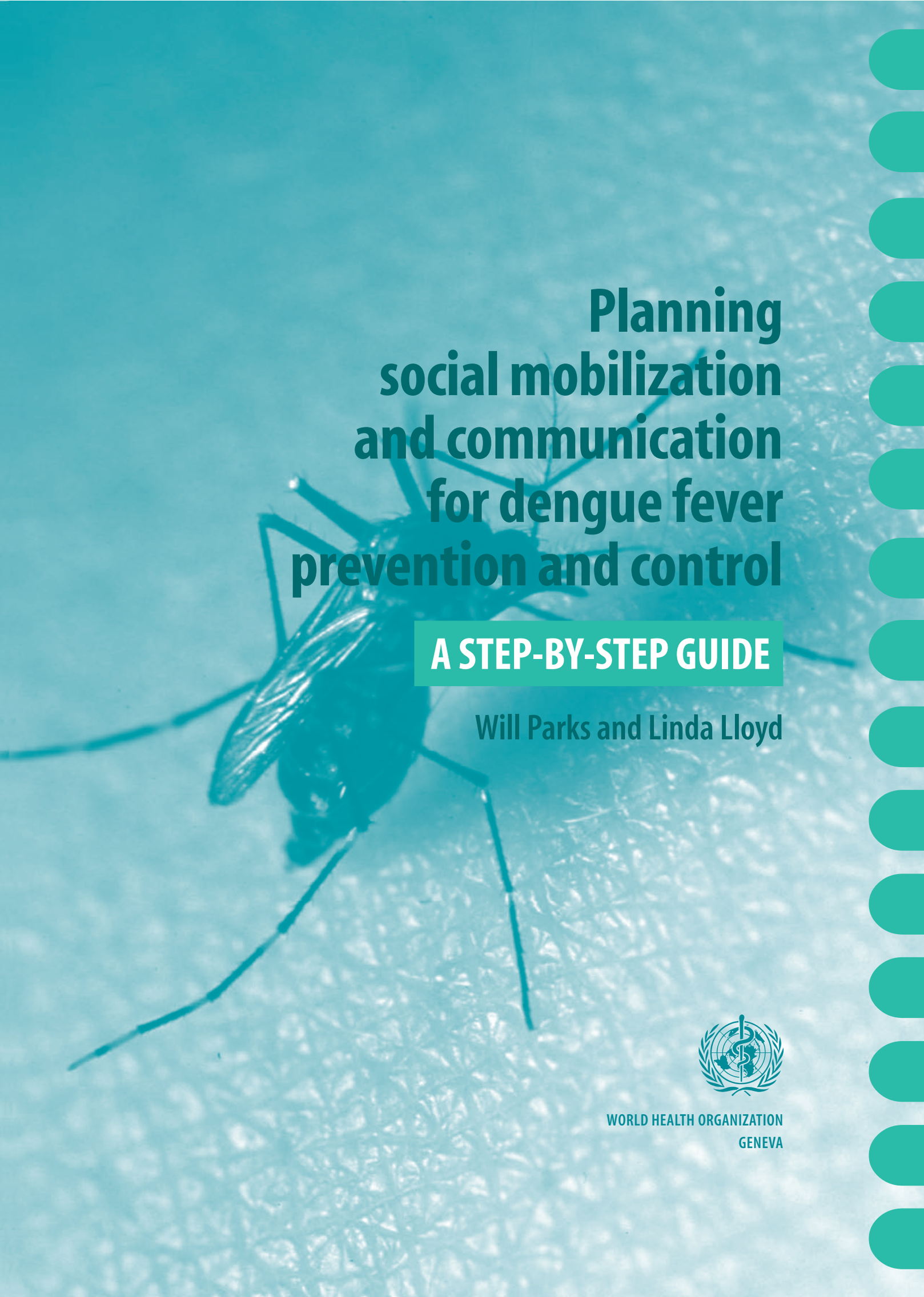

Planning social mobilization and communication for dengue fever prevention and control

A STEP-BY-STEP GUIDE

Will Parks and Linda Lloyd

WORLD HEALTH ORGANIZATION
GENEVA

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WORLD HEALTH ORGANIZATION MEDITERRANEAN CENTRE FOR VULNERABILITY REDUCTION (WMC)
UNDP/WORLD BANK/WHO SPECIAL PROGRAMME FOR RESEARCH AND TRAINING IN TROPICAL DISEASES (TDR)

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Forewords

Dr Elil Renganathan
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Communicable diseases kill, maim and cause suffering to millions of people, especially the poor. Women and children are particularly vulnerable. Communicable diseases impede national and individual development and burden economies with huge costs of treatment and control. While there are a number of affordable interventions to control these diseases, it is now evident that technical solutions alone cannot ensure the effective control and prevention of communicable diseases. Strategies to mobilize all levels of society – from high-level decision-makers to communities and families – are also essential.

At the crossroads of Africa, Asia and Europe, the World Health Organization's Mediterranean Centre for Vulnerability Reduction (WMC) in Tunis is an international centre for social mobilization, training and operational research. WMC provides technical support at country, regional and global level: training programme managers and health workers to ensure their optimal contribution to prevention and control; and mobilizing civil society, health workers and policy-makers to ensure acceptance and sustainability of programmes. WMC offers an innovative approach to social mobilization known as "COMBI" – Communication-for-Behavioural-Impact. Developed and tested over several years, COMBI incorporates the lessons learnt from five decades of public health communication and draws substantially from the experience of private sector consumer communication. COMBI represents a neat coalescence of a variety of marketing, education, communication, promotion, advocacy and mobilization approaches that generally aim to do the same thing – have an impact on behaviour and foster programme–community partnerships.

WMC, through its regional and country-level partners, has been applying COMBI in the prevention and control of dengue fever (in the Lao People's Democratic Republic and Malaysia and, in the near future, in Guatemala and Nicaragua), lymphatic filariasis (in India, Kenya, Myanmar, Nepal, Philippines, Sri Lanka, Uganda, United Republic of Tanzania and Zanzibar) and leprosy (in India and Mozambique). In collaboration with the Stop TB Partnership, WMC is also helping national tuberculosis control programmes in Bangladesh, India and Kenya to develop, implement and monitor COMBI plans to increase TB case detection rates, while in Afghanistan and Sudan, WMC is assisting malaria control teams to use COMBI in the large-scale promotion of insecticide-treated bednets.

For the first time in relation to dengue fever, this guide presents the basic steps and underlying principles of COMBI. It is intended for health planners, dengue or vector control programme managers and individuals, nongovernmental organiza-

tions (NGOs) and other agencies with interests and/or expertise in developing biological, chemical, environmental and communication interventions to prevent and control dengue fever. Twelve case studies of innovative programmes or interventions in Cambodia, Colombia, Dominican Republic, Fiji, Honduras, Indonesia, Malaysia, Mexico, Puerto Rico, Saint Vincent and the Grenadines, Vanuatu and Viet Nam are used to illustrate specific points. The authors, who have done an excellent job in putting this guide together, also make a special plea to donors, national governments and NGOs for adequate human resources, budgets and time frames to be dedicated to social mobilization and communication for dengue prevention and control. Changing knowledge and attitudes can be done relatively easily, cheaply and quickly. Achieving and sustaining behavioural impact is not so easy, cheap or quick.

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■ A global pandemic of epidemic dengue fever/dengue haemorrhagic fever (DF/DHF) began in South-East Asia in the aftermath of the Second World War. In the last 30 years of the twentieth century, the frequency and magnitude of DF/DHF epidemics increased dramatically as the principal mosquito vector, *Aedes aegypti*, and the viruses that cause DF/DHF, expanded their geographical distribution globally. This changing epidemiology was caused by a number of demographic and societal factors, including human population growth, urbanization, modern transportation and the lack of effective *Ae. aegypti* mosquito control programmes in tropical urban centres of the world. In 2003, DF/DHF is the most important arbovirus disease of humans, with more than half of the world's population living in areas of risk. Each year, the World Health Organization (WHO) estimates that there are 50 to 100 million dengue infections, 500 000 cases of DHF and at least 21 000 deaths, making DF/DHF one of the most important emergent/resurgent tropical diseases as we enter the twenty-first century.

Epidemiologic trends have demonstrated that prevention and control of dengue virus transmission in the past 30 years has failed. There is no vaccine for dengue viruses, and effective mosquito control programmes to prevent epidemic transmission have not been developed in most dengue-endemic countries of the world. Instead, emphasis has been placed on disease surveillance and emergency response using space sprays targeting the adult mosquito for control. Surveillance is poor in most dengue-endemic countries and the response has always been "too late and too little" to impact dengue virus transmission. Thus, few or no epidemics have been prevented using this approach, and the disease has continued to spread unabated.

Effective *Ae. aegypti* control, however, can be achieved by using an integrated approach that targets larval mosquitoes. This species was eliminated from most countries in tropical America during the 1950s and 1960s, effectively preventing both epidemic dengue and yellow fever. Unfortunately, these programmes were disbanded in the early 1970s after success had been achieved. This change was followed by the rapid reinvasion by *Ae. aegypti* of most tropical American countries, putting them at high risk for epidemic dengue. In modern times, only Cuba and Singapore have been successful in controlling *Ae. aegypti*. In both countries, a combination "top down–bottom up" approach has been used.

Unfortunately, in today's world of uncontrolled urbanization – especially in tropical developing countries – the "top down" methods used successfully in the past are

no longer feasible because of lack of resources. A city of 10 million people will have approximately 2 million households that would need to be visited and checked for mosquitoes weekly; this is simply not feasible. Moreover, the vertically structured programmes of the past had no sustainability. That sustainability will come only through community participation in mosquito control programmes. That is, the people who live in those 2 million houses must assume responsibility for the weekly inspection and control of *Ae. aegypti* in and around their homes. Sustainability requires that this be an ongoing programme that never ends as long as the threat of epidemic dengue transmission exists. *Aedes aegypti* control, therefore, must be an ongoing environmental management programme.

Eighteen years ago, a number of programmes emphasizing integrated, community-based *Ae. aegypti* control were initiated. The focus was on educating the community about dengue disease and how to prevent dengue transmission by controlling the principal vector, *Ae. aegypti*, in the domestic environment. Many of these programmes were highly successful in educating the community about dengue and its prevention. Unfortunately, knowledge about a disease problem does not translate into action to prevent the disease. Thus, even though people in many dengue-endemic countries are very knowledgeable about the disease, they take no action to control the mosquito and prevent transmission. One problem has been the lack of government partnership and support for these programmes. Successful and sustainable *Ae. aegypti* control will require an active, ongoing partnership between government health agencies and communities.

A major drawback with this approach is that we have not used social mobilization and communication effectively to convince people to adopt or maintain behaviours in ways that will prevent *Ae. aegypti* breeding in and around their homes. This guide is a major step forward in helping solve this problem by providing a "road map" of how to develop and implement community-based programmes that should result in sustainable behavioural impact. The guide has been used as a background resource for two WHO training programmes: a bi-regional (Western Pacific and South-East Asian regions) workshop held in the Lao People's Democratic Republic, in Febuary 2003, and in another held Nicaragua for the Pan American Health Organization in May 2003. Both workshops were highly successful. Used properly, this guide will be invaluable for ministries of health in dengue-endemic countries everywhere, to develop and implement effective dengue/*Ae. aegypti* prevention and control programmes.

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in Tropical Diseases (TDR)
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Geneva

■ International recognition of the vital importance of social mobilization for prevention and control of dengue fever and dengue haemorrhagic fever has gathered pace in recent years. The need for a thorough understanding of, and focus on, behaviours related to management of the larval habitats of the main dengue vector, *Aedes aegypti*, as well as treatment-seeking behaviour, were highlighted by the TDR Scientific Working Group on Dengue in the year 2000 (TDR/DEN/SWG/00.1).

A Director's Initiative Grant from TDR contributed to the development of this Step-by-Step Guide. The guide is one response to an international recommendation that a package of tools, approaches and guidelines should be prepared to assist national programmes in the design and implementation of appropriate social mobilization

and communication strategies to achieve sustainable behavioural impact. TDR supports the strong emphasis that the guide gives to formative research at all stages of this process.

The guide draws upon the growing body of knowledge from behavioural research across a broad spectrum of tropical diseases. It is hoped that it will not only be of assistance to national programme managers and other key partners but will also attract the research community, particularly social scientists, to the challenging task of sustainable dengue prevention and control.

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Our sincere thanks to Everold Hosein for sharing his experiences with Communication-for-Behavioural-Impact programmes from around the world and to Mike Nathan for his many technical and editorial inputs. The COMBI approach was initiated in WHO's Communicable Diseases Programme by Everold Hosein and Elil Renganathan, and has its roots in the *Integrated Marketing Communication for Behavioral Impact in Heath and Social Development* course conducted at New York University by Everold Hosein. Many thanks to Jane Thomason and Associates International, Brisbane, Australia, for managing the WHO/TDR Director's Initiative Grant that partly funded the production of this guide. Special thanks to Elspeth Lee for collating Tool Number 1. We are grateful to Mimi Abularach and Thais dos Santos (PAHO-Washington DC) for their editing and translation of the Spanish version, and to Luis Gerardo Castellanos (PAHO-Brazil) for facilitating the translation of the guide into Portuguese.

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Abbreviations and acronyms

CCH	Caribbean Cooperation in Health Initiative
CDC	Centers for Disease Control and Prevention (Atlanta, USA)
COMBI	Communication-for-Behavioural-Impact
DeVIT	dengue volunteer inspection teams (Johore State, Malaysia)
DF	dengue fever
DHF	dengue haemorrhagic fever
IEC	information–education–communication
ITM	insecticide-treated material
KAPB	knowledge, attitudes, practices, behaviours
M-RIP	massive, repetitive, intense, persistent
NEPRAM	*NEgociación de PRÁcticas Mejoradas* – Negotiation of Improved Practices
NGO	nongovernmental organization
PAHO	Pan American Health Organization
PAR	participatory action research
PKK	Family Welfare Empowerment Organization (Purwokerto, Indonesia)
PRDE	Puerto Rico Department of Education
SEARO	WHO Regional Office for South-East Asia
SWAP	shredded waste polystyrene
SWOT	strengths, weaknesses, opportunities, threats
TDR	UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
TIPS	trials of improved practices
USAID	United States Agency for International Development
WHO	World Health Organization
WPRO	WHO Regional Office for the Western Pacific

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Introduction

The global threat of dengue fever

Dengue fever (DF) and its more severe form, dengue haemorrhagic fever (DHF), are causing **ever-increasing** levels of illness and death.

An estimated 50 million dengue infections occur every year, including 500 000 cases of DHF that require hospitalization – equivalent to approximately one DHF case **every minute**.

At least 21 000 deaths from DHF occur every year, mostly among children – equivalent to one young life lost to DHF almost **every 20 minutes**.

These statistics will worsen unless urgent and effective action is taken.

Some 40% of the world's population (2.5 billion people) now live in areas where transmission occurs. The disease is endemic in the Americas, the Eastern Mediterranean, South-East Asia, the Western Pacific, and tropical areas of Africa. Recent research shows that the global burden of dengue could be in the same order of magnitude as many other infectious diseases such as malaria, tuberculosis, and sexually transmitted infections (excluding HIV/AIDS), the prevention and control of which receive far greater political and financial support than dengue.[1]

The reasons for dengue's emergence as a major global health problem have been well documented and include:

- continued and frequently unplanned urbanization;
- inadequate municipal services such as water supply and solid waste disposal;
- the escalating rate and geographical range of virus transmission brought about by intercontinental travel;
- the circulation of multiple strains and serotypes in one area;
- the adaptability of the vectors (*Aedes aegypti* and, to a lesser extent, *Aedes albopictus* mosquitoes);
- the unrestrained production and use of non-biodegradable food and drink packaging, and drums and other water storage vessels that often become larval habitats;
- the importation of used tyres by developing countries at risk for dengue; and
- non-existent, inconsistent, or fragmented national programmes.[2]

To date, no specific medicine is available for the treatment of dengue and although vaccine candidates effective against all four virus serotypes are under development, it will be a while before they are ready for public health use. Even then, it is likely that they will only complement rather than replace existing measures.

[1] Meltzer MI et al (1998). Using disability-adjusted life years to assess the economic impact of dengue in Puerto Rico: 1984–1994. *American Journal of Tropical Medicine*, 59:265–271.

[2] See: http://www.cdc.gov/ncidod/dvbid/dengue

For the time being, the *only* methods for preventing and controlling DF/DHF are to ensure prompt diagnosis of cases of fever and appropriate clinical management, to reduce human–vector contact, and to control larval habitats in and around people's homes and workplaces as well as from unclaimed empty spaces, informal dump sites, inadequately managed municipal dumps, and public areas such as roadsides, playgrounds, and cemeteries. A range of *Aedes* control methods now exist, many of which have been tried and proven for different situations (Box 1).

BOX 1 • *AEDES* CONTROL METHODS

- Environmental sanitation measures to reduce mosquito breeding sites, such as the physical management of water containers (e.g. mosquito-proof covers for water storage containers, polystyrene beads in water tanks), better designed and reliable water supplies, and recycling of solid waste such as discarded tyres, bottles, and cans.
- Biological methods (e.g. fish, copepods – small crustaceans that feed on mosquito larvae) to kill or reduce larval mosquito populations in water containers.
- Chemical methods against the mosquito's aquatic stages for use in water containers (e.g. temephos sand granules).
- Chemical methods directed against adult mosquitoes, such as insecticide space sprays or residual applications.
- Personal protection through use of repellents, vaporizers, mosquito coils, and insecticide-treated screens, curtains, and bednets (for daytime use against *Aedes*).

The main (often only) *Aedes* control method used in many countries, however, continues to be space spraying of insecticide for adult mosquito control. This strategy must be repeated constantly, its cost is high, and its effectiveness is limited.[1] *Ae. aegypti* prefers to rest inside houses, so truck or aerial insecticide spraying simply does not reach mosquitoes resting in hidden places such as cupboards. There have been several reports of home-owners in various countries refusing entry to household spraying teams, or tightly shutting windows and doors to prevent outdoor insecticidal fogs from entering their house, thus reducing the potency of this intervention. Furthermore, inadequate dengue surveillance systems have made spraying often too late to prevent epidemic transmission, and adult mosquito populations quickly return after spraying.[2] Public trust and complacency in such an ineffective approach has only increased the challenge of explaining the need for community involvement in the control of larval habitats.

The Global Strategy

The Global Strategy was established in 1995 to focus and coordinate national efforts to prevent and control DF/DHF.[3] In 2002, the necessary political will for its implementation was formally reflected by the 55th World Health Assembly adoption of a Resolution on "Dengue fever and dengue haemorrhagic fever prevention and control" (Resolution WHA55.17).[4] The Strategy consists of five main elements (Box 2).

[1] Gratz NG (1991). Emergency control of *Aedes aegypti* as a disease vector in urban areas. *Journal of the American Mosquito Control Association*, 7:353–365.

[2] Reiter P (1992). Status of current *Aedes aegypti* control methodologies. In: Halstead SB, Gomez-Dantes H, eds. *Dengue: a worldwide problem, a common strategy. Proceedings of the International Conference on Dengue and* Aedes aegypti *community-based control*. Mexico, Ministry of Health, 41–48; Gubler DJ (1994). Perspectives on the prevention and control of dengue haemorrhagic fever. *Kaohsiung Journal of Medical Science*, 10:15–17.

[3] WHO (2001). *Report of the consultation on key issues in dengue vector control, toward the operationalization of a global strategy*. Geneva, World Health Organization (document CTD/FIL(DEN)/IC/96.1). For internet access, see: http://www.who.int/emc-documents/dengue/docs/whocdsdenic20001.pdf

[4] For internet access, see: http://www.who.int/gb/EB_WHA/PDF/WHA55/ea5519.pdf and http://www.who.int/gb/EB_WHA/PDF/WHA55/ewha5517.pdf

BOX 2 • THE GLOBAL STRATEGY FOR PREVENTION AND CONTROL OF DF/DHF

- **selective, integrated mosquito control with community and intersectoral participation**, in which control is directed towards geographical areas at highest risk of transmission, integrating all appropriate methods in the most cost-effective and economical manner;
- **active disease surveillance based on strong health information systems**, involving clinical and laboratory-based dengue surveillance for early detection of epidemics and vector surveillance for monitoring and evaluation of control programmes;
- **emergency preparedness**, necessitating development of emergency and contingency plans, including education of the medical community, hospitalization plans, case management, and emergency vector control;
- **capacity building and training**, in surveillance, laboratory diagnosis, case management, and vector control at professional, supervisory, technical, and field levels; and
- **vector control research**, including studies on vector biology and control, disease relationships, design and management of control programmes, including social and economic approaches, and cost–benefit analyses.

Most countries of the World Health Organization (WHO) South-East Asia and Western Pacific regions have prepared their action plans based on the Global Strategy using their available infrastructure and resources. The Pan American Health Organization (PAHO) has drawn up proposals for its Member countries, recommending that they introduce more intersectoral actions into their prevention and control programmes.[1] Many countries have embraced this plan of action and have incorporated it into their programmes.

The behavioural challenges of dengue prevention and control

A major obstacle to effective implementation of selective, integrated mosquito control has been the inability of ministries of public health to mobilize and coordinate the resources needed to achieve and sustain behavioural impact among populations at risk of DF/DHF.[2]

Knowledge is not enough

Evaluation researchers have noted that, despite growing levels of knowledge and awareness about dengue and mosquitoes, many people are still not taking action. In some countries, people know that dengue is caused by mosquitoes and that mosquitoes can breed in water containers, yet they still fail to do what is best for them – and containers are left unprotected. Regrettably, an informed and educated individual is not necessarily a behaviourally responsive individual.

