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Progress and prospects for the use of genetically modified mosquitoes to inhibit disease transmission

*World Health Organization,
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Report on planning meeting 1
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for malaria and dengue control

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8.13 The importance of social research for public engagement in bio-control releases: The case of the Eliminate Dengue project

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Our central purpose is the development of more ethical, effective, stakeholder-directed and context-sensitive engagement strategies in Australia and Viet Nam. To achieve this, we use anthropology's proven systematic approach to social research to provide a platform for stakeholder engagement and draw on anthropological insights and research techniques to identify and develop solutions to issues that might impede the uptake of a biological initiative for dengue fever control (hereafter the *Wolbachia* method). At present, we are working closely with those likely to be affected by a *Wolbachia* intervention to negotiate, design and implement public engagement strategies in northern Australia and, from May 2009, in Viet Nam.

Why use an anthropological approach?

Anthropology's central contributions to sociological knowledge in the last century have been in establishing that all human knowledge is culturally and historically shaped, including people's understandings of disease, illness, cure and preventative measures.^{58, 59, 60, 61, 62} Many commentators have argued that health interventions have been failing in part because they are based on a limited awareness of the complexity of local cultural contexts and the complexity of public interpretations and understandings.⁶¹ This has led to a flurry of interest in anthropological methods in recent decades as these are noted for their sensitivity to context and rigorous examination of what people do, say and know, and the logics that underwrite these.⁶³

Lay knowledge of biological control and genetic modification

Suarez et al.⁶⁴ argue that "...we still do not know what dengue is culturally and what it means for individuals in their everyday lives" (see also Slosek⁶⁵ and Gubler and Meltzer⁶⁶). The same could also be said about biotechnology and genetic modification, which as concepts, practices and technologies are relative newcomers to the public domain and public consciousness. In Australia, past attempts to assess lay understandings of biological control interventions (including those using new technologies) have tended to focus on large-scale public opinion surveys. These often miss or barely scratch the surface of lay understandings, their history and the contexts in which they are generated. This is a real concern when decisions are being made on the basis of this research. It is especially crucial in the context of pest and disease management, where public knowledge and participation can be essential to the successful implementation of programmes and where public perceptions of biological control interventions can "play a crucial role in determining whether a particular technology is developed and adopted".^{67, 68, 69}

Given this situation and the nature and complexity of the *Wolbachia* method, it is essential to gain a deeper understanding of stakeholders' knowledge about, for example, dengue fever, its vectors and transmission, understandings of bacteria, nature, biological control and genetic modification. Our Australian research strongly suggests that those likely to be affected by a *Wolbachia* strategy bring a range of knowledge and assumptions to their engagement with and comprehension of this method. While at times stakeholder understandings mirror biomedical or entomological knowledge, they often diverge from these in very particular ways. Indeed, we are encountering a range of different yet consistent understandings and perceptions of dengue, biological control, genetic modification

and bacteria in our research. This strongly suggests that local residents share certain assumptions about these issues that we can identify and address.

Central to this approach is the idea that without a clear understanding of such knowledge and the deeply held cultural, ecological or political assumptions that underwrites it, engagement strategies around new vector control methods will be less effective, less ethical and less authorizing at the stakeholder level than they could otherwise be. Unlike earlier studies, our approach includes a detailed, long-term and systematic investigation of these “public knowledges” and the taken-for-granted assumptions that underwrite them. The results of this research can greatly improve our capacity to: 1) communicate the nature of a *Wolbachia* intervention to a diverse population, 2) more fully comprehend stakeholder responses and 3) provide greater assurance to all parties that the public understand what it is that they are being asked to consider and evaluate. Thus, in our approach to community engagement we work to identify what people know and then use these insights to ensure that we are communicating with the public in ways that allow stakeholders to grasp what is being discussed and proposed, and what they are being asked to participate in and ultimately to agree to.

Deeper appreciation of lay knowledge opens up a space for the development of public engagement strategies that are potentially more ethical, nuanced, culturally sensitive and efficacious for informed decision-making by the public. This approach also has facilitated the following activities and outcomes at our Australian field site:

- Examine the taken-for-granted (i.e. cultural) socially and historically constructed discursive practices and assumptions that underwrite these responses to improve our understanding of stakeholders’ concerns and the socio-political setting in which we are working (i.e. the release site, the political and regulatory environment);
 - Report these findings to stakeholders and the scientific team. Explore ways of responding to these issues, through education, the media, schools, new forms of participation and new scientific research aimed at exploring specific questions raised by the public;
 - Explore and enact stakeholder-generated ideas regarding future engagement, communication, authorization and ownership.
- Identify, inform and engage the multiple publics likely to be impacted by the *Wolbachia* method through interviews, focus groups and quantitative surveys and listen to their responses, questions and concerns;