Dengue vector control research completed in Asia

5 year initiative focused on eco-bio-social strategies

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Dengue is one of the fastest spreading diseases in the world. It is now endemic in over 100 countries, and is surfacing in new areas, sometimes in explosive outbreaks. In an effort to control the spread of the disease, a new series of community-based strategies has been developed by a multi-disciplinary team of scientists.

Dengue is found most frequently in urban and semi-urban areas, particularly in Asia, as the mosquitoes that are the vector for the disease often breed in water storage containers in households. The Special Programme for Research and Training in Tropical Diseases (TDR) and Canada's Ecosystems and Human Health Program of the International Development Research Centre (IDRC) have recently concluded a five-year research and capacity building programme across six countries to develop better and more sustainable methods of community-based vector control. The research and capacity building programme was carried out between 2006 and 2011 in India, Myanmar, Sri Lanka, Indonesia, Philippines, and Thailand.

The programme investigated, from a multi-disciplinary perspective, the ecological, biological and social dimensions of dengue in urban and semi-urban areas in Asia. Its mission was to develop community-based intervention programmes aimed at reducing dengue vector breeding and viral transmission. Multi-disciplinary research groups from six leading Asian research institutions participated in the effort. The innovative initiative brought together multi-disciplinary teams of entomologists, epidemiologists, and social scientists. Many of the approaches are based on partnerships between academic institutions, communities, municipal services and NGOs.

Based on a common core protocol and standardized data collection instruments, all six sites undertook a situation analysis to characterize and map the urban ecosystem, vector ecology in its relation to rainfall, the social context, including stakeholder environment, and community, gender, and other social dynamics. This process led to the design of site-specific intervention packages using innovative biological, chemical, mechanical and environmental vector control technologies, or a combination of these tools.

The intervention tools included mechanical lid covers for key productive water containers, chemicals (e.g., Pyroproxyfen, BTi), and biological methods (e.g., dragon fly nymphs, larivovorous fish and copepods). Several groups also experimented with solid waste management, composting and recycling schemes. Many of the intervention tools were locally produced and all tools were implemented through community partnership strategies. All sites developed socially and culturally appropriate health education material. Various community groups were mobilized and volunteer groups for environmental health were formed in several sites. The programmes had varying impacts on vector densities but led to significant outcomes at the community level, with the formation of community groups with broad environmental hygiene and sanitation interests.

The findings will form the basis for defining efficient, effective and ecologically sound vector control needs based on local evidence, as proposed by WHO's strategy on integrated vector management, said Dr Johannes Sommerfeld, an expert on community based strategies for disease control at TDR. An Asia-wide Ecohealth network, through Mahidol University, was started in January 2011.

At the same time, TDR has recently formed a new research unit called "Vectors, Environment and Society" that focuses on multi-disciplinary research at the interface of vector-borne diseases, environmental issues and environmental change and communities.

For more information, contact Dr Johannes Sommerfeld

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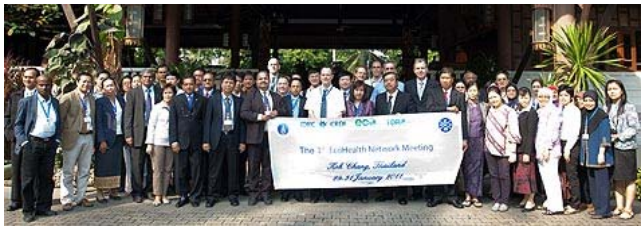

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