Many programmes continue to focus only on changing people's knowledge and on raising awareness, believing that behaviour will change; when it doesn't (and it usually doesn't), the standard response is to bombard people with even more entomological and epidemiological facts, often using sophisticated advertising techniques. But more information, fancy posters, colourful T-shirts, glossy

[1] PAHO (1994). *Dengue and dengue haemorrhagic fever in the Americas: guidelines for prevention and control*. Washington, DC, Pan American Health Organization (Scientific Publication No. 548); PAHO (1999). *A blueprint for action for the next generation: dengue prevention and control*. Washington, DC, Pan American Health Organization (document OPS/HCP/HCT/139.99). For internet access see: http://www.paho.org/English/HCP/HCT/hct-136-99.pdf

[2] WHO (1999). *Strengthening implementation of the global strategy for dengue fever/dengue haemorrhagic fever prevention and control*. Report of the Informal Consultation, 18–20 October 1999. Geneva, World Health Organization. For internet access, see: http://www.who.int/emc-documents/dengue/whocdsdenic20001c.html

pamphlets, and stylish TV features rarely, in themselves, lead to behavioural responses if they are not behaviourally focused.

Competition to healthy behaviour

There are two main competitors to promoting healthy behaviour: when people **DO NOTHING** against a particular problem or **DO SOMETHING ELSE** that does not reduce the risk of contracting DF or dying from DHF.

Numerous theories exist for explaining human behaviour, but this guide is based on the basic understanding that people perceive benefits and barriers to all behaviours. Different groups or segments of any population often perceive different barriers and benefits.

Programmes must be designed and delivered that remove the barriers and enhance the benefits for different segments of the populations served. The challenge here is twofold:

(a) to constantly ensure that the values of the new behaviour outweigh the values of the competing behaviour;

(b) to pay constant attention to the cost and convenience of the new behaviour compared with the competing behaviour.

To illustrate this challenge, suppose a dengue prevention and control programme wishes to promote the application of temephos in stored drinking-water. What's the competition?

The competition here may be that some people prefer drinking-water without temephos in it (temephos has a perceived cost – people may think it is poisonous). Alternatively, some people may already consider their water to be clean and protected against mosquitoes (temephos offers no more value than their existing behaviour). The competition could also be a mixture of both perceptions.

How then should the dengue programme promote temephos?

First, try examining current perceptions and practices concerning how to keep water "clean". What do people mean by "clean"? How do they know when they have "clean" water? Do they do anything to keep their water "clean"? Can any of their concepts be used to explain what temephos does? Could some other chemical product or design feature be added to temephos, which also helps to "clean" water (according to local definitions) without reducing its larvicidal properties? Is temephos not used because it is not easily obtained? Is temephos distributed and packaged in a convenient way? Do people associate temephos with fears that their children will be poisoned? Are there some people who readily accept temephos? Could their descriptions of temephos be used to promote it among their neighbours?

By analysing the competition, you begin to understand why people may not do what you think they should do. At the same time, you move a little closer to knowing how to achieve and sustain behavioural results.

Behaviour changes in gradual stages

Unfortunately, people do not change behaviour all of a sudden and remain "changed" from that moment onwards. Rather, people move through subtle stages: from becoming aware to becoming informed, becoming convinced, deciding to take action, taking action, repeating that action, and finally maintaining that action (Box 3).

BOX 3 • HICDARM AND BEHAVIOUR ADOPTION

First, we	**H** ear about the new behaviour
then, we become	**I** nformed about it
and later	**C** onvinced that it is worthwhile.
In time,	
we make the	**D** ecision to do something about our conviction
and later we take	**A** ction on the new behaviour.
We next await	**R** e-confirmation that our action was a good one
and if all is well, we	**M** aintain the behaviour!

Most programmes usually manage to inform and convince (HIC), but often fail to provide an effective and feasible new behaviour, or to prompt people to take the necessary steps towards adopting and maintaining the new behaviour (DARM). One can with ease achieve the preliminary goals of increasing awareness, informing, educating, and convincing individuals about what needs to be done (the HIC phase). It is quite another challenge to achieve and sustain behavioural results (the DARM phase).

An enabling environment

It may be that an individual cannot change his or her behaviour unless the setting in which he or she lives or works is also changed. The task is to discover how to make this setting an "enabling" environment, one that supports, for example, new behaviours, perhaps by providing more effective legislation, better housing construction techniques, improved services, or superior policies.[1]

Legislative measures such as regulations, fines, and criminal prosecution are one means of creating an enabling environment. Such measures, however, can be unpopular and even counter-productive, especially if the wider community is not consulted in the establishment of the legislation. Legislation is more likely to be successfully enforced when it is accompanied by widespread public awareness and education campaigns to encourage active rather than passive, resentful acceptance of a fining system by community groups.

In many dengue-endemic countries (and those countries prone to epidemics), public health legislation is not dengue-specific, and law enforcement cannot be achieved given the poorly developed administrative frameworks and lack of human resources. An enormous amount of work is needed to strengthen and redirect legislation to support dengue prevention and control. Reviews of decrees and resolutions, intersectoral coordination, and community consultation on appropriate fines and means of enforcement are among the priority actions required. A new focus on legislation to influence business practices rather than simply to target the behaviour of householders is also required.

However, an enabling environment may be insufficient without simultaneously addressing the gap between knowledge and action, the competition to healthy behaviour, and the gradual stages of behaviour change. For example, in areas where piped water supplies and hand pumps are available, traditional water storage practices often continue because of cultural preferences for collecting rainwater or

[1] See: Halstead S (2000). Successes and failures in dengue control – global experience. *Dengue Bulletin*, 24:60–70.

for leaving water to stand in containers for a few days. There may also be socioeconomic reasons for continued water storage, including the inability or reluctance to pay water rates, poor quality of water, low water pressure, and frequent breakdowns in water supply.

The purpose of this guide

A social mobilization and communication approach is called for that makes a seamless connection between knowledge and behaviour, addresses the costs and values of engaging in healthy behaviours, appreciates the gradual stages of behaviour change, and creates a supportive environment.

To date, social mobilization and communication strategies for dengue prevention and control and the research that informs these strategies, have been largely the pursuit of individual social scientists, university departments, and nongovernmental organizations (NGOs) implementing studies or field trials peripheral to national programme goals. Such strategies have tended to focus at the household and community level, with less emphasis being given to broader social changes needed in such domains as urban planning, municipal services such as water supplies, industry, and government institutions.

For the first time in relation to dengue, this guide offers a comprehensive and innovative managerial insight to planning social mobilization and communication for behavioural impact. The guide is intended for programme managers and individuals, NGOs, and other agencies with interests and/or expertise in integrating biological, chemical, environmental, and communication interventions to prevent and control DF/DHF. You may be an entomologist in charge of vector-borne disease control at national level. You may be an environmental health worker responsible for pest control, water supplies, and solid waste management within an urban authority. You may be a medical officer in charge of a district health service. This guide will help you learn about and ultimately apply the basic steps involved in developing a behaviourally focused social mobilization and communication plan that can help you achieve your public health objectives. Its style and extensive use of examples make the guide straightforward, easy to read, and enjoyable. While the topic is dengue, the planning process described can be applied to any other public health problem.

Some countries have produced or are currently producing national guidelines on community participation, behaviour change communication, and social mobilization for dengue prevention and control. It was felt that this WHO guide would contribute to the development and support of these local initiatives by demonstrating a breadth of international experiences. The guide is not a recipe book but a collection of examples and ideas, of group experiences and opinions. Its components should be challenged and adapted as occasion arises.

You may already have access to the following comprehensive guidelines on dengue programme management:

- Lloyd L (2003). *Best practices for dengue prevention and control in the Americas*. Washington, DC, Environmental Health Project, Strategic Report 7. Prepared for the USAID Bureau for Latin America and the Caribbean under EHP Project 26568/E.V.4.LACDENGUE. Also available in Spanish.
- PAHO (1994). *Dengue and dengue haemorrhagic fever in the Americas: guidelines for prevention and control*. Washington, DC, Pan American Health Organization (Scientific Publication No. 548). Also published in Spanish in 1995.

- PAHO (2001). *Marco de referencia. Nueva generación de programas de prevención y control del dengue en las Americas* [*Frame of reference: a new generation of prevention and control programmes in the Americas*.] (Document OPS/HCP/HCT/206/02).
- SEARO (1999). *Prevention and control of dengue and dengue haemorrhagic fever: comprehensive guidelines*. New Delhi, WHO Regional Publication, SEARO No. 29.
- WHO (1997). *Dengue haemorrhagic fever. Diagnosis, treatment, prevention and control*, 2nd ed. Geneva, World Health Organization.
- WPRO (1995). *Guidelines for dengue surveillance and mosquito control. Western Pacific Education in Action Series No. 8*. Manila, WHO Regional Office for the Western Pacific.

The objective of this guide is not to repeat or reinvent these valuable references. Keep these books near to hand as you read through this document.

There are many planning models for social mobilization and communication from which to choose.[1] In this guide, we introduce **COMBI** (Communication-for-Behavioural-Impact). In a structured and strategic manner, COMBI will help you to plan, implement, and monitor a variety of communication actions intended to engage individuals in considering recommended healthy behaviours and to encourage the adoption and maintenance of those behaviours.[2]

COMBI consists of three programmatic phases:

— planning
— implementation and monitoring
— evaluation.

This guide concentrates on **COMBI Planning**. Although we illustrate how various projects and strategies have been implemented around the world, the exciting task of implementation is left up to you! We shall discuss evaluation, but place greater emphasis on monitoring because we view social mobilization and communication as *constantly evolving*. There are also plenty of resources on evaluation to which you can refer (see Tool Number 1).

COMBI Planning can be divided into 15 steps (Box 4).

In practice, you will **and should** find yourself moving backwards and forwards between these steps until you are ready to pilot-test the plan that emerges. Incorporating pilot-test results likewise leads to modifications to your initial Strategic Implementation Plan.

None of these steps, of course, should be confined to an air-conditioned office at programme headquarters. You should insist upon the involvement of all partners in appropriate ways and at appropriate times as your social mobilization and communication

BOX 4 • FIFTEEN STEPS OF COMBI PLANNING

1. Assemble a multidisciplinary planning team
2. State preliminary behavioural objectives
3. Plan and conduct formative research
4. Invite feedback on formative research
5. Analyse, prioritize, and finalize behavioural objectives
6. Segment target groups
7. Develop your strategy
8. Pre-test behaviours, messages, and materials
9. Establish a monitoring system
10. Strengthen staff skills
11. Set up a system to manage and share information
12. Structure your programme
13. Write a Strategic Implementation Plan
14. Determine your budget
15. Conduct a pilot test and revise your Strategic Implementation Plan

[1] Go to, for example, internet address: http://www.comminit.com/planning_models.html

[2] For information on COMBI, see: http://www.who.int/infectious-disease-report/2002/behaviour.html and http://www.comminit.com/pdf/Combi4-pager_Nov_14.pdf; and WHO [forthcoming]. *Planning Communication-for-Behavioural-Impact (COMBI) Programmes for Health*. Tunis, WHO Mediterranean Centre for Vulnerability Reduction.

plan takes shape. The behavioural objective of this type of involvement is that stakeholders assess and contribute their perspectives on your proposed strategies and, more importantly, present their own strategies for you to advise on. Establishing a multidisciplinary planning team or an intersectoral advisory committee (or both) who meet on a regular basis during planning and implementation presents one opportunity to engage community groups. Whether planning at district, provincial or national level, community involvement in such teams or committees is essential.

Following the 15 steps of COMBI Planning will accomplish three essential managerial tasks. **First**, establishing clear behavioural objectives. **Second**, determining the strategic roles of a variety of social mobilization and communication disciplines – for example, public relations, advocacy, administrative mobilization, community mobilization, advertising, interpersonal communication, and point-of-service promotion – in achieving and sustaining these objectives (Box 5). And **third**, combining these disciplines in a comprehensive plan that provides clarity, consistency, and maximum behavioural impact to your social mobilization and communication efforts.

BOX 5 • COMBI'S FIVE INTEGRATED ACTIONS

- **Public relations/advocacy/administrative mobilization:** for putting the particular healthy behaviour on the business sector and administrative/programme management agenda via the mass media – news coverage, talk shows, soap operas, celebrity spokespersons, discussion programmes; meetings/discussions with various categories of government and community leadership, service providers, administrators, business managers; official memoranda; partnership meetings.
- **Community mobilization:** including use of participatory research, group meetings, partnership sessions, school activities, traditional media, music, song and dance, road shows, community drama, leaflets, posters, pamphlets, videos, home visits.
- **Sustained appropriate advertising:** in M-RIP fashion – massive, repetitive, intense, persistent – via radio, television, newspapers and other available media, engaging people in reviewing the merits of the recommended behaviour vis-à-vis "cost" of carrying it out.
- **Personal selling/interpersonal communication/counselling:** involving volunteers, schoolchildren, social development workers, other field staff, at the community level, in homes and particularly at service points, with appropriate informational literature and additional incentives, and allowing for careful listening to people's concerns and addressing them.
- **Point-of-service promotion:** emphasizing easily accessible and readily available vector control measures and fever treatment and diagnosis.

Social mobilization, social marketing, IEC, and COMBI

Let's pause here briefly to situate COMBI in relation to other approaches associated with promoting healthy behaviour that you may know about, the main ones being social mobilization, social marketing, and information–education–communication (IEC).

Social mobilization

Social mobilization is the process of bringing together all feasible and practical intersectoral social allies to raise people's awareness of and demand for dengue prevention and control, to assist in the delivery of resources and services, and to

strengthen community participation for sustainability and self-reliance. Social mobilization expands the concept of "community" to include not just householders, villagers, or urban settlements, but many other social allies such as heads of state and other political leaders, various ministries, district and local government authorities, community and religious leaders, businesses, environmentalists, NGOs, service clubs, journalists, filmmakers, artists and entertainers, to name the most common examples.

Social mobilization campaigns have often been used to mobilize local resources around a proposed social or health action, whether it is a service-related activity such as drug distribution or immunization, satisfying a community identified need, or correcting societal injustice.[1]

COMBI differs from traditional social mobilization in at least two ways. The latter:

— is more concerned with building national consensus and in carrying out a broad educational process that should energize and uplift people rather than in reducing the burden of particular diseases; and

— requires analysis of societal structures, but has less concern with attempting to achieve behavioural impact by researching and communicating specific messages to specific target audiences.[2]

COMBI is thus social mobilization with a disease-oriented, behavioural focus. Adding the behavioural focus to the mobilization model ensures that programmes – with usually very small budgets and human resources – get value for money in terms of actual behavioural results.

Social marketing

Social marketing or programme communication can be defined as the process of identifying, segmenting, and targeting specific groups or audiences with particular strategies, messages, products or training programmes through various mass media and interpersonal channels, both traditional and non-traditional. While careful consumer research may be carried out in social marketing programmes, there is often an absence of strategy for creating societal ownership and demand. In other words, social marketing provides no incentive for **communities** and **other programme partners** to take ownership of marketed innovations.

Social marketing is based on an appeal to the individual – if he or she can be reached. Yet in many countries, **reaching individuals with new ideas or products is the most difficult thing to do**. COMBI adds the social mobilization element to the social marketing model to ensure that the products, concepts or innovations will be widely diffused through various channels. The demand creation brought about by social mobilization ensures an accelerated process of diffusion.

Information–Education–Communication

COMBI also differs from traditional IEC approaches by moving programmes beyond awareness-raising to the achievement of precise behavioural objectives. We noted earlier that increased awareness and education about healthy behaviours have been notoriously insufficient bases for action, though they are essential steps in

[1] Berjemo A, Bekui A (1993). Community participation in disease control. *Social Science and Medicine*, 36(9):1145–1150.

[2] McKee N (1992). *Social mobilization and social marketing in developing countries: lessons for communicators*. Penang, Southbound.

the process towards behavioural impact. COMBI makes a systematic link between these steps and those needed for prompting desired behavioural responses.

A COMBI mantra is: **Do nothing – produce no T-shirts, no posters, no leaflets, no videos, etc. … do nothing until one has a precise fix on the behavioural outcome desired**. The "community" is intimately involved from the outset through practical, participatory research relating desired behaviours to expressed or perceived needs/wants/desires. This research also involves listening to people and learning about their perceptions and grasp of the offered behaviour, the factors that would constrain or facilitate adoption of the behaviour, and their sense of the costs (time, effort, money) in relation to their perception of value of the behaviour to their lives.

In summary, three essential ingredients of the COMBI approach are:

1. Establishment of precise behavioural (not just knowledge change) objectives on the basis of thorough research.
2. Integration of a judicious blend of communication actions appropriate to the various groups targeted and to the behavioural outcomes desired, all carefully coordinated and timed.
3. Constant monitoring of progress towards the achievement of these behavioural objectives.

COMBI represents a fluid yet comprehensive systematic approach to planning, implementing, and monitoring social mobilization and communication that can be adapted and experimented with whatever the chosen set of behavioural objectives.

Commitment to COMBI Planning

"Wait a minute!" you may be thinking. "Why should I be so interested in **planning** social mobilization and communication? Surely it's just a matter of printing some colourful posters, broadcasting some radio messages, or holding a few community meetings?"

As you read this guide, we hope that you will come to realize that it's a little bit more involved than that! To get you thinking and to help you convince others, here are six reasons why you should commit to COMBI Planning:

- To have greater behavioural impact
- To get the most out of your budget
- To attract more funding
- To measure impact
- To motivate people
- It's just plain, good management.

Have greater behavioural impact

A well-known saying goes: "Failing to plan is planning to fail!" Social mobilization and communication is probably the least well planned of all the major activities in dengue prevention and control. Part of the difficulty lies in the little-appreciated fact that most other programme functions are, in a sense, linked to or embedded within social mobilization and communication. Surveillance, emergency preparedness, staff training, vector control research … everything that touches politicians, staff, health workers, legislators, programme partners, and the general public is social mobilization and communication.

Doing the job better is not that hard. All you need are some precise, feasible **behavioural objectives** (not knowledge change or awareness-raising) and a set of well-researched **strategies**. Strategies refer to the broad approach that a programme takes to achieve its behavioural objectives. Strategies are made up of specific social mobilization and communication **activities** that on their own or in combination lead to achievement of the objectives. These activities explicitly aim to protect or maintain health by modifying existing behaviours or by encouraging the adoption of new behaviours. Sometimes, activities are linked to the promotion of technological products such as water container covers or biological control agents.

Obviously, to keep these activities focused and synchronized and to be able to assess how well they are going, you need a comprehensive **plan** and an effective monitoring system. You also need to organize your programme resources in such a way that these activities achieve the greatest behavioural responses possible and sustain that high level of response. If faced by limited funding and staffing, you will need well-planned and carefully executed social mobilization to engage others, whether they are community volunteers, media agencies, NGOs, or funding agencies.

So to have **any** behavioural impact, you need to plan social mobilization and communication. Yes, this requires dedication but plan you must. If you do your homework properly, your social mobilization and communication will result in a sharper, more persuasive programme directed at the most important householders, workplace managers, and partners with the highest probability of achieving and sustaining behavioural results.

Get the most out of your budget

People say that they prefer to do rather than plan. You may argue that you are already spending more time preparing plans that implementing them! But planning is more than achieving and sustaining behavioural results: it is about giving a programme the best chance of being implemented in the most cost-effective manner. We're talking about **achieving the greatest behavioural impact with the resources available**.

In the long term, proper research, strategy design, and careful organization together with comprehensive monitoring, reduces the cost and effort that must be expended to foster sustainable behavioural results. Programmes that are poorly designed, organized, and monitored are less effective. Consequently, several programmes often have to be developed and delivered to bring about the same behavioural impact as one well-designed programme. In short, proper social mobilization and communication planning will initially entail more work on your part, but this effort will be rewarded through both greater behavioural impact and lower long-term costs.

Generate more funding

Effective planning can help not only to ensure the success of a programme but also to fulfil another important purpose: securing funding support. Increasingly, funders are demanding that projects or programmes prove that they were designed on the basis of a solid research foundation, participatory planning, and that they will be piloted before being implemented. The steps outlined in this guide can help you to persuade funders that your initiative is worth supporting. So here's the third reason: careful research, strategy development, and organization **can win funding**.

Measure impact

Understanding whether a programme is having any impact demands that you know clearly what it is that you are trying to have an impact on. When you design and organize your social mobilization and communication, you should also plan for how you intend to monitor and evaluate your activities. This helps in two ways:

First, you can keep track of behavioural results and thus modify, discard, or redesign particular elements of your programme (this helps you **continue** to squeeze the best value out of your budget). Second, funding agencies, whether governments, foreign donors, NGOs, or private businesses, are increasingly being held accountable for the wise use of public funds. Sound research, planning, and organization with clearly identified objectives and ways to assess if these objectives are being reached offers you greater accountability. This evidence of impact can even be used to attract more funding.

Motivate people

The process of planning may be more important than the plan that emerges, especially if the process is participatory. Through a participatory planning process, the programme objectives can be internalized by people, thus ensuring the creation of community demand, availability of human, material and financial resources, and multisectoral inputs. There are at least five organizational advantages of planning (Box 6).

BOX 6 • ORGANIZATIONAL ADVANTAGES OF PLANNING

1. Those who must implement the plan will have ownership of its content.
2. The process of working together to develop a plan has significant effects on group cohesion and mutual respect.
3. Individual staffers and volunteers have the opportunity to express their own desires for the programme and for their personal participation in it.
4. Assumptions about communities and the behaviours that need changing or supporting are made explicit – and tested.
5. Programme managers and staff are forced to look ahead.

SOURCE: ANDREASEN A (1995). *MARKETING SOCIAL CHANGE: CHANGING BEHAVIOUR TO PROMOTE HEALTH, SOCIAL DEVELOPMENT, AND THE ENVIRONMENT*. SAN FRANCISCO, CA, JOSSEY-BASS PUBLISHERS.

Good management

Finally, the planning occasion requires that managers schedule "thinking time". Managers must think about what has happened, what is happening, and what may happen. Managers must set objectives and win agreement. The objectives must be communicated to everyone in the programme. Progress towards the objectives must be measured. Corrective actions must be taken when the objectives are not being achieved. Careful planning is just plain, good management.

