in](mailto:visquar@jpl.vsnl.net.in)