Contributions of social mobilization and communication to dengue prevention and control

You may be wondering whether social mobilization and communication for behavioural impact can help in the prevention and control of DF/DHF. The answer is a definite **YES!** If you listen carefully to community groups, involve them in the

planning process from the beginning, and seek different but carefully integrated behavioural results at various levels of society, the rewards can be substantial.

Despite failing economies and dwindling programme resources, several countries have demonstrated that, with strong political commitment, well-planned and researched social mobilization and communication strategies can have a positive impact, not just on reducing vector populations but also on programme philosophy and the availability of resources. Here are just a few examples (some using COMBI, others using very similar planning frameworks):

- In Bucaramanga, **Colombia**, high school students are trained in *Ae. aegypti* biology and control and assist as community-based health educators. Results over 11 years (1992–2001) showed a steady decrease (with occasional increases) in the number of houses with *Ae. aegypti* larvae present.

- In El Progreso, **Honduras**, a method for cleaning large cement washbasins and metal drums (promoted as "the *Untadita*") was designed using existing household behaviours. The *Untadita* is a home-made ovicide consisting of mixing chlorine bleach with detergent, applying this mixture to the walls of the containers, waiting a few minutes before scrubbing the walls with a brush, and then rinsing the walls. Household visits to promote the *Untadita* by community volunteers were supported by a print visual (sticker) banners and radio broadcasts. Practised weekly by householders using low-cost and easily-obtainable materials, the *Untadita* had a significant impact on *Aedes* larval populations in the project area (it lowered the number and the age of larvae in washbasins and in drums) and became one of the recommended control methods in the national programme.

- In Purwokerto, Central Java, **Indonesia**, a partnership has been established between the local government, the Rotary Club, the Family Welfare Empowerment Organization (PKK), and municipal health services. Leadership and commitment from these partners, with strong technical support from the National Health Research Department, has enabled the development of an effective community-based integrated vector control project in Purwokerto (population, 220 000). This project operates at the neighbourhood association level. Each neighbourhood consists of between 25 and 50 households. Within each neighbourhood, houses are grouped into sets of 10, known as "dasawisma". Each dasawisma has a leader, usually a woman cadre from the PKK, trained in DF/DHF prevention and control, known as the "source reduction cadre". They are very proud to get this title. Each dasawisma gets a source reduction kit containing a flashlight for checking for the presence of larva in containers stored in dark areas, simple record forms, and a booklet for health education. The dasawisma arrange schedules, where one house inspects the other nine houses. Known as "Piket Bersama" (Picket Together), these house-to-house inspections are conducted on a weekly basis so each household takes its turn every 10 weeks. The dasawisma leader collects the weekly record forms and reports the results to the next administrative level. The success of this project can be measured by the reduction in the house index from 20% before activities began to 2% once activities were running well. This project has now been expanded to 14 cities in Indonesia through a US$ 200 000 grant from the Rotary Foundation of Rotary International and a US$ 75 000 grant from CDC in Fort Collins, Colorado.

- In Johore State, **Malaysia**, an integrated social mobilization and communication campaign motivated householders in Johor Bahru District to seek prompt diagnosis for any fevers, to destroy any larval breeding sites found around their premises, and to organize voluntary teams to inspect and control larval breeding sites in public spaces such as community halls, parks, and vacant lots. Dengue volunteer inspection teams (DeVIT) were formed in 48 localities. Some 615 volunteers came forward to join DeVIT teams. During the three-month campaign period, DeVIT teams gave advice to 100 956 people, distributed 101 534 flyers, and inspected 1440 vacant lots. The campaign resulted in a dramatic drop in the occurrence of dengue in the district; three months after the campaign, tracking surveys revealed that

70% householders were still checking their household premises. Today, 95% of DeVIT volunteers continue their work and many of them have even requested more responsibilities. The Government of the State of Johore has decreed that the campaign be implemented throughout the State.

■ In Mérida, **Mexico**, a participatory action research project involving community meetings, community-based production of communication materials, and door-to-door education resulted in significant changes in household behaviours, particularly in the disposal of non-essential containers. While larval indices did not change in the intervention site, larval indices increased in the control site (where no intervention took place).

■ In mid-1992, funds were mobilized from the Government of Italy under the umbrella of the Caribbean Cooperation in Health Initiative (CCH). The CCH/Government of Italy Integrated Vector Control Project became the focus for delivery of technical cooperation by PAHO in 15 English-speaking Caribbean island nations (1992–1997). In **Saint Vincent and the Grenadines**, the project resulted in a shift away from an exclusively "top down" approach to community action, e.g. from "clean up" campaigns and passive acceptance of fieldworkers carrying out their duties in the household compounds, to dialogue and negotiated partnership for resolution of environmental sanitation and vector control issues. Improved collaboration and coordination between the environmental health programme and the vector control programme was established, leading to a broadening of the responsibilities of the latter to include the control of pests and vectors other than *Ae. aegypti*. The new philosophy of the programme was, whenever possible, to help communities find solutions to problems and to motivate them to implement the solutions themselves.

■ "Manples community" is one of the many rapidly growing settlements on the outskirts of Port Vila, **Vanuatu**'s capital city. The settlement has a population of more than 1500, with all provinces of Vanuatu represented. It is outside the official boundary of the city and therefore not provided with municipal services (electricity and water). Each of the provincial and island groupings within the settlement is represented by a chief. During the 1998 national dengue awareness campaign, the chiefs came together with youth and women's representatives to form a joint committee known as the "Manples Community Project". Assistance was sought from the National Malaria and Vector Borne Diseases Programme to provide direction on how the community could participate in the control and prevention of dengue fever and malaria. Several meetings and an action planning workshop were organized on dengue prevention. To raise dengue awareness in the community, a local well known theatre group, "Wan Smol Bag", performed dengue plays during the workshop, as well as in the evenings when people returned from work. The committee started to mobilize the whole community. Each house donated the equivalent of 30 US cents to purchase 25-litre plastic bags, which were then used to collect small disposable containers. Householders who had old car tyres in their yards either removed them or were shown by volunteers how to properly fill them with soil so as not to retain water. The committee negotiated with business houses in Vila to lend their lorries so that the refuse could be moved to the city dump. The National Vector Control Unit worked with community volunteers to apply temephos to larger water storage containers. A small outbreak of dengue was detected in Port Vila in 1998, the first test of the capacity of the project. All sectors of the community were engaged to combat the outbreak and it subsided with no mortality. A subsequent circulation of dengue in the Pacific did not emerge in Vanuatu.

■ In **Viet Nam**, the application of copepods (*Mesocyclops*) to wells, tanks, ceramic jars and other domestic containers together with the establishment of community refuse recycling schemes has resulted in complete elimination of *Ae. aegypti* in several northern and central villages. Social mobilization and communication activities are principally one-on-one discussions and group meetings during which householders are taught about *Aedes* mosquito breeding sites in and around their houses, how to easily keep their water containers free from *Aedes* mosquitoes by releasing copepods, using tight covers, putting

salt or oil into ant traps, and eliminating unused water tanks or discarded containers. To prompt the maintenance of copepod populations in domestic water containers, residents have been taught about *Mesocyclops*, their predacious capacity, where they come from, and how to keep them in the water containers after the tanks or jars are cleaned. Each project commune established a collaborator network, with collaborators working directly with householders to implement and monitor project activities. Collaborators were selected from members of the local community who were motivated to work in public health, had sufficient time to undertake household visits, were able to learn new techniques and methods for DF/DHF control, and who were happy to work for a small monthly allowance. Organizations such as the Youth Union, Women's Union, and Farmers' Union supported the implementation of project activities, as did commune health staff. Schoolchildren were also involved in the implementation of activities with the support of their teachers. Householders have accepted the presence of copepods in the water containers with enthusiasm. The project structure has already become the main national strategy for active prevention and control of DF/DHF.

Other examples of organizational, entomological, and behavioural impact are presented throughout this guide.

Social mobilization and communication for behavioural impact is worth it! Relying solely on insecticidal spraying during epidemics is ineffective, expensive, and ultimately unsustainable. Yes, the above examples (and many others referenced in Tool Number 1) reveal that social mobilization and communication cannot guarantee prevention of epidemics, but there are legitimate reasons why:

- Mosquito control is much harder today than ever before due to the massive expansion of urban populations, the increased complexity of urban ecologies, and the spread of dengue to rural areas.
- The communication environment has grown more complex, with more people receiving more information through more sources than ever before. Dengue programmes have to work even harder to capture people's attention.
- It is only just being realized what level of investment effective social mobilization and communication for behavioural impact requires in terms of research, planning, organization, and time and social, political, and financial support.

Vigorously pursuing social mobilization and communication for behavioural impact will bring the following benefits:

— reduced intensity of dengue transmission during epidemics so that health services are not overburdened with too many clinical cases at once;

— reduction of multiple dengue infections thus diminishing the risk of DHF;

— communities primed to take rapid action in the event of an outbreak;

— enhancement of environmental health; and

— dengue prevention and control acting as an entry point through which people gain the necessary skills to tackle other issues on their own.

Social mobilization and communication for behavioural impact, as envisaged here, cannot work on its own. Most obvious is that social mobilization and communication has little impact without strong support from government services. Other programme principles remain fundamental if dengue prevention and control is to be achieved: improvement of public health infrastructure, epidemiological and entomological surveillance, effective clinical management, and emergency preparedness are all needed alongside intersectoral coordination, active community involvement, and reinforcement of health policy and legislation.

Organization of this guide

This guide is divided into 16 sections. The first 15 sections explain specific tasks and issues associated with each COMBI Planning step. We offer suggestions, examples, and lessons learnt to help you successfully accomplish each step. Section 16 offers some final words of advice from several programme teams who have advanced the field of dengue prevention and control in recent years.

Each section is indexed at the side of the relevant page for easy access. The following icons have been included to help you quickly find useful information throughout the text:[1]

This icon means that you will find an actual example of something that worked (or didn't work) in the real world. Most of these examples are drawn from 12 country case-studies prepared for this guide: Cambodia, Colombia, Dominican Republic, Fiji, Honduras, Indonesia, Malaysia, Mexico, Puerto Rico, Saint Vincent and the Grenadines, Vanuatu, and Viet Nam.

This icon calls attention to advice or an idea to help you work through a specific problem or issue.

This icon highlights an important lesson that has already been learnt and which may be valuable to you.

Social mobilization and communication for behavioural impact is complex, so there's much that can go wrong. This icon alerts you to common mistakes and points out when you may run into trouble.

This icon signals when you will need to think about and/or discuss a particular issue with colleagues.

We also provide a Toolbox of resources ("Tools") to help you read more about, solve, or manage particular planning tasks.

[1] We gratefully acknowledge the original inspiration for using such icons: Hiam A (1997). *Marketing for dummies: a reference for the rest of us!* Foster City, CA, IDG Books Worldwide Inc.

What you will not get from this guide

This guide is not encyclopaedic. Its major focus is on developing a comprehensive, multi-level social mobilization and communication plan targeting behaviours related to the control of *Aedes* larval habitats (eggs and aquatic stages) and, to a lesser extent, treatment-seeking behaviours. It does not cover aspects of DF/DHF that have been well described elsewhere, for instance the history, pathology and immunology, and diagnosis and clinical management of DF/DHF. Vector biology and ecology are discussed only as they relate to human behavioural issues; entomological or virological surveillance is not addressed, only monitoring behavioural impact (see Tool Number 1 for selected references on these other aspects of DF/DHF).

The key steps in planning for behavioural results are discussed but not those for how to design particular social mobilization and communication materials and activities because:

- These details will depend very much on the specific behavioural objectives you are trying to achieve, and these in turn will depend on the social, ecological, economic, political, entomological, and epidemiological environment in which you are working.
- We hope that you will see the need to conduct this complex analysis and design work by involving in-country social scientists from your own programmes, local companies, NGOs, or national universities.
- Numerous references and Web sites are already available that discuss the finer points of designing social mobilization and communication materials and activities (see Tool Number 1).
- Channel selection, message development, and material design is usually where most people begin when they think about social mobilization and communication, e.g. "Our brochure should be this colour"; "Our radio spot should say this"; or "Our billboard should be this big"… We'd like to discourage this type of thinking because achieving and sustaining behavioural results takes far more analytical discipline than designing attractive materials.

Finally, this guide does not discuss "community participation" in detail. First, because much has already been written on this topic (see Tool Number 1). Second, definitions of community participation depend upon the cultural, political, environmental, and even philosophical contexts of a health programme. Third, this guide assumes that the "community" is a key partner in all aspects of the programme and not just a participant in a specific activity. Fourth, community participation is a dynamic not static concept – partners, behavioural objectives, and levels of involvement in the design, implementation, and monitoring of strategies to achieve these objectives change as programmes unfold.

For these reasons, we urge you to adopt an expansive view of "community" as a set of programme partners, whether they be householders, local leaders, commercial business owners, an NGO, religious organizations, schoolteachers, environmentalists, politicians, or donor representatives, in place of the more traditional stereotype of "community" being a geographically bounded population on which interventions are imposed. One of your tasks is to develop partnerships that will achieve and sustain behavioural results and then to carefully negotiate the roles and responsibilities of each partner's involvement in your programme.

We also urge you to consider community participation as a **principle by which you plan, implement, monitor, and evaluate social mobilization and communication**,

and to remember that participation should always lead to behavioural results. Vague participation (e.g. having an NGO representative attend programme planning meetings with no subsequent action) is a waste of resources. One way to facilitate community involvement is to adopt a participatory action research (PAR) approach in which all planning steps occur within the residential or workplace setting rather than in settings far removed from those in need. This approach has proved highly successful in small-scale projects, where external change-agents assist individuals, families, schools, or businesses to identify problems, develop solutions and take appropriate action. If you are a national programme manager, you may wish to see this PAR approach adopted by your district-level officers. Your main task is then to ensure adequate distribution of any supplies requested, coordination of these projects towards national goals, and some level of consistency in the manner in which officers provide advice.

We encourage you always to think about behavioural impact on multiple levels – about the behaviours of businesses and government authorities – not just the behaviours of householders. For example, when working with housewives to enable them to take care of domestic water containers, you must also be working with politicians, legislators, and relevant public and private agencies responsible for water provision. Your bottom line is always behavioural results at all levels, not just at the household level.

15 STEPS OF COMBI PLANNING FOR DENGUE PREVENTION AND CONTROL

1 • ASSEMBLE A MULTIDISCIPLINARY PLANNING TEAM

2 • STATE PRELIMINARY BEHAVIOURAL OBJECTIVES

3 • PLAN AND CONDUCT FORMATIVE RESEARCH

4 • INVITE FEEDBACK ON FORMATIVE RESEARCH

5 • ANALYSE, PRIORITIZE, AND FINALIZE BEHAVIOURAL OBJECTIVES

6 • SEGMENT TARGET GROUPS

7 • DEVELOP YOUR STRATEGY

8 • PRE-TEST BEHAVIOURS, MESSAGES, AND MATERIALS

9 • ESTABLISH A MONITORING SYSTEM

10 • STRENGTHEN STAFF SKILLS

11 • SET UP SYSTEMS TO MANAGE AND SHARE INFORMATION

12 • STRUCTURE YOUR PROGRAMME

13 • WRITE A STRATEGIC IMPLEMENTATION PLAN

14 • DETERMINE YOUR BUDGET

15 • CONDUCT A PILOT TEST AND REVISE YOUR STRATEGIC IMPLEMENTATION PLAN

STEP 1. Assemble a multidisciplinary planning team

Factors influencing the occurrence of dengue fever are complex and demand a mixture of disciplines in order to find and create solutions. The first Step in drawing up a social mobilization and communication plan is to assemble the appropriate planning team, one that includes the full range of knowledge and disciplines that should be relevant.

One type of multidisciplinary team used by many programmes is the **intersectoral planning group**, with representatives from other programmes within the ministry of health as well as other ministries such as water and sanitation, sports, education, housing, urban planning, as well as professional societies, public relations and advertising firms, local social scientists, and NGOs (Box 7). These intersectoral groups are often used to oversee all components of a programme: surveillance; clinical services; emergency response; and so on. Here we are interested in a multidisciplinary approach to planning social mobilization and communication. We shall talk further about programme organization in Step 12.

BOX 7 • THE HEALTHY CITIES MOVEMENT

The "Healthy Cities" movement is a multidisciplinary, intersectoral initiative to which dengue programmes can turn for collaboration and mutual support. The Healthy City initiative is a development activity that seeks to put health on the agenda of decision-makers in cities, to build a strong lobby for public health at the local level, and to develop a local, participatory approach to dealing with health and environmental problems. In some jurisdictions, environmental health policies and regulations are apparently already well entrenched. Unfortunately, many of these policies and regulations, implemented to protect health and the physical environment, are flawed with hidden consequences. By joining the Healthy Cities initiative, dengue programme managers can ensure that urban and regional planners, architects, engineers, and decision-makers of the built environment are better informed about their potential to create as well as solve dengue problems. For more information on Healthy Cities, see Tool Number 1.

Working relationships between various actors in a dengue programme are often complex. Health professionals, epidemiologists, entomologists, social scientists, community development workers, advertising agents, urban planners, and water engineers all bring different skills and viewpoints. Your job is to manage this team in such a way that it is optimally creative and effective. In order to work as a team, many questions need to be explicitly addressed at the outset: Who directs the programme? Who determines what the objectives should be? Who chooses what kind of control measures are to be used? Who decides how these measures are to be promoted? What role will other community groups play and how will their views be represented?

Team members might include:

- **Physician**
- **Epidemiologist**
- **Entomologist**
- **Social scientist**
- **Community development worker**
- **Advertising agent**
- **Urban planner**
- **Water engineer**

You, as the programme manager, and the intersectoral group also need to consider what is the main purpose of the group: To develop strategies? To write plans? To oversee resource allocation? To monitor progress? To set policy? To report to the head of government?

Terms of Reference for this multidisciplinary planning team might include:

- Determine preliminary behavioural objectives (*see Step 2*).
- Recruit principal investigators and fieldworkers (as required) to design and conduct the formative research (*see Step 3*).

- Organize feedback on the formative research findings (*see Step 4*).
- On the basis of research findings, state final behavioural objectives (*see Step 5*).
- Design the social mobilization strategy (*see Steps 6 and 7*).
- Oversee pre-testing of messages, materials, and behaviours (*see Step 8*).
- Ensure monitoring and evaluation activities are conducted and relevant reports written (*see Steps 9 and 11*).
- Supervise relevant training activities (*see Step 10*).
- Direct implementation of the Strategic Implementation Plan and coordinate contributions from other partner agencies as required (*see Step 12*).
- Write a Strategic Implementation Plan detailing the social mobilization and communication strategies required to achieve the stated behavioural objectives (*see Step 13*).
- Seek financial and in-kind support for the proposed project (*see Step 14*).
- Identify the location for a pilot project and discuss subsequent design and implementation with relevant community and civic authorities (*see Step 15*).
- Present programme progress to community groups, relevant national committees, donor agencies, and national media as required.
- Present programme results at relevant national and regional symposiums.

Working with social scientists

Culture and behaviour can have powerful influences on efforts to improve early diagnosis and treatment in times of epidemics and for larval control. Understanding what families do in the face of childhood febrile illness in dengue-endemic areas is critical to improving treatment practices. New control measures such as water container covers, copepods, and insecticide-treated materials (ITMs) are emerging. Each new technology demands an understanding of the behavioural environment for which it is intended.

The task of planning and implementing social mobilization and communication strategies is further complicated by the diversity of cultures, ethnic groups, and settlement and residence patterns. Urban societies are particularly complex. The urban environment changes rapidly and is little understood. Community organization in urban areas is often less coherent and less effective compared with rural areas. Programmes targeting urban populations face many unique difficulties, including delineating different target groups, identifying suitable leadership structures, and creating sustainable mechanisms for community involvement. More sophisticated communication campaigns are often required in urban areas than in rural settlements to accommodate differing values and lifestyles.

These and many other of the social science requirements now being emphasized in dengue prevention and control leave programme managers, entomologists, and medical officers wondering which way to turn and whom to hire. Many managers increasingly find themselves working or needing to work with social scientists. They may be asked to hire such people to play a part in strategy design, implementation, monitoring or evaluation. Programme managers themselves may even be asked to gather social science data on the population affected by dengue or community requesting help to address a dengue problem or other environmental health needs.

If you decide you need to hire social science expertise, contract a social scientist or social science team (e.g. an anthropologist, sociologist, and communication specialist) with:

— considerable field experience in social mobilization and communication strategies of any kind in developing country settings;

— successful completion of similar tasks in the past (as demonstrated by communication strategies developed, data produced that were useful to control programmes);

— a knowledge of a variety of research methodologies and an ability to communicate well with other team members;

— a working knowledge of the language or languages to be encountered in the programme area (an enormous advantage, which is of course essential if no translator can be found); and

— some knowledge of mosquito biology and ecology in order to work in a new way in your multidisciplinary planning group.

1 • ASSEMBLE A MULTIDISCIPLINARY PLANNING TEAM

2 • STATE PRELIMINARY BEHAVIOURAL OBJECTIVES

3 • PLAN AND CONDUCT FORMATIVE RESEARCH

4 • INVITE FEEDBACK ON FORMATIVE RESEARCH

5 • ANALYSE, PRIORITIZE, AND FINALIZE BEHAVIOURAL OBJECTIVES

6 • SEGMENT TARGET GROUPS

7 • DEVELOP YOUR STRATEGY

8 • PRE-TEST BEHAVIOURS, MESSAGES, AND MATERIALS

9 • ESTABLISH A MONITORING SYSTEM

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15 • CONDUCT A PILOT TEST AND REVISE YOUR STRATEGIC IMPLEMENTATION PLAN

STEP 2. State preliminary behavioural objectives

Prevention and control of dengue rests ultimately on the achievement of specific behavioural results. A COMBI Plan must be **absolutely** informed by this behavioural imperative. All too often there is a headlong rush into the production of IEC materials such as T-shirts, posters and pamphlets, without first thinking through the relevance of these materials to the behavioural outcome desired. These materials may or may not be needed; but this decision depends on how these items serve the behavioural objective/s. And that calls for a clear enunciation of behavioural objective/s at the very start.

You and your planning team should already have an idea about what you think people should do and what people are doing, although you may not know why they do what they do. In developing some preliminary behavioural objectives, your team might begin by discussing the following questions:[1]

- Whose behaviour needs to change to bring about the desired health outcomes? (mother's; neighbour's; vector control field officer's; local business manager's?) Who is your audience?
- What do you want to help them to do? Is it feasible? Is it effective?
- Why aren't they doing it now? How can you best influence and support those behaviours? What barriers exist? Why are some people currently doing it and others not? What makes the difference?
- What activities address those factors that you've identified as most influential in changing the behaviour? Do you need materials to support those activities? Products?

Stating preliminary behavioural objectives before conducting any research helps you think about future needs. This is the "backward research" approach developed by Andreasen (1985).[2] Based on your team's discussions, you might arrive at behavioural objectives such as:

- Householders to sustain the use of copepods in all wells and tanks in periurban villages.
- Householders to use household bleach in a novel ovicidal fashion.
- Householders to use mosquito-proof drum covers.
- Car repair business managers to discard or manage old tyres effectively.
- Caregivers to seek prompt clinic-based diagnosis for any fevers in children.

These are not final, but by stating some initial behavioural objectives, you can begin to narrow down the research you need to conduct as well as give some initial shape to your strategies. Since these objectives may not be feasible from the viewpoint of the groups you hope to influence, formative research can be used to investigate whether your expectations are reasonable and, if so, whether they continue to be reasonable.

[1] Adapted from: Moore M, Rosenbaum J (2000). *Behavior Change Interventions*. PVO Child Survival Grants Program Technical Resource Materials, United States Agency For International Development, Bureau for Humanitarian Response, Office of Private and Voluntary Cooperation (USAID/BHR/PVC).

[2] Andreasen AR (1985). "Backward" marketing research. *Harvard Business Review*, 63(3):176–182.

STEP 3. Plan and conduct formative research

Based upon your preliminary behavioural objectives, your team should now plan and conduct a formative research study to assess:

— the behavioural environment

— the programme environment.

Formative research (also known as market or intervention or communication research) is conducted primarily at the start of the programme and includes all research that helps to inform the development of a new, or refinement of an existing, social mobilization and communication strategy (Box 8). For example, reviews of the scientific literature, entomological assessments of key containers, community organization and structure, ethnoentomology (study of local or folk taxonomies of insects), ethnographic investigations of health beliefs and practices, baseline Knowledge, Attitudes, Practices, and Behaviours (KAPB) surveys, media consumption surveys, research to determine appropriate communication channels and strategies, pre-testing materials or messages, and pre-testing specific behaviours (behavioural trials) are all part of the formative research phase.

BOX 8 • FORMATIVE RESEARCH

- identifies key social issues, gaps in knowledge and health education, and key resource- and non-resource-related constraints that impede existing prevention or control programmes;
- highlights community-felt needs that could be shared by programme priorities;
- informs those developing strategies about what local populations are doing, thinking, and saying about focal issues, behaviours, technologies, service staff;
- discovers key cultural analogies that can be used for health education messages;
- identifies current behaviours that, after slight modification, could become more effective at removing or reducing health risks;
- examines what obstacles might stand in the way of adopting new behaviours and how to resolve them;
- investigates motivations and opportunities for change and identifies the stage people are at in the behaviour change process;
- provides information on how best to implement the strategy (who, when, where, how);
- pre-tests behaviours, messages, and materials with representative samples of intended target groups; and
- monitors community response to interventions over time, enabling mid-course correction.

Formative research should also be part of the programme monitoring and evaluation process. For example, it can be used to monitor acceptance of a new behaviour, such as use of a container cover, or to get an early indication of whether messages are reaching the community as planned (*see Step 9*).

N.B. In using this guide, we assume that you already have access to reliable, local entomological data. If not, as part of your formative research, you will need to conduct a basic entomological survey (and/or review of available literature): to identify seasonal trends in *Aedes* populations and key larval habitats; to inform the identification of container types and specific behaviours that will become the focus of your strategies; and to enable evaluation of the interventions to be made.

Surveys should include the collection of container-specific data, e.g. for water storage jars, 200-litre metal drums, tyres, plant pots, ant traps, discarded food and drink containers, and "others". Categories should be based on local understanding of the main larval habitats and must specifically include those which are likely to be targeted in subsequent interventions.

Another COMBI mantra is: **Do nothing – produce no T-shirts, no posters, no leaflets, no videos, etc. … do nothing until one has conducted formative research (a situational analysis) in relation to the behavioural objectives**. Unfortunately, many programmes underutilize formative research. Staff often believe that they have the answers and that if only people would listen to them and do what they tell them, vector densities would drop. Sometimes programmes include formative research, but strategies proceed before the research is complete because of artificial time pressures or poor planning ("We can't wait for the research report, we need those posters now!"). In other situations, when there is a shortage of time or money in programmes, the formative research stage often suffers or is dropped entirely. Some managers do not understand the purpose and value of such research and see it as an unnecessary step, blocking progress. Frequently, social scientists give in to this kind of demand. Other programme managers see the value of formative research but have few resources through which to fund it or little support from their superiors.

But what if you conducted research that helped your programme convince 1000 more households to protect their water containers with effective lids than would be the case if you didn't conduct research? What if this research saved your programme US$ 10 per household per annum because your team didn't have to apply larvicide to their water four times a year or to treat their children's fevers at hospital? Wouldn't investment in such research make financial sense?

Good formative research is essential for effective social mobilization and communication. **We cannot argue strongly enough for programmes to ensure that they use formative research**.

Questions that your planning team should ask at this point include:

- What information do we need to make key programmatic decisions?
- What information already exists that we can apply?
- What information do we need to go out and collect?
- What's the best method for obtaining the information?

Tool Number 1 provides a list of books, papers, and Web sites that explain the various qualitative and quantitative research methods used in formative research. Tool Number 2 provides an outline of the different steps involved in a formative research study and describes how formative research has supported three dengue programmes.

Assessing the behavioural environment

Formative research involves listening to people and learning about their perceptions and grasp of the offered behaviour (as indicated by the preliminary behavioural objective). You should also examine the social, political, ecological, moral, legal, and spiritual factors that could constrain or facilitate adoption of the behaviour, and people's sense of the costs (time, effort, money) in relation to their perception of value of the behaviour to their lives.

For instance, you may discover that people do not throw old tyres away but keep them as children's toys, to hold down iron sheets used for roofing, or to plant flowers. You may find that people are already covering their 200-litre drums with such items as wooden planks or metal sheets, not to stop *Aedes* mosquito breeding but to prevent dirt and dust from getting into their water. You may find that people seek treatment for fevers from pharmacists, traditional therapists, or private medical practitioners rather than or before visiting their local government clinic.

All these reasons for not recycling tyres, for covering drums but for non-entomological reasons, or for seeking treatment from nongovernmental resources, furnish you with possible ways forward in terms of recommending more reasonable behaviour changes such as: various ways to manage tyres rather than insisting that people recycle them; designing drum covers that are entomologically effective but above all, satisfy people's desires to keep their water free of dust and dirt; or ways for pharmacists, healers and private doctors to work closely with government services (e.g. through referrals and reporting during periods of high risk for dengue outbreaks).

During the initial formative research phase, you should also work out what channels of communication are available for reaching target groups, where or from whom people seek information and advice on dengue or mosquito problems and why they use these information sources. You should look carefully at possibly relevant seasonal variations in local behaviours. You should examine what people think about your programme, its staff and its services. You should also identify topics that require further formative research.

Here are examples of the kinds of questions that can help you focus your formative research to address four key programme areas:[1]

Example 1: Setting and implementing a vector control policy

- What do health-care workers, householders, and factory owners believe about the effectiveness of recommended and alternative control measures mentioned in the policy?
- What do householders and workplace managers expect from the recommended control measures?
- How will householders and workplace managers respond to a policy change that replaces a long-familiar control measure such as space spraying with a less familiar control measure such as copepods?
- What are the best ways to promote and implement a biological control policy?

Example 2: Water container management

- How many key (most productive) containers do householders have? Where are they positioned in the house compound? Why in that location?
- Who acquired them? For how much? Where from? Who uses them? How are they used?
- If used to store water, how is water collected? Why? How often?
- Are containers cleaned? If so, how, how often, by whom, why? How much does cleaning cost – time, resources?
- Are containers covered in some way? If so, how and why? By whom?

Example 3: Communicating with the community

- Who are currently or potentially the most important actors in household hygiene? Who influences those actors?
- What information is most important for them to have?
- Who is a credible source of information in the community's eyes?
- What are the best means for conveying that information?

[1] Adapted from Baume C, Kachur SP (1999). *Improving community case management of childhood malaria: how behavioural research can help*. Washington, DC, Academy for Educational Development.

- What terminology and concepts of illness, mosquitoes, and hygiene should be used?
- What resources does the community have that would enable it to more effectively control *Ae. aegypti*?

Example 4: Developing policies for home-based management of dengue

- What do caregivers do as a first response to fever? Why are those treatments selected and who influences treatment decisions? Which of those actions are positive (e.g. rehydration) and which are detrimental (e.g. use of aspirin (acetylsalicylic acid))?
- What is the timing of these treatment options?
- How do families define successful treatment? Unsuccessful treatment?
- How are decisions made about whether to treat at home or elsewhere? What are the signs that indicate to families that a child needs attention from a health provider? How is severity defined by caregivers?
- What is the typical cost of home care, and how does cost influence home-care practices?
- What are the common barriers to more optimal home care?

Assessing the programme environment

You should also use formative research to examine your programme's strengths, weaknesses, opportunities, and threats (SWOT). You may find that community needs are not being satisfied not because of ineffective social mobilization and communication but because of significant resource constraints such as insufficient service points within the programme's structure.

Carrying out an analysis of the programme environment using the SWOT framework will help you to focus on your strengths, minimize weaknesses, and take the greatest possible advantage of opportunities available, while addressing the threats. SWOT analysis will often be illuminating – both in terms of pointing out what needs to be done and in putting problems into perspective.

At the end of a SWOT analysis (remembering of course that when you need to re-plan, another SWOT analysis is vital!), ideally you should have two lists:

— an OT list describing the chief opportunities and threats, and
— a SW list describing your programme's main strengths and weaknesses.

As you prepare these lists, record your team's discussions in some way (e.g. minutes of meetings, notes on flip-chart paper). These records may also contain useful data.

Making the OT list

You should begin with the OT list. The reasons for examining the OT list first are that it will provide clues as to which programme strengths and weaknesses require attention. OT describes forces external to the programme. Where are the good opportunities facing this programme? What are the interesting trends that you are aware of? If you cannot list any, then one could ask why are you managing this programme?! There is no such thing as a "mature" programme without opportunities. Try and create at least five substantial opportunities, opportunities that promise a high probability of behavioural response. Useful opportunities can come from such things as:

- Changes in technology and markets on both a broad and a narrow scale
- Changes in government policy related to your programme

- Changes in social patterns, population profiles, lifestyle
- Local events.

Then you should try to describe at least five significant threats facing the programme. A programme that doesn't see any trouble ahead is headed for real trouble. The worst thing is for the programme to be hit by threats that were not foreseen in the plan. Questions you could ask include: What obstacles do you face? Are policies, products, services, community preferences changing so that current interventions may not be feasible? Do you have bad debt or cash-flow problems?

Making the SW list

SW describe the factors internal to the programme. To identify current strengths, ask questions such as: "What does the programme do well?" "What do other health programmes, sectors, the general public, etc. see as your programme's strengths?"

To help identify current weaknesses ask questions such as: "What could you improve?" "What does the programme do badly?" "What should you avoid?" Again, consider this from an internal and an external basis – do other health programmes, sectors, the general public seem to perceive weaknesses that you do not see? Are your "competitors" doing any better than you? If so, why? A "competitor" may be a private pest extermination company or another health programme that attracts more funding.

A more systematic way to help you draw up the SW list is to discuss the checklist provided in Tool Number 3 with your planning team and then to score your programme in the appropriate columns. Each issue or item (row) should be discussed as it relates to your *current* programme. At the same time, identify how important each issue is to your programme, again scoring your programme in the appropriate columns.

After going through this checklist (don't hesitate to add other items), make a list of those issues you have scored as Major and Minor Strengths. Do the same thing with those issues you have scored as Major and Minor Weaknesses. Those issues you have scored Neutral can be listed separately.

Identifying whether or not an issue/item is important (by placing ticks (✔) in the second set of columns labelled "Importance") helps you prioritize your resources. For example, if your programme is currently weak on community involvement in planning but your team thinks this is highly important, then this indicates that some action is required to rectify this weakness ahead of other weaknesses that the team believes are not so important.

So by the end of a SWOT analysis you should have:

- An Opportunities/Threats list
- A Strengths/Weaknesses list
- A set of discussion notes or at least a clear idea of the external and internal forces affecting your programme.

Keep referring to these lists and discussion notes throughout your COMBI Planning, especially when finalizing your behavioural objectives (Step 5), developing strategies (Step 7), deciding on how to strengthen staff skills (Step 10), structuring your programme (Step 12), and determining your budget (Step 14). You can also use the SW checklist and discussion notes to later monitor or evaluate increases in or maintenance of strengths or rectification of weaknesses.

Some other questions to ask yourself at this point could include:[1]

- Do you and your staff have the necessary time and skills to develop, implement, and monitor a social mobilization and communication plan?
- Does your programme have access to the target group members?
- Do you currently have any partner agencies with the skills or access that your programme lacks?
- Are there any other organizations with whom you could team up?

We'll discuss more about strategic alliances in Step 12.

[1] From: Weinreich NK (1999). *Hands-on social marketing: a step-by-step guide*. Thousand Oaks, CA, Sage Publications.

STEP 4. Invite feedback on formative research

We noted earlier that the findings of formative research studies are frequently underutilized. One reason why the loop connecting research, decisions, and actions has not been completed in many programmes is that planners and decision-makers are not involved in developing recommendations arising from the research or are left with a large document containing suggestive associations but no clear, justifiable recommendations for action.

One excellent method of avoiding disuse or misuse of formative research is to time the release of results with the beginning of a new planning cycle for the programme. Another method is to present the major findings and recommendations so that they can be used by different sections of the programme, such as management, logistics, surveillance, vector control, communications, and training. Equally useful are formal presentations of results in seminars to key stakeholders, meetings with community groups, and dissemination of research findings through the mass media such as newspaper articles and radio interviews (Box 9).

BOX 9 • PROVIDING FEEDBACK IN FIJI AND IN SAINT VINCENT AND THE GRENADINES

In **Fiji**, a preliminary feedback seminar on a baseline formative research study was held with Ministry of Health personnel in November 1998. The final study report (*Rising to the Challenge!*) was used as a reference document at a national programme planning forum attended by more than 120 government and NGO representatives in Suva (Fiji's capital) at the beginning of May 1999; over 200 copies of the research report have been distributed since.

In **Saint Vincent and the Grenadines**, a summary of the results of the formative research and larval surveys were presented to and discussed with the pilot project communities through community meetings. Through a process of negotiation, and in the context of environmental sanitation and mosquito/vector/pest control, priorities were identified that addressed the concerns of both the community and the implementing agency.

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STEP 5. Analyse, prioritize, and finalize behavioural objectives

Formative research usually uncovers a range of issues that could be pursued, and creative planning teams frequently generate a raft of possible ideas. Now you need a period of disciplined focus to finalize a few clear behavioural objectives. **This Step is very hard but is very critical. Identification of precise behavioural objectives should take around 80% of your planning time!**

Based on a thorough analysis of the data you collect, you may need to change or reduce your preliminary objectives. **This willingness to alter objectives applies as much to responding to research findings generated during the initial formative research as it does to the results of subsequent monitoring**.

Very few programmes currently set themselves behavioural objectives, preferring non-behavioural objectives such as "raising awareness" or "improving knowledge", which are only important if they lead to behavioural results. A vague objective leads to directionless action that rarely achieves behavioural results. Don't begin your planning process with thoughts such as "Let's print a poster to address people's lack of knowledge"… Avoid the "Well, we have a method for killing larvae that works really well in the laboratory, so let's promote it" approach to social mobilization and communication. Both modes of thinking are doomed to failure or unsustainable impact at best. Achieving behavioural impact – impact that really lasts – is far, far more complex than simply printing a poster or distributing a scientific product.

Keep it simple. **Too many behavioural expectations are as bad as none at all**. Target a few behaviours that are simple and cheap and preferably fun to put into practice. Remember that it is not always financially, logistically, or indeed, culturally appropriate to deliver or release all messages and interventions **at the same time**. For example, there is little point stressing the need to cover 200-litre drums when no effective drum covers are available for purchase and when, more significantly, the public is generally unaware that DF vectors breed in drums. Even the largest programme budgets are too small to support more than one or two major initiatives at the same time. **Choose no more than three behavioural objectives at a time**. It doesn't matter what the reasons are for planning to achieve more than three objectives – they always seem good – you should resist them. Moreover, if your entomological data reveal one or two "**key containers**" such as drums used to store water are responsible for the majority of adult *Aedes* (i.e. these containers are the most "productive"), then just focus on the correct management of these containers (Box 10). A strategy that tries to tackle all possible *Aedes* breeding sites at once is unlikely to achieve much behavioural impact because resources (including household motivation) will be spread too thin. So if "key containers" do exist, specify behavioural objectives associated with their management before targeting other breeding sites (e.g. vases, tins) that may be more numerous but are probably far less productive.[1] It is important too for you to communicate to those individuals and organizations approving or funding your strategies that they should not have unreasonable hopes.

[1] Tun-Lin W et al (1995). Understanding productivity, a key to *Aedes aegypti* surveillance. *American Journal of Tropical Medicine and Hygiene*, 53(6):595–601.

BOX 10 • LIMITING BEHAVIOURAL OBJECTIVES IN THE DOMINICAN REPUBLIC

In 1999, programme staff working in Santo Domingo decided to focus on drums of any kind used for water storage, as opposed to tyres, bromeliads, or small discardable containers. Why? Drums are ubiquitous household items but there was no feasible and effective practice to protect them from *Aedes* infestation. Also, studies conducted in similar settings had shown that drums tend to be the most productive in terms of adult mosquitoes and that, because drums contain water year-round, are therefore largely responsible for maintaining the *Aedes* populations during the dry season.

COMBI objectives are best stated in terms of intended behavioural impact (change or maintenance of existing behaviour). A behavioural objective is different from objectives that you may be used to developing because it includes:

— the clear identification of the target audience (e.g. "housewives who store water" rather than "households").

— a detailed description of the behaviour being promoted and the frequency of the behaviour (e.g. "scrub the interior walls of water storage drums twice a week with a rigid bristle brush and laundry detergent" rather than "scrub water storage containers to prevent mosquito production").

— the measurable impact you hope to have over a specific time period (e.g. "60% of women who store water will scrub the interior walls of … after the first year of the programme" rather than "All women will scrub water storage drums").

So, for example, a precise behavioural objective might be stated as follows:

- Within one year from the start of the programme, to increase the percentage of women in [place name] who vigorously scrub the interior walls of water storage drums twice a week using a rigid bristle brush and laundry detergent, from 30% to 60%.

Unfortunately, there is no set formula that can be followed when it comes to finalizing behavioural objectives. Tool Number 4 offers a number of different approaches to analysis that may stimulate your team's thinking and which can be conducted with some of the community members who participated in the initial formative research. By combining these methods, you should end up with clear, precise behavioural objectives that have been carefully prioritized. In the process, you will generate important information for use in subsequent Steps.

STEP 6. Segment target groups

"We can't afford to target different segments of the population".

This is a recipe for no behavioural impact!

Social science has repeatedly shown that even within one neighbourhood, distinct differences exist in the way individuals think and behave. Very general messages carried through the mass media may have little effect on the average person, who may shrug the message off as "someone else's problem". In contrast, if mass media messages only address one group, the problem may be seen as just this group's concern and not as anyone else's.

While you go through the analytical process to arrive at precise behavioural objectives, your planning team will have identified population segments to which particular messages or actions refer. In general, a **segment** is a subset of your larger population that shares key characteristics. For the purposes of planning, the characteristics they share suggest that they'll respond to the same stimuli in a similar way.

There are two main advantages to segmentation:

- You can meet the needs of these smaller segments better than if you target everyone.
- Because you must operate with very limited resources, you can become more efficient and effective if you determine which segments demand more resources than others and tailor your strategies accordingly.

Let's take a look at a simple example.

■ After formative research and careful analysis, your planning team and key representatives of the target community (an urban neighbourhood) have decided that a mosquito-proof screen cover for concrete water storage jars should be promoted. Research has shown that there are two basic segments in this population: those householders who already cover their jars with materials such as pieces of wood, plastic trays, and old curtains (though none of these prevent *Aedes* from laying eggs) and those householders who do not cover their jars at all. Research has also shown that all householders notice small "wiggling things" in their water (larvae), want to get rid of them, but do not know how.

To promote the cover, neighbourhood volunteers are mobilized to make house-to-house visits, equipped with jar covers and information about how much better the new covers are at keeping dirt out of stored water when compared with existing covers. Because your team has few resources, instead of presenting all householders in the neighbourhood with the idea of using this cover, you begin by targeting only those householders who are already covering their drums with other materials. You could encourage these householders to use the water jar covers under the covers already being used, as extra protection.

Community volunteers don't waste time trying to persuade householders who aren't covering their water jars at all and may not see the need to do so. These householders may need to hear first about the connection between jars and mosquitoes (shown how the wiggling things get into their water), be informed about the need to cover jars, be convinced that the jar cover being promoted is worth using, and then decide that the water jar cover is worth using.

By targeting only the segment "already covering jars" you will have a far greater likelihood of sustainable behavioural impact. It is also likely that without directly targeting the other segment, you will move them a little nearer to taking action. Not only will you be using your scarce resources more efficiently but also you will set the foundation for a follow-up strategy (if and when more resources become available) to persuade other householders, this time

BOX 11 • EXAMPLES OF SECONDARY AUDIENCES IN FIJI

Information about dengue prevention and control needs to reach the following audiences (not a comprehensive list) in order to support communication with individuals living in residential, educational, and workplace settings.*

SETTING	SECONDARY AUDIENCE
Residential (primary audience is householders)	■ City council health committees ■ Religious groups (men's, women's, youth) ■ Chiefly structures (especially rural Fijian communities) ■ Tenants/Housing organizations ■ Women' groups (e.g. *Soqosoqo Vakamarama*, Fiji's National Women's Council) ■ Squatter spokespeople (often church-related) ■ Youth officers from Ministry of Fijian Affairs, Ministry of Rural Development, Ministry of Youth ■ Ministry of Works (responsible for water supplies and sewage) ■ NGOs such as Rotarians, Service Clubs Salvation Army, Sports clubs, Red Cross, Save the Children Fund, Girl Guides, Boy Scouts, Boys Town, Government Youth Programme, Businesses contracted out to collect refuse in residential areas
Educational (primary audience is students)	■ Principals ■ Teachers ■ Parent–Teacher Associations ■ Religious groups (who organized and manage some schools) ■ School curriculum classroom activities and exams ■ School clubs, e.g. Boy Scouts, Girl Guides, sports clubs ■ Voluntary speakers speaking at tertiary institutions (e.g. vocational schools, university, police academies, Fiji Institute of Technology) ■ Editors of newsletters and bulletins produced "on campus" reaching tertiary institutions principals, lecturers, teachers, student councils (the latter hold annual "health weeks") ■ Ministry of Education Curriculum Development Unit ■ Government youth training schemes ■ Ministry of Education and Ministry of Health (to be lobbied to make appropriate changes to the School Health and Safety Act)
Workplace (primary audience is employees)	■ Representatives of Business houses (hold regular informal meetings) ■ Managers of municipal dumps ■ Managers of car-wrecking yards ■ Managers of petrol companies ■ Managers of can and jar manufacturers ■ Managers of textile factories ■ Managers of breweries ■ Managers of tyre importers and second-hand dealers ■ Managers of other factories ■ Union representatives ■ Managers of supermarkets ■ Drum and water tank dealers ■ Managers of resorts and recreational facilities ■ Managers of farms and plantations (cane-farming, forestry) ■ Managers of port and airport authorities ■ Managers of other business enterprises ■ Government buildings (Public Service Commission to release circulars within government buildings regarding dengue control measures within and around government buildings; figureheads, e.g. Minister of Health, Prime Minister to be televized cleaning up outside government building) ■ Health facilities and management committees or boards at all levels (to maintain a "dengue-mosquito free" environments at health facilities) ■ Managers of cemeteries and prisons

* Communication in one setting can of course influence the behaviour of primary audiences in another setting, e.g. appropriate modifications to water tanks to reduce the chances of *Aedes* production will help primary audiences in residential settings who buy these modified water tanks.

using house-to-house visits and exerting social pressure – "Your neighbour uses the new cover. Why don't you?" Segmentation in this example has been conducted according to householders "readiness to change".

If you have sufficient resources, you can usually choose more multi-segmented approaches. So taking the same example, you implement both the strategy to make house-to-house visits (only with those householders already covering jars) and another strategy based on community meetings, supported by radio messages to begin to move the other segment towards the decision to cover their jars. When analysis of your monitoring shows you that many householders in this second segment may now be ready to accept a cover on their jars, you begin a new round of house-to-house visits…

Another way to consider target groups is to segment by **primary** and **secondary audiences**. Primary audiences are usually those your programme hopes will perform a particular healthy behaviour (e.g. householders no longer allowing water containers to harbour *Aedes* larvae or factory workers no longer allowing solid waste to accumulate and thus become *Aedes* larval habitats). Secondary audiences are those who can support your communication with these primary audiences and reinforce their behaviours (Box 11).

Segmentation of audiences is already used in most social mobilization and communication programmes but is often based on broad demographic lines such as language groups, genders, educational levels, urban-rural residence, economic status, and so on. This type of segmentation is a start, but you should be more interested in segmenting your target groups along the lines of **which stage of the behavioural adoption process people are at** (Box 12).

BOX 12 • BEHAVIOURAL SEGMENTATION IN COLOMBIA[1]

As a key element of the communication and educational components of the national dengue programme, the social research investigated several issues, the first being behaviour change of the population. Qualitative research included in-person interviews of 100 housewives of different socioeconomic levels in Bucaramanga. The stages of behaviour change theory were used to classify behaviours associated with identifying and eliminating containers with *Ae. aegypti*. Of the 100 housewives interviewed, 21% were classified as being in the pre-contemplation stage, 50% were in the contemplation stage, and 29% were in the action stage. This information indicates the status of behaviour change related to dengue prevention in the city. It will be necessary to continue to monitor those persons in the action stage in order to move them to the maintenance stage. It will also be important to support and motivate those persons in the pre-contemplation and contemplation stages to develop the necessary skills to take action.

This is far more efficient and effective segmentation but is rarely done. Box 13 reveals why.

[1] This segmentation was done according to the Stages of Change Model (similar to HICDARM, see p.5) in which individuals are classified according to where they fall in the behaviour change process: (1) precontemplation – the person is not thinking of changing his or her behaviour; (2) contemplation – the person begins to think about the action; (3) preparation – the person plans to change the behaviour; (4) action – the person implements the plan to change the behaviour; and (5) maintenance – the person continues to practice the new behaviour. Prochaska J, DiClemente CC (1983). Stages and process of self-change of smoking: toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51:390–395.

BOX 13 • BARRIERS TO SEGMENTATION

- A belief that funding agencies or the government will discourage segmentation of target groups to avoid any signs of partiality (unless the targeted group is the most needy).
- A lack of appreciation of the potential of segmentation to significantly increase programme behavioural impact while reducing programme costs.
- A mistaken devotion to programme uniformity, based on the (programme-centred) belief that this is essential to keep costs down through economies of scale and assure that interventions (communication messages and control measures) are always consistent.
- A lack of understanding of just how to go about extensive segmentation and when to do so.
- A lack of available data on which to base a sound segmentation strategy.
- An unwillingness to collect new segmentation data – either because managers do not know what data to collect or how to collect them or because they believe that such research efforts will not be cost-effective.

SOURCE: ANDREASEN A (1995). *MARKETING SOCIAL CHANGE: CHANGING BEHAVIOUR TO PROMOTE HEALTH, SOCIAL DEVELOPMENT, AND THE ENVIRONMENT*. SAN FRANCISCO, CA, JOSSEY-BASS PUBLISHERS.

When should you segment target groups? In brief, you should consider six interrelated reasons:

— whether certain segments are in more **need** of the behavioural intervention than others (perhaps due to a higher incidence of dengue, higher vector densities, or particular vulnerability to dengue because of irregular water supply or distance from health facilities);

— whether some segments may be more **ready, willing, and able** to respond to the intervention than other segments (as in our simple example above);

— whether it will be harder or cost more to deliver effective interventions to some segments than to others (these are segments whose **reachability** may present problems and who despite being needy may have to be targeted later in the programme's life-cycle as more resources are won through effective advocacy);

— whether each segment is **large enough** to merit a separate strategy;

— whether each segment **responds** differently to different strategies; and

— whether your organization has the **capacity** to create and deliver different strategies.

STEP 7. Develop your strategy

Having reached agreement about what behavioural results you will seek among which particular target groups, your planning team now needs to work out what strategy or strategies you will use to achieve and sustain these results.

Remember that a "strategy" is the broad approach that your programme takes to achieve its behavioural objectives. Strategies are made up of specific social mobilization and communication activities that on their own or in combination lead to achievement of the objectives. Box 14 gives an example of how objectives, strategies, and activities may be linked.

BOX 14 • OBJECTIVES, STRATEGIES, ACTIVITIES

OBJECTIVE

To prompt 1000 householders in Trinidad and Tobago to prevent any tyre that is not attached to a car from accumulating water during the next 12 months

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STRATEGY

(N.B. one of several, each aimed at different target groups).
To drill holes in discarded tyres to stop them from collecting water. The strategy will be delivered in two ways:

- A field team of 30 volunteers and 5 vector control programme staff will visit households and drill holes in tyres with hand-held battery-driven drills.
- Tyre replacement centres and gas stations (etc.) will provide an ongoing drilling service when old tyres are exchanged for new ones but are still wanted by householders and before storing unwanted tyres at a public dump site.

↓

ACTIVITIES

- Radio spots to raise awareness about tyre problem
- Training workshop for field team in communication skills
- Letters and follow-up telephone calls and visits to tyre replacement centres and gas stations
- Field team to visit 1000 households and drills holes in tyres
- Radio and TV spots to advertise old tyre drilling service
- Pamphlets at tyre replacement centres and gas stations handed to drivers by sales staff and cashiers.

Strategy development requires creativity. Frequently, it is not lack of funds, knowledge, technology, skilled employees, or motivated communities – **what programmes lack most is a supply of new ideas**. No effective dengue programme can exist without a creative approach to social mobilization and communication because everything must change on a regular basis. The peculiar thing is that you won't find mention of creativity in any dengue programme guidelines.

Creativity is the process of developing and expressing fresh ideas that are likely to be useful. Being creative means making non-obvious connections between things or ideas. Encourage your planning team members and community groups to look at your programme with an analytical eye. Present your formative research findings and ask: "What is a better way?" Because a better way **always** exists. You can invent better control measures, you can design better ways of distributing interventions, you can think of a better alternative to those complex posters your programme always uses to tell people to go to clinics if they have a fever. Here are some examples of creative thinking from various countries (Boxes 15–20).

BOX 15 • DEALING WITH DISCARDED TYRES IN TAIWAN, CHINA

About 10 million tyres are discarded every year on open fields and become one of the most substantial breeding sites of the dengue mosquito. In 1991, about 60% of the 10 million discarded tyres were collected and partly disposed of. This was a result of new regulations specifying that (a) discarded tyres of retailers must be kept dry; and (b) after having been collected by designated firms and sent to dumping areas, the tyres must be cut into small pieces if a shredder is available or tightly covered with cloth or plastic sheets. The Regulations for Recovery and Disposal of Discarded Tyres were established in 1989 by the Environmental Protection Administration. Commercial firms are requested to comply with the Regulations and to establish a Foundation for Tyre Disposal. A deposit should be paid to the Foundation for each imported or locally manufactured tyre, and the Foundation uses the deposits for the recovery and disposal of discarded tyres. Discarded tyres are dumped at a nearby location (at least 200 m away from residential areas) and are cut into small pieces as soon as possible to avoid accumulating rainwater for mosquito breeding. The pieces of tyre can be used as fuel, recycled, or used to build artificial reefs.

BOX 16 • A CHILDREN'S MUSEUM IN PUERTO RICO

In 1993, the first and only children's museum (*Museo del Niño*) in the Caribbean opened in San Juan. The museum features 15 highly-interactive exhibits designed for children aged 5 to 15 years. High school or college students serve as facilitators and are familiar with the contents and operations of the exhibit. The *Ae. aegypti* exhibit consists of a small house with the four stages of the mosquito's life-cycle (i.e. egg, larvae, pupae, and adults) in the windows. Visitors exit into a small patio where several containers typically found in Puerto Rico that produce *Ae. aegypti* are present, some of which contain larval mosquitoes. Children use small pipettes to collect larvae and see first-hand what they look like and how large they are. The format of the exhibit was changed in 1997 and now emphasizes a hands-on laboratory experience. Microscopes are provided for visitors to examine different mosquito life-cycle stages more closely than before. Live mosquitoes continue to be a very popular part of the interactive exhibit and are provided twice weekly by CDC personnel. To support the exhibit, training is provided to new facilitators annually. A one-page, multicolour brochure depicting a mosquito larva, the mosquito's life-cycle, typical containers, and the dengue transmission cycle is prepared for the children to take home.

BOX 17 • DENGUE BICYCLE-RIDERS IN JOHOR BAHRU, MALAYSIA

As part of a carefully integrated social mobilization and communication campaign in Johor Bahru, bicycle-riding teams (D'RIDERS) were formed to undertake tours of the district every Sunday during the three-month campaign. These riders were local youths who volunteered for this activity. Each team consisted of 20 riders. On Sunday morning, the team went on a tour of selected areas, accompanied by a van equipped with a public announcement system to promote the campaign. They rode on mountain bikes dressed in special T-shirts with the two behavioural objectives of the campaign printed on the back ("Every family should carry out a house inspection once a week for 30 minutes"; "Anyone with fever should seek immediate treatment in clinic."). At each location, the team was greeted by local community leaders and residents. The atmosphere at each location was "carnival like". There were speeches, distribution of health education materials, refuse collection activities, traditional dances and singing, and occasionally some competitions. Foods and drinks were served.

BOX 18 • CAMPAIGN LOGOS IN FIJI

A four-day creative think-tank involving mass media representatives, advertising agents, and staff from the National Health Promotion Centre and ministries of education and health was held in June 1999. The group reviewed recommendations from the first national formative research study on dengue fever conducted in October 1998.

One outcome from this think-tank was consideration of the "appeal", "image", and "tone" of key programme messages. Appeal may be emotional or rational, educational or motivational, hard sell or soft sell, scientific or traditional. The basis of the appeal should vary according to the target audience and the "product" being promoted – whether the product is information and/or a tangible item such as a drum cover. The image projected by a campaign may be rural or urban, modern or traditional, sophisticated or basic. The tone may be humorous, serious, family-oriented, scientific, and so on.

It was decided that the messages should be family-oriented, upbeat, and urban, given that many of the contributing risk factors for DF are urban-based. Both scientific and traditional values needed to be promoted and the messages needed emotional appeal for all age groups. Logos were suggested to act as recognizable campaign symbols on print materials (posters, schoolbooks, T-shirts) and TV spots, and as puppet characters. A set of friendly-looking drum and tyre cartoon characters were designed and pre-tested with schoolchildren, urban families, and health workers. The characters were given various costumes for different occasions (e.g. indigenous clothes, sports clothes) and "genderized" (e.g. the tyre is female, the drum is male) based on the finding from formative research that men, women, boys, and girls have different responsibilities for each container.

A slogan associated with these characters was also developed: "Protect us from the black and white striped mosquito!" Instead of having health workers or anonymous voice-overs "telling" or "preaching" to people about what to do and what not to do, these characters were used in an emotive way to "speak" the key messages of the campaign (reduce dengue mosquito breeding by protecting us!) on animated TV spots, leaflets, flip-charts, posters, and so on. They even appeared on official letters sent out by the programme manager. Puppeteers working with the campaign designed two similar puppet characters for their plays. The logos emphasize the key container principle and act as an integrating force among many media, providing a consistent voice through a number of associated interventions.

BOX 19 • A DENGUE SOCCER CUP IN VIET NAM

In Xuan Kien commune in Nam Dinh province, a soccer competition for local youth was used as an opportunity to provide dengue education. The "Dengue Cup", organized by project officers and local authorities, attracted 2000 people. The day provided an opportunity to disseminate information and reinforce the importance of dengue vector control among the commune residents. Schoolchildren from Xuan Kien were particularly enthusiastic and teamed up with a project collaborator to prepare and perform a play on the dengue mosquito, attracting more than 1000 villagers. Excerpts from the play were filmed for national broadcasting, which led to schoolchildren in Xuan Phong and Lac Vien communes also preparing and performing dengue plays.

BOX 20 • USING A POPULAR PUPPET AS A SPOKESPERSON IN MÉRIDA, MEXICO

The objective of the project was to contribute to the control of dengue by developing a methodology that would identify and integrate desirable practices among the population and which was conducive to the appropriate management of mosquito production containers at the household level. The intervention was an educational communication campaign disseminated through impersonal (mass media) and personal (home visits and school-based activities) communication channels.

Five key messages were disseminated via radio and television, one message each for the four most productive breeding sites (namely, animal water dishes, water storage containers, tyres, and containers with a future use), with actions that could be described in 30-second spots; the fifth message served as a reinforcing message at the end of the campaign. More complex messages were addressed through the interpersonal contacts during home visits and school-based activities. While the same messages were promoted, a variety of activities were developed to enhance self-efficacy by skill-building and discussion.

During initial discussions with housewives of "who" or "what" should be the spokesperson, several sources of reliable information were identified and later pre-tested through focus groups. Some of the ideas for spokespersons tested through focus groups included a physician figure (given the seriousness of the disease), a popular singer or athlete to attract attention to the mass media spots, and a comic puppet figure called "Lela", well known throughout Mérida and the state of Yucatán. Focus groups identified Lela, a puppet representing a Yucatecan female of Mayan descent, as the ideal "personality" to broadcast the messages, given her well-established role as a commentator on everyday life in the Yucatán, with doctors and nurses also lending credibility to the topic. Lela uses humour to comment on and/or poke fun at local customs, politics, and stereotypes during a weekly theatre show on Sundays; the theatre is privately owned, located just off the central plaza, and the entrance fee is very low, so Yucatecans from all walks of life can attend the shows.

The team decided to use dialogue between Lela and a real doctor to introduce and explain the behaviours. In the spots, Lela is being visited by the doctor because she is worried about dengue or because there are a lot of mosquitoes in her home. Using local expressions and humour, Lela expresses her fear of dengue or irritation about the mosquitoes; the doctor identifies one of the four breeding sites and explains why the mosquitoes are found there, and then instructs Lela how to control mosquito breeding in the container; Lela performs the behaviour while repeating back to the doctor the instructions; and the spot closes with the campaign slogan: "The serenity of your family is close at hand… and is in your hands". The key to the spots was the humourous interaction between Lela and the doctor, through which the action to be taken was demonstrated and described twice.

We won't dwell on how to design strategies since they very much depend on the objectives you are setting out to achieve and the resources you have at hand. There is also plenty of literature to which you can refer (see Tool Number 1).

We shall however highlight four important design features of good strategies: consideration given to more than just the "message"; the careful blending of communication actions; gender-sensitivity; and the timing of interventions to coincide with local calendars.

Consider MS. CREFS

We all appreciate that effective communication is central to achieving behavioural impact. Behavioural responses emerge only after people are engaged in a communication process that facilitates their understanding of a recommended behaviour

and allows them to weigh its merits and value in relation to the cost and effort involved in putting it into practice. But what is this thing called "Communication"?

Communicating is something we do every day on an interpersonal or group level, automatically, without training, and there is a belief that communicating is somehow a natural phenomenon. However, there is a complex process occurring, which takes into account not only what is being said but also how it is being said. Research studies have shown that non-verbal language, for example, plays a significant part in communication.

The sum of communication theory models developed over the past 50 years can be described in the following acronym: MS. CREFS.

Communication is the process in which a **M**essage from a **S**ource is sent via a **C**hannel to a **R**eceiver with a certain **E**ffect intended with opportunities for **F**eedback, all taking place in a particular **S**etting.

Each of these components requires careful consideration and attention because each has an effect on the behavioural outcome.

COMPONENT	IMPORTANT CONSIDERATIONS
Message	Ensure that the language is clear and easily understandable. That it is not too technical. Giving too many messages confuses the audience. Be clear about what is the main central message.
Source	Use a credible person to deliver the message. For example, people may not pay much attention if a local shopkeeper was giving advice about dengue, but it would be more credible if a well-known doctor was delivering the same message. In other cases, a young teenager would be more likely to persuade other teenagers to take action rather than a figure seen as authoritarian. Remember, appearances make a difference in how the source is perceived.
Channel	Identifying the most appropriate channel is important, either using the mass media through radio, television and newspaper and/or interpersonal channels such as door-to-door visits, traditional theatre, group meetings etc. The right channel must be used for the right target audience and generally the most effective is a selective mix of channels. Note the importance of non-verbal channels: one's body, facial expressions, posture.
Receiver	The receiver filters and interprets the world through the cultural lens with which they view the world. An understanding of this world is crucial to effective communication. Therefore, how you would explain the need to correctly protect water containers to a rural farmer may be different from how one would deal with urban schoolchildren and housewives.
Effect	This is the end-result of communication. The effect is the behavioural focus through improving knowledge, skills and providing prompts/triggers that could have an impact on ultimate behavioural outcomes. This is the point of departure for COMBI Planning. One must be clear about the communication effect(s) desired that would lead to behavioural results.
Feedback	It is important to ensure that communication interventions are appropriate, effective and engage the receiver. Feedback allows for such assurance. With it one can fine-tune communication actions.
Setting	This can facilitate or hinder communication. If there is too much noise, or the timing is wrong, or the setting is inappropriate to the subject being discussed, or there are too many distractions, or it is too hot, or too cold, all these factors affect how messages are heard and interpreted. Locations such as religious venues, health centres, cafes, market places, schools, all provide their unique features that can affect the dynamic of communication and must be considered in the planning of communication actions.

Each of these components require careful consideration and attention because each impinges on how the programme is received and ultimately on the desired behavioural outcome. So remember, the **Message** has to be clear and easily understood; the **Source** delivering the message should be a credible person; the right **Channel**/mix of channels must be used for the different target audience; you must have an understanding of the cultural lens through which the **Receiver** filters and interprets the world; the **Effect** is the end-result of your communication efforts; communication has to be appropriate, effective, and engaging, allowing the receiver to give **Feedback** in the communication process; the **Setting** in which communication takes place has to be considered because it can facilitate or hinder communication and should be decided upon after target audience, messages, and sources have been identified.

Use a judicious blend of communication actions[1]

No single activity or material (e.g. poster) will result in behavioural impact. Each strategy requires a judicious blend of different but integrated actions appropriate to the behavioural objective being sought. Think in terms of the five elements of COMBI, but do not be restricted to them: administrative mobilization/advocacy/public relations; advertising; community mobilization; interpersonal communication; and point-of-service promotion (*see Box 5, p.8*).

Administrative mobilization through advocacy is especially important. You will need high level-advocacy to raise support from governments, donors, and philanthropists. Advocacy is needed to help create and maintain appropriate policies, regulations, decrees, and legislation. Involvement of heads of state and all levels of political administrations (e.g. provincial governors, mayors, district leaders, village chiefs) activates governmental machinery and ensures the flow of resources through budgetary allocations or other forms of commitment that ultimately contribute towards success and sustainability.

Advocacy consists of the organization of information into an argument to be communicated through various interpersonal and media channels with a view to gaining political and social leadership acceptance and commitment. To support your argument, you will need evidence from studies that demonstrate the social and economic burden of dengue and showcase the cost-effectiveness of your interventions. Careful monitoring and evaluation of behavioural results greatly assist in providing evidence to advocate for further support.

Public relations seeks to inform, educate, and persuade to action – much like advertising (but not the same). In addition, it can build a relationship and create an ongoing dialogue of interaction/involvement with a target audience and influence perceptions to change behaviour to lead to a result. Public relation activities include articles, editorials and letters to the editor of newspapers and other journals, press kits, press releases or news alerts, public service announcements, annual reports, networking, novelties, presentations, special events, and special offers.

Advertising is about bringing a behaviour, product or service to the attention of potential and current customers. Advertising should be targeted at your specific audience and based on formative research. Major methods of advertising include brochures or flyers, direct mail, e-mail messages, magazines, newsletters, newspapers, posters and bulletin boards, radio announcements, telemarketing, television advertisements, and Web pages. Advertising should answer the customer's question:

[1] WHO [forthcoming] *Planning Communication-for-Behavioural-Impact (COMBI) Programmes for Health*. Tunis, WHO Mediterranean Centre for Vulnerability Reduction.

"What's in it for me?" and specify what customers are to do next, what action they should take and how to take it, for example, whom to call and how. Advertising needs to be massive, repetitive, intense and persistent (M-RIP) and therefore cannot be done on the cheap.

It has also been demonstrated that there needs to be regular turnaround of messages and materials. If a message, poster, or radio spot remains a constant in the environment, it becomes an ordinary feature and little attention is paid to it by the target audience. Programmes need to ensure innovative, regular and "stimulating" communication actions.

In the context of COMBI, **community mobilization** sets out to gain community acceptance, support, and ultimately action for an intervention (e.g. water container management) all intimately based on the target group. The community is defined as the local rather than national social milieu and takes into consideration traditional decision-making mechanisms and modes of influence to achieve the desired behavioural objective.

Increasing evidence also suggests that many cultural groups prefer **interpersonal** or **face-to-face communication** supported by mass media. Face-to-face communication has also been shown to be crucial for sustaining behavioural results once awareness and knowledge levels have been raised through mass communication.

In so many countries, it is not unusual to have health service points with absolutely no promotional signs indicating what services are available. In many of these same countries, every little outlet for carbonated sugared water will prominently post massive brand advertising signs. For COMBI Planners working in dengue control, **point-of-service** promotion becomes another important communication action.

Be gender-sensitive[1]

We also recommend that when designing behaviours, messages, and materials that target "households", attention be paid to the roles, status and time commitments of different household members – particularly when targeting women.

Dengue control programmes may have a positive or negative impact on women's power and authority in the domestic domain. Programmes that have some association with income-generation activities may have a positive impact on women's status if they are able to use the new income for their family's welfare or for improving the physical condition of their surroundings. Another beneficial outcome is the recognition and promotion of women's abilities to look after themselves and their children.

An example of a negative impact would be the communication of messages stating that domestic environments are "unclean" and result in mosquito breeding, even though most householders (especially women) expend significant amounts of time maintaining a clean house and surrounding compound according to their notions of "hygiene".

During daytime inspections, householders (usually women) may be told to eliminate small containers, bottles or tyres from their compounds and gardens, or to keep them under cover, or to invert water storage containers (when not in use), or to

[1] This section is informed by: Rathgeber EM, Vlassoff C (1993). Gender and tropical diseases: a new research focus. *Social Science and Medicine*, 37(4):513–520; Winch PJ et al (1994). Vector control at the household level: an analysis of its impact on women. *Acta Tropica*, 56:327–339; Vlassoff C, Bonilla E (1994). Gender-related differences in the impact of tropical diseases on women: what do we know? *Journal of Biosocial Sciences*, 26:37–53.

cover them when in use. These proposed modifications may be ignored because, for instance, they reduce women to the role of refuse collector or water monitor. They may absorb time required for more important household activities considered "trivial" by outsiders because they cannot easily be measured in economic terms. Used tyres may be a man's domain, in which case male audiences should be targeted.

During dengue epidemics, messages encouraging people to seek safe, effective, and timely treatment for themselves and their children may be deliberately targeted at women, based on the assumption that mothers are the main health providers within households. Targeting only women may add to their feelings of shame and powerlessness **because they can do little else** if they have no transport or easy access. This limited approach also ignores the very real need to improve the care women receive when they themselves succumb to dengue.

To overcome this problem, health messages need also to be aimed at other family members such as husbands, uncles, and grandfathers who may ultimately determine transportation and treatment-seeking behaviours outside the home.

Efforts to improve the home-based management of dengue and clinic-seeking behaviour must also take into account possible gender differences that exist in the quality of home-based and clinic care, with men and boys often receiving preferential clinical treatment compared with women and girls.

Implement interventions to coincide with local calendars[1]

You are more likely to have behavioural impact and at the same time make your programmes more cost-effective if you pay close attention to seasonal variations in human behaviours and tailor your strategy and concentrate resources accordingly.

For example, there can be tremendous seasonal variation in how big a threat dengue is or how much of a problem mosquitoes are perceived to be – and hence people's motivation to take action. It may be best to launch or intensify activities when local concerns are at their highest, rather than all-year round or only when virological surveillance indicates a risk of potential outbreak. Nevertheless, matching community action with periods of high transmission should remain an important programme feature (Box 21).

BOX 21 • TARGETING COMMUNITY ACTIONS BY SEASONAL RISK IN HONDURAS

Initially, mobilization activities were carried out on one day ("D-day"), but since it was found that more days were needed for successfully completing the task, D-day was extended to a complete five days ("D-week"). Later, an agreement was reached to repeat D-week twice a year (in the beginning and middle of the epidemic season), generally in June and September, but depending on the specific epidemic pattern, with a span of 12–15 weeks between the two D-weeks.

Seasonal changes in weather may stimulate changes in both the amount and nature of cleaning activities, thus influencing the number of non-essential containers (those not used specifically for water storage). For example, during the dry season the priority may be sweeping to decrease the amount of dust, with less emphasis

[1] Adapted from: Winch P (1992). Perceptions of seasonal variation in the risk of contracting mosquito-borne diseases and their importance in dengue control. In: Halstead SB, Gomez-Dantes H, eds. *Dengue: a worldwide problem, a common strategy. Proceedings of the International Conference on Dengue and* Aedes aegypti *community-based control*. Mexico, Ministry of Health, 81–94.

on refuse disposal. Messages about refuse disposal at this time could therefore "fall on deaf ears". During the rainy season, however, the priority may be throwing out, burying or piling refuse to control bad odours, with less emphasis on sweeping. If this is the case, messages referring to proper disposal and the organization of efficient solid waste collection services may be most appropriate during the rainy season.

Refuse collection may also be more frequent around holidays or when children are out of school and have more time to help out (Box 22). Specific containers may become more common during certain holidays. For example, in many countries there is a day to commemorate deceased family members. This can lead to a seasonal increase in the numbers of containers used to hold flowers.

BOX 22 • THE IMPACT OF HOLIDAYS AND FESTIVALS ON BEHAVIOUR

In parts of Latin America and the Caribbean, people clean their houses and throw out large quantities of refuse in anticipation of the Christmas holidays and holy week (Easter). Programmes can take advantage of such festivities by focusing on non-essential water containers and full deployment of refuse collection services. House inspections may be impossible at certain times of year, such as All Saint's Day preparations and celebrations in Latin America, inspections of Hindu homes during the Hindu New Year, or in Muslim homes during Ramadan.

Water storage may be more common during the dry season, leading to an increase in barrels and cisterns containing water. If so, messages about *Aedes* control in water storage containers should be communicated primarily during the dry season.

Seasonal variation in household cleaning activities is of particular importance for programmes in which biological and chemical control agents are applied to larval production sites. If these agents are applied just before the annual clean-up, they may be dumped out immediately.

1 • ASSEMBLE A MULTIDISCIPLINARY PLANNING TEAM

2 • STATE PRELIMINARY BEHAVIOURAL OBJECTIVES

3 • PLAN AND CONDUCT FORMATIVE RESEARCH

4 • INVITE FEEDBACK ON FORMATIVE RESEARCH

5 • ANALYSE, PRIORITIZE, AND FINALIZE BEHAVIOURAL OBJECTIVES

6 • SEGMENT TARGET GROUPS

7 • DEVELOP YOUR STRATEGY

8 • PRE-TEST BEHAVIOURS, MESSAGES, AND MATERIALS

9 • ESTABLISH A MONITORING SYSTEM

10 • STRENGTHEN STAFF SKILLS

11 • SET UP SYSTEMS TO MANAGE AND SHARE INFORMATION

12 • STRUCTURE YOUR PROGRAMME

13 • WRITE A STRATEGIC IMPLEMENTATION PLAN

14 • DETERMINE YOUR BUDGET

15 • CONDUCT A PILOT TEST AND REVISE YOUR STRATEGIC IMPLEMENTATION PLAN

STEP 8. Pre-test behaviours, messages, and materials[1]

During the previous step, your planning team should have listed a series of possible behavioural interventions, messages, materials, and other communication actions. Now it is time to assess how target audiences react to proposed behaviours, messages and prototype materials and to identify what needs to be changed before final implementation or production.

To assume that a particular behaviour is easy to adopt, that a given message is inherently simple, or that a particular illustration will get a message across to people – or that people will hear and accurately remember a verbal, visual, or printed message – is a mistake. You need to pre-test!

Hire a social scientist to help you with pre-testing

Pre-testing is the hallmark of a well-designed social mobilization and communication strategy. As we noted in Step 3, pre-testing forms part of your formative research, so again consider hiring local social science specialists to conduct the pre-test for you. Some questions for you and your social scientists to consider when planning a pre-test include:

- What is being tested?
- Why is it being tested?
- With whom does it need to be tested? How many people should be involved in the pre-test? How should they be selected?
- In what geographical locations does it need to be tested?
- What setting or where exactly will the test take place?
- What interview methods will be used in the test?
- Who will conduct the test?
- When are the results needed?
- What are you going to do with the results?

Here we briefly consider **product testing, behavioural trials**, and **message and material testing**.

Product testing

Product testing helps avoid what could be called the "product mindset". In this mindset, you convince yourself that you have a particular vector control measure (e.g. larvicide, copepods, water container cover) that you think people will automatically want and that by simply offering it, people will naturally accept and use it. Such *Aedes* control measures often have no clear advantage for the general public if, for example, dengue is not perceived to be a problem, no exclusive/unique association is made between mosquitoes and dengue fever, dengue fever continues to occur despite vector control measures, mosquito breeding is thought to be in areas such as swamps and drains (not in cleaner household water containers), reduction in *Aedes* does not reduce overall mosquito populations (e.g. people still get bitten by *Culex quinquefasciatus*), or use of such measures is thought to contaminate water supplies.

[1] This step is informed by: Rasmuson MR et al (1988). *Communication for child survival*. Washington, DC, United States Agency for International Development, Bureau for Science and Technology, Office of Health and Office of Education, 53–56; Seigel M, Doner L (1998). *Marketing public health: strategies to promote social change*. Gaithersburg, MD, An Aspen Publication, 415–445; Weinreich NK (1999). *Hands-on social marketing: a step-by-step guide*. Thousand Oaks, CA, Sage Publications, 123–156.

BOX 23 • TESTING WATER STORAGE JAR COVERS IN CAMBODIA

In Cambodia, a number of initiatives have been undertaken to reduce the proliferation of *Ae. aegypti* in drinking-water storage containers, particularly concrete and clay water jars. These include the addition of temephos sand granules and the breeding of copepods, which consume mosquito larvae. A major initiative currently under way is the development and field-testing of covers for concrete water storage jars. This initiative resulted from data obtained through formative research carried out with residents in several villages, in which the use of covers for the jars was deemed to be highly desirable and a current practice. The initiative, therefore, is to develop a jar cover that prevents the entry of mosquitoes and is convenient enough so that family members will leave it on.

In the earlier participatory rapid appraisal studies (also known as rapid assessment procedures), village residents were asked about their preferences in jar covers. Most people preferred concrete covers, which were cheap, long-lasting, and effective in keeping out debris and light. Metal covers, they said, were often stolen or used by children as playthings. Concrete was admitted to have some disadvantages in that it was cumbersome and difficult for children to use. The need to be mosquito-proof was not rated highly, although those villages in which there had been fatal occurrences of dengue were very interested in keeping mosquitoes at bay. People generally use covers to keep debris and dust out of their jars and to exclude light and reduce algal growth.

As a result, a Jar Cover Development and Testing Programme was started. The programme used an action research approach to design jar covers, test their performance, and conduct product tests in villages in Kandal Province. Initial design work resulted in 19 different jar cover prototypes, varying from similar covers of differing materials (e.g. wood and concrete), covers with various means of access and covers that allow water to drain into jars through mesh barriers. The designs were based on combinations of ideas from discussions with residents, analyses of the literature and of common problems with covers, and discussions with other experts, many of whom had directly worked on this same problem. During the test period, staff from the National Malaria Centre carried out monthly mosquito larvae surveys to confirm the various covers' efficiencies in preventing mosquito egg-laying. Covers that rated highly both in terms of acceptability (including "affordability") and efficiency were then rated as high feasibility.

A select group of covers were then used in community-based product tests, including a concrete cover with a lifting segment, a hoop with PVC netting held down by a centrally dangling weight, a hoop as above but with aluminium netting, a rack with cloth beneath it, a hinged rack with cloth beneath it, and a sheet metal cover with a segment or section that opens.

A scale consisting of parameters ranging from cost and mosquito-proofness to theft-proofness was used to rate each cover. One jar cover in particular stood out from the rest as appearing to be the most suitable. The cover consists of a simple rattan loop, slightly greater in circumference than the cover of the jar, supporting a fine synthetic mesh. A rock on a string was hung from the centre, which helps anchor the cover firmly and reduces the possibility of it being carried off by the wind. The fastening of the stone also proved useful when retrieving water from the jar, as the cover need only be tossed slightly aside, and the rock kept it from falling on the ground, making it easy to reposition.

One of the key things sought in this product testing is the ability and willingness of artisans in the village to manufacture the cover. Another is the actual longevity of PVC and nylon mesh used on hoops and racks, and whether villagers will replace it when it disintegrates.

Community-based testing of *Aedes* control methods is therefore an important step to take to determine the probability that a new product will be accepted. Product testing is essential when:

- Decision-makers are highly uncertain about a product and need evidence from a field test to demonstrate not only entomological impact but community acceptance;
- The wrong decision will be extremely costly;
- Product performance is crucial to long-term consumer acceptance;
- Competition (do nothing or do something else) is strong and product improvements can give your product an important edge (Box 23).

Behavioural trials[1]

A behavioural trial is a small-scale test of a new behaviour with a representative sample of the target group to determine their abilities to effectively adopt a different practice (sometimes, behavioural trials and product tests are combined). A behaviour trial can help you:

- Analyse those parts of the desired behaviour that are, and are not, readily adopted;
- Identify material or behavioural barriers to the adoption of the new behaviour;
- Identify what works best to reinforce learning of the new behaviour;
- Refine communication to reinforce the desired behaviour (Box 24).

BOX 24 • TRIALS OF IMPROVED PRACTICES (TIPS) IN THE DOMINICAN REPUBLIC

Social scientists working with the national dengue programme developed the NEPRAM method (*NEgociación de PRÁcticas Mejoradas* – Negotiation of Improved Practices). NEPRAM is a modification of a technique used for improving child nutrition. It involves communities and health planners in developing effective and feasible behaviour change interventions through the use of analytical techniques and continuous community feedback. NEPRAM was used to develop a participatory, community-based approach to dengue prevention in a small-scale pilot intervention in the urban community of Herrera, Santo Domingo (1999–2000).

First, in-depth interviews and observations were conducted to better understand household knowledge, perception of dengue risk, and water sources, storage, maintenance, and use. Water container cleaning practices were observed and documented.

The findings showed that maintaining stored water clean was of high priority for families who committed a lot of effort towards achieving it; not, however, because of dengue concerns but rather for good hygiene in general. Most of the drums were found covered with any handy piece of material. This protected the water from litter or pests, but not hermetically enough to seal it from oviposition by *Aedes* mosquitoes. Similar to other research settings in Honduras and Mexico, the relationship between the mosquito's aquatic and adult stage was largely unrecognized, and mosquitoes were perceived to be a nuisance coming from habitats outside the household. Lastly, household bleach was commonly used as part of the drum's cleaning process, as well as a sterilizing agent sprinkled into the freshly refilled water to kill bacteria, as recommended by health authorities.

An interagency team evaluated the findings and examined existing practices that could be modified slightly to yield effective dengue prevention strategies. Given the extreme scarcity of water in the

Continued page 54

[1] See also: http://www.changeproject.org/tools/xchangetools/tx_tips.html

BOX 24 • *CONTINUED*

Dominican Republic and the need to thoroughly rinse the container to remove any residual detergent, the idea arose to experiment with bleach only as a means of *Aedes* control. Trials conducted at the entomology laboratory of the National Centre for the Control of Tropical Diseases found that bleach alone, when applied directly on the walls of infested drums and left for 15 minutes before washing off, caused very few eggs to hatch afterwards. Regular bleach treatment of eggs deposited at various water levels would eventually destroy all or most egg rings, before they have had a chance to hatch. (The use of lime and coal were also tested as larvicides and ovicides, and bleach as a larvicide, and found to be ineffective for *Aedes* control so eliminated as options.) Two improved covers were also developed and tested.

Finally, four efficacious behaviours were identified for trial or "negotiation" (NEPRAM) by a small number of families. One was a "complete cleaning" that involved scrubbing the drum as usual, and then dabbing straight bleach directly on the entire walls, pouring some on the bottom of the empty drum, and waiting 15 minutes before refilling the drum. Another behaviour was appropriate when water was scarce and the drum could not be completely emptied to allow for a thorough cleansing. Householders would dab straight bleach on the exposed walls of the drum, and make sure to do this once a week. The other two behaviours were use of simple new drum covers.

During the NEPRAM trials, the candidate behaviours were introduced as part of a negotiation process. The researcher visited a subset of the original study households and invited the householder to try up to all four of the new improved behaviours as a way to improve water-related hygiene rather than for dengue control. The householder was asked to be a consultant in trying the new behaviours, which the researcher knew were efficacious in the laboratory but which might not be judged as feasible to the householder or as "effective" in a "real life setting". Impressions, difficulties, and perceived advantages and disadvantages for each behaviour were discussed in the researcher's return visits, and solutions were negotiated with the family. One difficulty that arose and which was dealt with, for example, was the harsh effects of bleach on bare hands during dabbing. The solution that emerged was to use a plastic bag in the form of gloves for protection. Modifications to make the behaviours more feasible were invited of the "consultants" and these modifications were measured to assure that the behaviours were still effective.

The results of the NEPRAM trials were positive because people thought that the behaviours were reasonable, they actually tried them both and said that each one had its role, depending on the situation. The promotion of these behaviours then became part of the new strategy for drum maintenance.

Message and material pre-testing

Pre-testing messages and materials (e.g. brochures, booklets, print, radio or TV advertisements, audiotapes or videotapes, packaging of technical products):

- assesses whether messages are clear and compelling;
- identifies unintended messages;
- detects totally unpredictable audience responses and other aspects of materials that may require modification;
- helps you select from among a range of potential messages and materials; and
- provides some insight into whether your messages and materials will generate the desired behavioural impact.

Materials such as posters, leaflets, and messages disseminated via the mass media are especially important to pre-test because they usually have to stand on their own or because there are few opportunities to explain what they mean.

Sometimes it is desirable to pre-test messages before materials containing them are developed: perhaps message concepts need refining before spending money on materials. It is also unwise to explore reactions to test messages and materials at the same time because it is difficult to determine what pre-test participants are reacting to – the message or the way it is delivered. Typical questions to ask a representative sample of a target group when pre-testing printed messages and materials are listed in Box 25.

BOX 25 • EXAMPLES OF PRE-TEST QUESTIONS FOR PRINTED MESSAGES AND MATERIALS

- What does each picture show? What is happening in each picture? (*Point to different parts of the picture if necessary.*)
- What do the pictures mean? Are they telling you anything? If yes, what?
- What do you like or dislike about the picture?
- Is there anything in the picture that is unclear? If yes, what?
- What would you change to make the picture more easily understood?
- What would you change to make the picture more acceptable?

(*Then look at the text. Do this separately.*)

- What do these words mean to you?
- Do the words match each picture? If not, ask what words would be better, or what the picture should look like to match the words.
- Is there anything missing from the text?

SOURCE: AIDS ACTION (1998). *ISSUE 40*, MARCH–MAY. HEALTHLINK WORLDWIDE.

One final point. Even when pre-testing is done well, it cannot definitively determine what will work. It will not tell you exactly how people will respond or how materials will perform, but it can help you to avoid costly mistakes!

STEP 9. Establish a monitoring system

Monitoring is continuous. Evaluation is periodic. Many managers and researchers tend to emphasize end-of-programme evaluations over monitoring.

It is common to find programme staff working out their very best strategy, implementing it blueprint-style until the evaluation stage is reached. Then an evaluation team comes in to see whether the programme goals and objectives have been achieved in the most efficient manner possible. Finding out that they have not, while useful for future strategy development, is not good economics (your scarce resources have been wasted) and is not good management (it's too late to fix it).

Heavy emphasis must be placed on regular **tracking** of strategy progress as a means to correct ineffective elements and to adjust to any changes in the environment. Monitoring helps assess how strategies are proceeding: Are you reaching your target audience with your communication? Is your target audience correct? Are the right channels being used? Are you delivering understandable messages? Do people respond to your messages in the way you expected?

Demonstrating the benefits of social mobilization and communication to government decision-makers for policy and financial support often requires monitoring to show progress and positive outcomes achieved. Continual and careful monitoring of relevant indicators also provides the data for evaluation. An **Indicator** is a reasonable, useful, and meaningful measure of an intended outcome (such as behavioural impact or programme implementation).[1]

There are at least two ways in which you can monitor strategy progress: **Behavioural Impact Monitoring** (or Surveillance) and **Process Evaluation**. Again, we recommend that you hire social science expertise (such as a specialist in formative research and/or behavioural and process evaluations) to help you undertake both the design of your monitoring system and methods of collecting and analysing data.

Hire a social scientist to help you design your monitoring system

Behavioural impact monitoring[2]

Traditionally, dengue prevention and control programmes have not measured behavioural results, or have used entomological indices such as the House, Breteau, and Container indices as proxies for behavioural outcomes. While using entomological indices as behavioural proxies was a step in the right direction, there are real challenges to using them to assess the impact of a social mobilization and communication strategy. For example, the presence of larvae has been used as evidence that a housewife was not scrubbing her cement basin properly, when a more accurate indicator for cleaning may be the presence/absence of algae on the walls of the basin combined with the presence or absence of pupae in the container. And while behaviour change at individual and household level is certainly necessary, it is rarely sufficient and may not even be the most important set of behaviours to examine. There is a need to examine behaviour and barriers to behaviour change at other levels and in other settings such as health facilities and ministries of health.

[1] Patton MQ (1997). *Utilization-focused evaluation*, 3rd ed. Thousand Oaks, CA, Sage Publications.

[2] This section is adapted from: Winch P (1999). *Behavioural surveillance in dengue prevention and control*. Discussion paper prepared for the meeting "Strengthening Implementation of the Global Strategy for Dengue Fever/Dengue Haemorrhagic Fever Prevention and Control." WHO/HQ, Geneva, 18–20 October 1999.

And don't get caught in another common trap. Many programmes measure processes such as the number of posters printed, brochures distributed, advertisements run, workshops held, lectures given, and face-to-face meetings held – mistaking these important outputs for behavioural indicators. Or through "intercept interviews" on street corners or market places, they may measure the number of target consumers reached, extent of message recall, and changes in intentions to act. These are measures used in **Process Evaluation**, which we shall discuss a little later.

Let us suppose you are interested in monitoring behaviours among individuals that:

a. increase or decrease the risk of adult *Aedes* mosquitoes being produced on their property,

b. increase or decrease the risk that they or other members of their family will be bitten by *Aedes* mosquitoes, and

c. increase or decrease the risk of adverse outcomes when they or other members of their household contract a dengue virus infection.

Specific behaviours that could be monitored include water storage practices; acquisition, storage, and disposal of containers such as tyres and metal cans; practices aimed at preventing mosquito bites such as insecticide and repellent use; and case management of febrile illnesses.

A comprehensive framework for behavioural monitoring might therefore consist of a matrix with:

— columns representing behaviours in individuals, groups or institutions related to your specific objectives; and

— rows representing the various individuals, groups and institutions related to your specific target groups whose behaviour must change in order to decrease the disease burden from DF/DHF (see Box 26).

To illustrate why such a comprehensive monitoring framework is important, let's consider how to monitor behaviours related to tyres, water containers, and vector-human contact.

Monitoring behaviours related to tyres

The conventional approach to entomological surveillance of tyres is to examine them for the presence of *Aedes* larvae during larval surveys. If larvae are detected in tyres in a given household, an inference is frequently made that the householder is not taking measures to protect his or her tyres from mosquitoes. If larvae are not detected, a frequent inference is that the householder is taking measures to prevent larval infestation in the tyres. Such inferences are flawed for at least two reasons.

1. Presence of larvae is only an indirect measure of human behaviour in relation to tyres. During a dry season, no tyres may contain larvae, even though householders are taking no actions to protect them from mosquitoes. During a rainy season, the majority of householders may be taking actions to protect their tyres from the rain and yet significant numbers of tyres may contain mosquito larvae. Among tyres that do contain water, many will be free of mosquito larvae at any given time, despite the lack of adequate control.

   A more direct measure is to define criteria for a tyre to qualify as protected (e.g. free of water, filled with soil, full of drilled holes, dry and stored under a roof) and to measure the proportion of tyres that qualify as "protected" (see Box 27).

BOX 26 • A FRAMEWORK FOR COMPREHENSIVE BEHAVIOURAL MONITORING OF SOCIAL MOBILIZATION AND COMMUNICATION FOR DENGUE PREVENTION AND CONTROL

	BEHAVIOURS IN INDIVIDUALS, GROUPS OR INSTITUTIONS RELATED TO		
	Preventing production of adult *Aedes* mosquitoes	**Preventing exposure to bites of *Aedes* mosquitoes**	**Treatment-seeking and patient care**
Individuals and households	■ Water storage practices ■ Care of house plants ■ Care of animals ■ Refuse disposal ■ Storage of materials in the yard	■ Use of aerosol insecticides and repellents ■ Screening of windows and doors ■ Sleeping under nets during daytime naps	■ Disease recognition ■ Home-based treatment ■ Treatment-seeking outside the home
Communities, community groups, schools, NGOs	■ Communication with behavioural impact ■ Community clean-ups ■ Advocacy for or organization of essential services: water, refuse collection ■ Promote recycling of tyres, cans, bottles, etc.	■ Housing improvement	■ Facilitation of transport of patients to health-care facilities
Vector control and sanitation services of national, state and local governments	■ Communication with behavioural impact ■ Refuse collection ■ Water and sanitation ■ Larval source reduction on public lands (roadsides, cemeteries) ■ Application and/or distribution of larvicides	■ Area-wide application of insecticides during emergencies	■ Training of health workers in case management and disease surveillance protocols
Health-care workers, health-care facilities	■ Maintain health facilities free of larval production sites	■ Maintain health facilities free of mosquitoes	■ Correct application of case management and disease surveillance protocols
Decision-makers and policy-makers in national, state and local governments	■ Maintain adequate funding for larval source reduction, including multidisciplinary teams to plan, implement, monitor and evaluate social mobilization and communication strategies ■ Make appropriate decisions based on entomological and behavioural monitoring data	■ Make appropriate decisions about routine and emergency use of insecticides	■ Make appropriate decisions based on disease surveillance data
Private sector businesses	■ Promote recycling of tyres, cans, bottles, etc. ■ Production, distribution and (social) marketing of products to control mosquito larvae	■ Appropriate (responsible) marketing of insecticides and repellents	■ Not applicable

SOURCE: WINCH P (1999). *BEHAVIOURAL SURVEILLANCE IN DENGUE PREVENTION AND CONTROL*. DISCUSSION PAPER PREPARED FOR THE MEETING "STRENGTHENING IMPLEMENTATION OF THE GLOBAL STRATEGY FOR DENGUE FEVER/DENGUE HAEMORRHAGIC FEVER PREVENTION AND CONTROL". WHO/HQ, GENEVA, 18–20 OCTOBER 1999.

BOX 27 • MONITORING THE HOUSEHOLD MANAGEMENT OF OLD TYRES IN FIJI

A nine-month social mobilization and communication campaign was implemented in the major urban centres of Fiji. The campaign message was: "Fill tyres used for plants right up to the top with soil to make your plants grow well and punch holes in tyres used for other purposes. If you can't do that, place tyres under cover out of the rain".

A baseline study on tyre management in 100 randomly selected households in two different urban areas (Lautoka and Suva) was conducted before this campaign (September 2000). Of these households, 82 were revisited after the second campaign had ended (July 2001). The main data collection instrument was a structured observation checklist. On average, there were four old tyres per household. Some households had as many as 50 tyres.

Although the total number of tyres did not change before and after the intervention (overall reduction in the number of tyres was not the objective of the intervention), there was a shift in their use. Before the campaign, 34% of the total tyres were "well managed" (filled to the top with soil, with holes or under cover) and this increased to 61% after the campaign. Well-managed soil-related tyres increased from 34% to 58% and well-managed non-soil tyres (tyres not used for planting flowers or marking land boundaries) from 33% to 82%. Some 20% of "non-soil" tyres were under cover before the campaign; 79% of these same tyres were under cover after the campaign.

2. The second problem with using presence of larvae as a measure of behavioural impact is that it assumes that only behaviours carried out by individual householders are important for the control of tyres. To a large extent, the potential of tyres to serve as larval habitats is determined by policy-makers and private businesses. If policy-makers or business people create incentives to promote the recycling, re-use or appropriate disposal of tyres, there will be far fewer tyres in circulation (see Box 15, p.42). The payment of a surcharge when a tyre is purchased that can be redeemed when a used tyre is brought in for appropriate disposal, re-use or recycling, or a regulation that tyre vendors must re-use or recycle a certain proportion of the tyres that they sell, are examples of such incentives. In many jurisdictions, tyres that are left outside with other refuse are not picked up – a fact which makes adoption of correct behaviours by householders all but impossible.

A comprehensive approach to behavioural monitoring in relation to the control of tyres might therefore look not only at whether householders have unprotected tyres on their property but also at the number of tyres collected during community clean-up campaigns; the proportion of labelled "sentinel tyres" (identified and tagged by vector control officers when conducting regular larval surveys) that are taken away during routine refuse collection; the number of tyres on public lands such as roadsides; the degree to which existing laws about tyre disposal/re-use/recycling are implemented; and tyre storage in private businesses where tyres are bought and sold (Box 28). Vector control officers posing as customers buying or selling tyres could ascertain whether information is given by sales people about the risk of mosquito breeding in tyres and whether means of disposal of tyres are offered or discussed.

Monitoring behaviours related to water containers

When the behaviour of individuals relating to the management of actual or potential water containers is being measured, much more refinement is needed of the techniques in current use. Some researchers are now advocating an approach that places greater emphasis on containers producing large numbers of pupae because these are the containers producing the adult mosquitoes that sustain transmission.

BOX 28 • A FRAMEWORK FOR BEHAVIOURAL MONITORING RELATED TO PREVENTING PRODUCTION OF *AEDES* MOSQUITOES IN TYRES (EXAMPLE ONLY)

	Behaviours being monitored	Behavioural Impact Indicator	Methods of measurement
Individuals and households	■ Presence of tyres in people's yards ■ Condition of tyres: protected/unprotected from water accumulation	■ % of houses with tyres ■ % of tyres protected from water accumulation	■ Larval survey, with condition of tyre described
Communities, community groups, schools, NGOs	■ Collection of tyres ■ Recycling of tyres	■ % of community groups using recycling service ■ % of schools using recycling service	■ Survey of tyre recycling service (observations and interviews)
Vector control and sanitation services of national, state and local governments	■ Refuse collection ■ Larval source reduction on public lands	■ % of refuse collection services operating on routine basis ■ % of public lands (boundaries identified) with tyres	■ Collection of labelled "sentinel tyres" during refuse collection ■ Observational survey of public lands
Health-care workers, health-care facilities	■ Maintain area around health facilities free of tyres	■ % of facilities with tyres ■ % of tyres protected from water accumulation	■ Larval survey at health facilities, with condition of tyre described
Decision-makers and policy-makers in national, state and local governments	■ Enact appropriate laws and regulations concerning tyres	■ % of civic authorities (at defined level) with tyre-specific laws and bye-laws ■ % of tyre-specific laws enacted	■ Document survey of laws and by-laws ■ Interviews with relevant magistrates
Private sector businesses	■ Recycling of tyres ■ Safe storage of tyres by businesses that buy and sell tyres	■ % of relevant private business offering tyre recycling service ■ % of tyres protected from water accumulation	■ Assess whether recycling offered ■ Larval survey of relevant businesses, with condition of tyre described

SOURCE: WINCH P (1999). *BEHAVIOURAL SURVEILLANCE IN DENGUE PREVENTION AND CONTROL*. DISCUSSION PAPER PREPARED FOR THE MEETING "STRENGTHENING IMPLEMENTATION OF THE GLOBAL STRATEGY FOR DENGUE FEVER/DENGUE HAEMORRHAGIC FEVER PREVENTION AND CONTROL". WHO/HQ, GENEVA, 18–20 OCTOBER 1999.

Others advocate more fine measurements of the status of containers, particularly water storage containers, to provide information on what exactly householders are and are not doing. One type of measurement being advocated is examination of the relative number of mosquito eggs on the wall of the container, as well as composite measures that provide an overall picture of the state of the container and its ability to produce adult mosquitoes.[1]

[1] Chan AST et al (1998). Development of an indicator to evaluate the impact, on a community-based Aedes aegypti control intervention, of improved cleaning of water-storage containers by householders. *Annals of Tropical Medicine and Parasitology*, 92(3):317–329.

Monitoring behaviours related to reduction of vector–human contact

If one of your strategies aims to encourage people to prevent exposure to bites of *Aedes* and other mosquitoes, how might you monitor behavioural impact? Behaviours aimed at reducing exposure to bites of *Aedes* and other mosquitoes are interesting for two reasons. First, these behaviours may be effective in reducing transmission, particularly in light of new repellent formulations that are now available. Second, these behaviours are often a substitute for larval source reduction. Individuals may use aerosol insecticides or repellents as their first line of attack against mosquitoes, especially if they perceive that source reduction is impossible or of limited effectiveness. The effect of social mobilization and communication may be therefore to increase aerosol insecticide or repellent use. In the framework presented in Box 26, these behaviours include aerosol insecticide and repellent use at the household level, as well as insecticide use by vector control personnel and decisions about insecticide use by policy-makers. If only behaviours related to larval source reduction are monitored, one may conclude erroneously that a programme has had no impact on behaviour.

While time-consuming to implement, the advantage of such a comprehensive monitoring framework is that it allows control programmes to identify the true cause of continuing problems, which may or may not be at the household level.

Process evaluation[1]

Adequately tracking implementation is a fundamental aspect of social mobilization and communication for behavioural impact but is often overlooked in favour of evaluating final outcomes. **Process evaluation** (a form of monitoring) should be used to regularly check a strategy's progress and provides a powerful way to make timely refinements to all aspects of a strategy (objectives, target audiences, behaviours, products, materials, messages, communication channels, distribution networks, etc.). Thorough process evaluation records actual implementation and compares it with planned implementation, allowing for subsequent improvements to be made. Process evaluation typically tracks and documents implementation by quantifying what has been done; when, where, and how it was done; and who was reached.

Data from process evaluation can be used in at least three ways:

- Making decisions about refining the strategy's objectives, activities, behaviours, products, services, and so on.
- Documenting and justifying how resources have been spent.
- Making a compelling case for continued or additional funding (especially if combined with behavioural impact data).

Referring to your behavioural objectives is a useful starting point when you design a process evaluation and can help to avoid the common mistake of collecting data that are easy to collect but will not help you manage or improve your Plan. Ultimately, however, process evaluation is based on such questions as:

- Is the activity reaching the people for whom it was designed?
- What do the participants think of the activity?
- Is the activity being implemented as planned?
- Are all aspects of the strategy of good quality?

[1] This subsection draws on: Seigel M, Doner L (1998). *Marketing public health: strategies to promote social change*. Gaithersburg, MD, An Aspen Publication, 449–475.

- What kind of participation is occurring?
- To what extent is the direction of the strategy changing in response to the needs of the participants?

For multifaceted strategies (with many social mobilization and communication activities), process evaluation is often fragmented because data are collected separately – often using different methods – for each activity. Ideally, process evaluation should bring together implementation data from all activities, providing an overall picture of your social mobilization and communication plan's achievements and recommendations for further improvement. Common process evaluation instruments and activities include:

Bounceback cards – short questionnaires on the back of a stamped, addressed post card (addressed to your organization – hence the name). These cards can be included with any materials (e.g. posters, videos, pamphlets) distributed to your target audiences, intermediaries (e.g. schoolteachers), or partner agencies (e.g. TV stations). A few questions can be written on the back of the card to assess such issues as reactions to the materials or to provide information on how to order more copies. Bounceback cards often have a low response rate, but for programmes covering large geographical areas, such cards often provide the only tracking data on material distribution.

Inventory tracking – apart from ensuring that an adequate stock of various materials/products is always available, inventory tracking offers the chance to learn where materials/products are going, when they were dispatched, which audiences or groups are being reached, which ones are the most or least popular (which are always requested, which are never requested and why), and so on. Plotting the number of requests by date and comparing this with specific social mobilization and communication activities gives an insight into what activities generated the most requests. Less popular activities (generating fewer requests) can also be examined to determine whether they can be improved. Mapping geographical distribution of requests can also indicate areas where requests were fewer and where areas could be targeted with more intensive social mobilization and communication.

An inventory tracking database includes:

- **Date of distribution**
- **Name of material/ product distributed**
- **Quantity**
- **Geographical location**
- **Group, organization distributed to**

Service delivery – monitoring delivery of technical services and activities (e.g. training, diagnosis, treatment, vector control) is essential. Specific service delivery data needed to track progress will depend on your behavioural objectives, the strategy you have developed to achieve this objective, and the activities to be implemented. In general, service delivery data include:

— number of people served (or number of household/business/school visits made, number of trainees, etc.);

— characteristics of people served (to assess what percentage are members of the target segments the strategy is trying to reach);

— peak usage times (to assess staffing and make adjustments if necessary); and

— additional services of interest to clientele (to make future refinements).

Client satisfaction – ascertaining client satisfaction with the service/s, the facilities, and the personnel is as important as assessing service delivery. You can obtain data through:

— unsolicited client responses (e.g. "suggestion" or "comment boxes" placed at points of service, but remember potential biases – those who leave comments may have very different views from those who don't leave comments);

— observation and interviews (e.g. a manager visits a facility or accompanies a team of volunteers on their household visits and chats with clients about their opinions and suggestions on the service or activity); and

— meetings (not on a specific issue), focus groups (focused on specific issues) and formal, in-depth interviews with householders, neighbourhood committees, business managers, government officials, environmental groups, etc.;

— surveys of representative samples of target segments and/or programme partners using questionnaires.

Tracking surveys – Besides measuring actual behavioural impact, a good monitoring system will be able to track the extent to which target segments have been reached by social mobilization and communication activities, their understanding of key messages, how their behaviour has changed and why, and if not, why not. Closely linked to client satisfaction, tracking surveys are used to assess comprehension of communication actions and to determine target audiences' current behaviours and motivations to change. For example, if your programme has segmented target groups according to the stages of behaviour change (see Box 12, p.39), appropriate tracking surveys (using a similar range of methods to those you may have used in your initial formative research) can be conducted to determine whether individuals have shifted from one stage to another.

Hire a media or public relations firm to help you with media coverage analysis

Media coverage analysis – Tracking and analysing both the amount and content of media coverage (all mentions of a topic such as "insecticide-treated water jar covers" that appear as something other than an advertisement on TV, radio, or in newsprint) can help to determine:

— how many opportunities there were for people to be exposed to stories or articles containing information about a particular topic;

— identify which messages are appearing in the media (with what frequency, through which media) and which are not, allowing assessment of the sociopolitical environment (see Step 3) in terms of how the issue of dengue is framed from a policy perspective and offering insight into how the future content of media outreach could be tailored (remembering that mass media such as TV, radio, and newsprint often reach and influence key decision-makers – see Box 5, p.8).

Monitoring policy changes – Monitoring policy changes depends on what type of change it is and at what level of society the power to change policy resides. For example, if private businesses are asked to make changes (such as abiding by new building regulations or establishing a tyre-recycling scheme) then you will need to gather information (through interviews, letters, phone calls, etc.) from their public relations officer or relevant manager. If you are trying to gauge whether city councils or district governments have made legislative changes to public fines or allocated new resources to dengue-related prevention and control activities such as improved water services, then attending appropriate government meetings or maintaining contact with key officials will be important.

Tool Number 1 provides a list of books and articles that describe various research methods (qualitative and quantitative) commonly used in process evaluation.

We end this Step on a cautionary note. The concept of establishing a monitoring system sounds straightforward, but there is no coordination or agreement on the strengths and weaknesses of various indicators for different populations and no one system can satisfy all the information needs implied in the original statement of objectives.

You also need to consider:

— **time periods** (when and how frequently monitoring should be conducted and for how long),

— what **modes of data collection** should be used,

— who the **clients** for the information should be,

— how the **findings** should be used,

— what **decisions** are needed,

— the **resources** available and needed to carry out monitoring, and so on.

1 • ASSEMBLE A MULTIDISCIPLINARY PLANNING TEAM

2 • STATE PRELIMINARY BEHAVIOURAL OBJECTIVES

3 • PLAN AND CONDUCT FORMATIVE RESEARCH

4 • INVITE FEEDBACK ON FORMATIVE RESEARCH

5 • ANALYSE, PRIORITIZE, AND FINALIZE BEHAVIOURAL OBJECTIVES

6 • SEGMENT TARGET GROUPS

7 • DEVELOP YOUR STRATEGY

8 • PRE-TEST BEHAVIOURS, MESSAGES, AND MATERIALS

9 • ESTABLISH A MONITORING SYSTEM

10 • STRENGTHEN STAFF SKILLS

11 • SET UP SYSTEMS TO MANAGE AND SHARE INFORMATION

12 • STRUCTURE YOUR PROGRAMME

13 • WRITE A STRATEGIC IMPLEMENTATION PLAN

14 • DETERMINE YOUR BUDGET

15 • CONDUCT A PILOT TEST AND REVISE YOUR STRATEGIC IMPLEMENTATION PLAN

STEP 10. Strengthen staff skills

The long-term sustainability of social mobilization and communication will be difficult unless the organization and orientation of government-run services emphasizes the development of programmes based in communities with genuine decision-making at the local level. Where programmes have undergone or are currently being decentralized, capacity at provincial, district and sub-district levels to plan, manage, and implement social mobilization and communication strategies is often far from sufficient.

You may need, therefore, to provide opportunities for service personnel to learn how to develop and implement appropriate social mobilization and communication strategies, how to listen and work with community members, and how to link their plans and activities with local perceptions, conditions, and resources (Box 29). Training may also need to be arranged (in interpersonal communication, for example) for volunteers and staff from other agencies supporting your programme.

BOX 29 • STRENGTHENING STAFF SKILLS IN LATIN AMERICA

Social mobilization and communication for dengue prevention and control was presented at an "International Course for Management of Dengue Prevention Based on WHO's Global Strategy" held in Bucaramanga, Colombia, in 2000 and 2001. This course offered participants from several countries in Latin America a complete vision of modern approaches to the prevention and control of dengue fever from clinical, epidemiological, viral, and entomological aspects. A major emphasis in the course was on social participation, education, and communication about health care, which follows the Global Strategy for Dengue Fever promulgated by the WHO in 1995. These courses were organized and presented by the Three-H Corporation: the Dengue Prevention Project of the Rotary Club of Bucaramanga-Chicamocha; the Dengue Branch, CDC in San Juan, Puerto Rico; representatives from the Industrial University of Santander; and the WHO/PAHO representative in Colombia.

Training programmes in social mobilization and communication can include pre-service courses, in-service distance education, and on-the-job assistance to field staff. Training coverage can be multiplied if trainees are successfully encouraged to train others in their local institutions (say at district level). Indeed, this is when intensive learning takes place. Several aspects of district training programmes appear to be particularly important:

- Initial training should focus on building multidisciplinary teams with some senior administrators.
- Training should be very practical in nature, including many activities during which participants learn by observing and practising new techniques in real settings. The teams should also develop action plans for organizing model teaching and service programmes on return to their local institutions.
- Participants should be provided with a basic collection of teaching materials for use in their own local institutions.
- Well-timed follow-up support should be provided through supervisory visits, newsletters or other forms of communication.[1]

[1] Brownlee A (1990). Breastfeeding, weaning and nutrition: the behavioural issues. *Behavioural Issues in Child Survival Programs: Monograph Number Four*. Washington, DC, Office of Health, United States Agency for International Development.

Training activities, however, are likely to have little long-term effect unless they are supported by changes in the programme environment that reinforce new practices. Evidence from many of the programmes suggests that training activities are more successful if they are combined with policy, procedural, and legislative changes that support the new practices being proposed. When implementing your COMBI Plan, you should anticipate conflicts between social mobilization and communication activities and the day-to-day routines of dengue programme staff and other health workers, precisely because social mobilization and communication challenges such routines. It is paramount, therefore, to address such conflicts; otherwise the impact – and eventual blending – of strategies into local practices will be jeopardized. It is important that officials from local institutions (e.g. district health centres) do not perceive social mobilization and communication strategies as an extra burden. This entails raising their awareness, involving them in the planning process, and linking social mobilization and communication activities as much as possible – and as early as possible – to their other activities.

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STEP 11. Set up systems to manage and share information

Programmes can no longer rely on their former practices to sustain dengue prevention and control. The ability to change requires an ability to learn. Dengue programmes need to become "learning organizations", with information management systems that enable rapid understanding of trends and developments affecting the behaviour of target groups. Such an information system would include carefully filed or electronically stored data on target groups and programme partners, drawing from your formative research (Step 3) as well as from pre-testing (Step 8), monitoring (Step 9), and from negotiations with programme partners (see Step 12). You might call such an information system "Community Profiles" or "A Consumer Information System" or "The Formative Research Databank." In essence, you need a **COMBI Database** equivalent to a health information system or entomological surveillance system.

The problem is that establishing and using such an information system is a substantial and ongoing fixed investment for programmes. It seems much more reasonable to spend money on activities in the field, all of which can be classified as variable costs, rather than incur fixed and continuing costs of developing an information system or database. As we move to behavioural segmentation (Step 6) and measuring behavioural results (Step 9), there is little question that a database is or will be critical to the success of social mobilization and communication. The pay-off in developing such a database is that ongoing formative research will be better informed and more focused, behavioural monitoring will be much more effective, and programme fine-tuning will be based on current knowledge of what community groups and partners are doing.

While the construction and design of computer databases are beyond the scope of this guide, technology will undoubtedly help you here. As technology improves, it will become feasible for programmes to have such a database and to control their own sources of information. Such an information system must include feedback mechanisms. Effective information-sharing is an important, although often forgotten, tool for change. Frequently, programmes within the same country or region involved in making innovative changes are unaware of each others' efforts.

Strategies for sharing of important information on behavioural issues and promoting effective use of relevant formative research results should be developed by dengue programmes. Apart from a database, establishing local libraries, clearing houses, newsletters, and systems for sharing recent literature over the internet are a few of the strategies that may be beneficial.

You should also think carefully about how information can be shared with target groups in the form of observable changes in mosquito densities or other forms of communication such as newspaper articles, radio bulletins, and visual displays such as simple pie-charts (Box 30).[1]

[1] Rink B, Swan S, Stansfield SK (1993). Communicating coverage data with non-literate communities: beans, sticks or pie-charts? *Health Policy and Planning*, 8(1):57–60.

BOX 30 • COMMUNITY FEEDBACK IN THE CCH CARIBBEAN PROJECT

At the community level, feedback was channelled through community meetings organized by the responsible environmental health officer; simple mosquito emergence traps were used to demonstrate the effectiveness of control measures to householders; journalists and broadcasting stations were encouraged to provide feedback to the wider community on project progress; national intersectoral committees met periodically for updates and decision-making; overall programme feedback mechanisms were established at the international level to ensure information flow to and from the Project Advisory Committee and the national authorities on a regular basis.

STEP 12. Structure your programme[1]

There is little doubt that dengue programme organizational structures are one of the more formidable barriers to implementing effective social mobilization and communication strategies. Social mobilization and communication are usually a low priority in most programmes and are often developed and implemented at the lowest levels, that is by the most junior staff or inexperienced employees or those who have been sidelined from mainstream positions and may have no relevant background. The obvious implication of this structural location is that senior management doesn't consider it to be very important. Organizational or structural change is often required.

Organization change strategies might include:

— forming multidisciplinary teams and intersectoral committees to help managers work through the tasks required;

— training, mobilizing, and supervising a field workforce;

— establishing management procedures, benchmarks (indicators that show whether the programme is moving towards a particular goal), and feedback or tracking mechanisms (e.g. monthly reports or newsletters shared with all levels, meetings); and

— designing a modified organizational structure by identifying and delineating new responsibilities; creating new positions (when necessary); modifying working hours; covering expenses that increased fieldwork generates.

We have already discussed the basics of the first three strategies, so we focus now on organizational structures.

Four basic organizational structures (not mutually exclusive) can be used to enable programmes to practice social mobilization and communication. They are:

- Functional organization
- Programme-centred organization
- Community-centred organization and
- Organizing strategic alliances.

Functional organization

A number of tasks must be accomplished in the design and implementation of social mobilization and communication strategies. Someone will have to conduct the initial formative research as well as organize subsequent monitoring and evaluation activities. Products (and their distribution systems) associated with key behaviours may have to be designed and tested (e.g. temephos packets, jar covers, educational materials). Someone will have to prepare messages, produce IEC materials, and manage their distribution and broadcasting perhaps via an advertising firm. Someone will have to manage public relations and facilitate the involvement of key stakeholders. Another person may be needed to mobilize the government administrative system. If a large team of interpersonal communicators is required (such as community volunteers), someone will have to organize their training and ongoing support (Box 31).

[1] This step is informed by: Schultz DE, Tannenbaum SI, Lauterborn RF (1994). *The new marketing paradigm: integrated marketing communications*. Lincolnwood (Chicago), IL, NTC Business Books; Andreasen A (1995). *Marketing social change: changing behaviour to promote health, social development, and the environment*. San Francisco, CA, Jossey-Bass Publishers; Weinreich NK (1999). *Hands-on social marketing: a step-by-step guide*. Thousand Oaks, CA, Sage Publications.

BOX 31 • FUNCTIONAL ORGANIZATION IN FIJI

Working groups were formed for different priority areas. For example, two project staff worked with the Ministry of Education's Curriculum Development Unit and teachers developing and pre-testing educational packages for teachers and primary-school children. Two other project staff worked with church leaders to develop working plans to reach the different religious groups. Two staff worked with local NGOs to develop a dengue-specific puppet show. Two other staff were responsible for working with the media and distributing weekly news releases. A project officer was also appointed specifically to seek sponsorship for dengue prevention and control activities from Fiji's main business houses as well as regional and international development organizations. Regular team meetings were facilitated by an overall manager to coordinate and integrate the different activities.

Each of these tasks is called a "function". One person or a team of people may be assigned responsibility for each function – or several related functions could be assigned to one person. A functional organization is good to use if the environment remains fairly stable, but there is a danger that staff may blame each other for low behavioural impact (e.g. "the posters were OK but the distribution system wasn't!").

Programme-centred organization

Here one person is given responsibility for coordinating all of the functions with respect to a given social mobilization and communication campaign or programme. Centralized control would appear to contradict the process of decentralization. Although decentralization is a useful management concept, bringing programmes closer to communities, problems do occur when the tasks required to manage strategies are broadly distributed throughout the organization and put in the hands of general vector control staff who are commonly inexperienced in social mobilization and communication. This does not imply that local staff cannot implement approved strategies within certain guidelines; but it does mean that there is one central social mobilization and communication manager who can visualize and comprehend the total programme and can therefore develop and coordinate all strategies (Box 32).

BOX 32 • EXAMPLES OF PROGRAMME-CENTRED ORGANIZATION

In **Colombia**, **Indonesia**, and the **Philippines**, Rotary International and CDC funds were used to establish national programme offices to manage dengue control activities with their respective national Ministry of Health and other community groups. In each country, the establishment of a central office that reported directly to ministry staff yet communicated with and coordinated other partners helped to generate better community ownership of the programme.

This structure is fairly easy to implement. It clearly assigns bottom-line responsibility. It guarantees that someone will keep in frequent contact with all programme partners and target groups. This centralized approach assumes that the existing organization will not be changed. There is a unique danger, however, in that it encourages the selection of managers who know the programme content area rather than people who are good at understanding community groups.

Community-centred organization

An organizational alternative coherent with the overall theme of this guide is to structure your programme in accordance with how your interventions are perceived by community groups, i.e. how they use them, how they think about them, not on how the programme promotes them. An example will help to illustrate.

> ■ Assume Programme X promotes drum covers, larvicides, fish, copepods, and recycling. The Programme believes it is tackling mosquito larval habitats. Yet from the consumer's point of view, the first four products are considered some sort of water cleansing or protection product (preventing dirt from entering or killing the dirt [larvae]). Recycling is not seen as larval source reduction but as part of general household cleaning. Under the community-centred structure, Programme X would create a "water cleansing group" and would be responsible for promoting the entire line of water cleansing interventions. Another group would be the "household cleaning group" who would pursue negotiations with refuse collection services. No mention of dengue, no mention of larvae, but high satisfaction of community needs.

This is the most radical of the organizational structures that we describe, but it does guarantee that the focus of the programme is on the community and not on the programme.

Organizing strategic alliances

Dengue issues are often so complex that one organization cannot make an impact by itself. More and more, dengue programmes are taking on partners in strategic alliances to achieve programme ends. These alliances can involve commercial sector firms such as manufacturers, distributors and advertising agencies. They can involve government agencies (e.g. ministry of education, armed forces) or NGOs in local areas that have closer ties and often greater credibility among local citizens (Box 33).

BOX 33 • STRATEGIC ALLIANCES IN CAMBODIA AND PUERTO RICO

The national programme in **Cambodia** includes four components for capacity-building from the national to the community (*khum*) levels: (1) epidemiological surveillance; (2) clinical management; (3) vector control; and (4) health education. Health education, however, is seen as a major tool for the Ministry of Health to initiate community-based activities aimed at reducing dengue transmission as well as for early treatment of sick children. The health education strategy is a multisectoral approach involving several ministries of the Royal Government of Cambodia: Ministry of Rural Development; Ministry of Women's Affairs; Ministry of Health; Ministry of Education, Youth and Sports; and Ministry of Information.

In **Puerto Rico**, a medical anthropologist and a health educator working for the dengue programme collaborated with elementary schoolteachers to develop an activity booklet for children. After several years of interactions and a major revision, the dengue prevention module has been incorporated into the public school curriculum. An important aspect of this programme has been the provision of training programmes for teachers, school nurses, and school nurse supervisors throughout Puerto Rico. To optimize resources, "train-the-trainer" sessions were conducted with Puerto Rico Department of Education (PRDE) supervisors so that they could train classroom teachers in their regions to present the dengue prevention activities. After the 1994 and 1998 dengue epidemics in Puerto Rico and the intense training received by teachers, supervisors, and school nurses, PRDE decided to also incorporate information on dengue prevention in the school health programme curriculum from kindergarten until 12th grade. In summary, PRDE has accepted its important role in dengue prevention in Puerto Rico.

These collaborations are not new, so we need not dwell on the specifics of how to go about building them. But here are some key points in relation to social mobilization and communication:

a. you will want to ensure that programme partners fully understand and agree with your strategy/ies and so they must be involved in its planning as well.

b. depending on their resources and interests, partners may wish to participate in many different ways. You can specify what they may do or allow them to decide the type of role they would prefer. Some possibilities include the following:

   - Distributing your programme materials to their clients/customers/ constituents (e.g. asking private doctors to distribute brochures).
   - Referring members of the target audience to your programme (e.g. asking folk healers to refer febrile cases in children to local clinics).
   - Including your messages in their own materials (e.g. school curriculum).
   - Offering use of their staff or volunteers to the programme.
   - Writing letters of support for your programme.
   - Providing well-known spokespersons for the programme.
   - Assisting in research and evaluation activities (e.g. universities, high schools).
   - Providing financial support or "in-kind" contributions (e.g. printing, media time, use of their conference facilities).

c. think carefully about who would be good partners. Just because an organization has expressed interest in being involved does not mean that it is the best partner for your programme. Some criteria for choosing partners are whether the organization has the following attributes:

   - A community-centred mindset.
   - Access to members of target group/s.
   - Credibility or influence with the target group/s.
   - Resources (e.g. staff, financial) and/or skills (e.g. media relations) that it is willing to make available to your programme.
   - Qualifications appropriate to the topic of the programme.
   - A pre-existing relationship with you or your programme.
   - Enthusiasm for the social mobilization and communication draft Strategic Implementation Plan (see Step 13).

d. too many partners can make the programme become an administrative nightmare. It is up to you to decide the balance needed between expanding the programme and letting go of control over parts of the process.

But how is a manager to induce the enthusiastic cooperation of these other groups and individuals in carrying out actions that will help achieve the programme's goals?

First, have the confidence to approach other partners. Too many programmes fail to exploit the possibilities for creating novel alliances, especially with the business sector. In recent years, many national and multinational corporations have become champions of health issues. In addition to employing a significant percentage of urban populations potentially at risk of contracting DF/DHF, corporations can also influence government decisions, the activities of small and medium enterprises,

and popular behaviour. Many businesses have extensive communications, advertising, financial, and marketing and distribution networks. They also have in-house expertise in a wealth of areas valuable for increasing the effectiveness of social mobilization and communication for behavioural impact, including strategic planning, target setting, implementation management, and procurement. Asking corporations what they have to offer your programme, not just in cash or other resources but in terms of **skills**, could result in substantial benefits to your programme as well as serve as a useful public relations exercise for the corporations concerned.

Second, simply apply the very formative research and communication principles we have been discussing throughout this guide. This is because, in each case, the problem is plainly to get someone to take an action or actions that will directly or indirectly reduce the risks of dengue fever. You are just seeking another behavioural result – no different from getting householders to remove or manage water containers around their homes.[1]

[1] A useful guide on mobilizing the private sector is: Slater S, Saadé C (1996). *Mobilizing the commercial sector for public health objectives: a practical guide*. Arlington, VA, BASICS.

STEP 13. Write a Strategic Implementation Plan

We come now to the production of the most important tool for managing the implementation of your social mobilization and communication strategies: the **Strategic Implementation Plan**. The purpose of strategic planning for social mobilization and communication is to devise a plan that is appropriate to the health problem and target groups identified, within the resources available, and which will have the best chance of bringing about sustainable behavioural impact.

You might also call such a document an "Action" or "Operational" Plan. Plans can be short-term and long-term. Long-term usually refers to three to five years. Short-term normally refers to one year or less. You might write an overall "Social Mobilization and Communication Plan" that contains more detailed plans for each strategy or how to work with each programme partner (e.g. NGOs, the media, the private sector, other government sectors) or even each Step described in this guide.

Whatever format your plan takes, it should clearly and comprehensively spell out the activity steps that will be taken to implement a strategy (or set of strategies) to achieve its objective/s. The plan should include all the preparatory activities as well as what will happen once each strategy is implemented. For instance, your plan should specify how many of a particular product (e.g. water storage container covers) or communication material (e.g. radio spots, posters) you will need, who will produce them, and how they will be distributed (of course, all this after the pre-testing has occurred!). If, for example, training of field staff, volunteers, drama groups, and schoolteachers is required, then the plan should specify when and where these groups will be trained, by whom, and how. If your strategy requires close collaboration from the media and press, then the plan should detail how these groups will be contracted or briefed (e.g. how often and where news conferences will occur).

What should your Strategic Implementation Plan include? Ideally, there should be three basic sections (Box 34). An **Introduction** describing the context of your programme and the behavioural challenges it faces. A section providing an overview of the **Strategic approach**. And a more detailed **Implementation Plan** of the specific activities, monitoring and evaluation methods, management structures, and budget. Within this third section, you should have a detailed workplan that acts as a template of activity schedules and schemes for coordinating different strategies. This can be used to monitor progress and should indicate the responsibilities of the various stakeholders.

A Strategic Implementation Plan serves as a record of your programme's objectives and strategies, which can be consulted and altered as necessary. It is a document that will and should go through various drafts – usually around three drafts – as you move backwards and forwards through all the steps outlined in this guide. The plan should be discussed and debated by your multidisciplinary planning team and by other stakeholders.

BOX 34 • BASIC SECTIONS OF A STRATEGIC IMPLEMENTATION PLAN

1. INTRODUCTION

1.1 Principal findings from your formative research: a summary of existing data and results of the formative research on the behavioural and programme environments, including issues requiring further formative research.

1.2 Behavioural analysis: a detailed description of the behaviours selected for attention through the analysis process described in Tool Number 4. You should also state your behavioural objective/s (make sure they are specific, measurable, appropriate, realistic, and time-bound). Explain the significance of the objective/s.

REFER TO TOOL NUMBER 4

1.3 Target group segmentation: a description of target groups (by behavioural segments, primary and secondary audiences).

2. THE STRATEGIC APPROACH (explaining "What", "Why" and "How")

2.1 Overall goal: For example… To contribute to the reduction in morbidity and mortality from dengue fever/dengue haemorrhagic fever in [location] by the year [date].

2.2 Behavioural objective/s: Restate the specific objective/s as presented in 1.2. For example… *Within one year from the start of the programme, to increase the percentage of women in [place name] who vigorously scrub the interior walls of water storage drums twice a week using a rigid bristle brush and laundry detergent, from 30% to 60%.*

2.3 Strategy/ies: A general overview of the social mobilization and communication strategy stating the key messages, their sequencing (if any), the overall tone for the strategy, the blend of communication actions (administrative mobilization, community mobilization, advertising, personal selling, point-of-service), and relationships between these different communication actions and an overview of how the plan will be managed.

REFER TO BOX 5

3. THE IMPLEMENTATION PLAN (explaining "What", "When", "Where", "Who", "How much")

3.1 Communication actions: Detailed specification of the communication actions outlined in the "Strategy" section, including descriptions and plans for production, procurement, pricing and distribution of any technological products, services, incentives (e.g. T-shirts, prizes), and materials, as well as identifying what staff and/or partner agency training and supervision activities are required (for whom, what, when, where, why, facilitated by whom).

3.2 Monitoring and evaluation: Details of the behavioural monitoring and process evaluation to be used, methods for data collection and analysis, a description of the system for managing and sharing monitoring information (community feedback, programme reports, etc.), and an explanation of how the plan will be modified as a result of monitoring. Also included here would be a description of any mid-term or final evaluations of behavioural impact (alongside other areas of interest such as entomological impact, social and organizational impact, impact on morbidity and mortality, environmental impact, cost–benefit analyses, and other unintended impacts).

3.3 Management: A description of the management team (e.g. the multidisciplinary planning team), including specific staff or collaborating agencies (e.g. local advertising firms, research institutions) designated to coordinate communication actions and other activities (such as monitoring). Also including any technical advisory group or government body to which the management team is to receive technical support from or report to.

3.4 Workplan: A detailed workplan with time schedule for the preparation and implementation of activities required to execute each communication action as described in Section 3.1. The workplan could take the form of a table with column headings: Activities, Completion Date, Responsibility (staff member, partner agency, and so on). A tabular flow-chart (or Gant Chart) with weeks, months, quarters, or years as column headings along the top and specific activities as row headings down the left-hand side is also useful. Cells within the table can be shaded to indicate which weeks, months, etc., particular activities are scheduled. Such a diagram allows instant comprehension of when different activities begin and end, whether preparatory activities have been given enough time, whether communication actions that need to be integrated are indeed integrated, and highlights periods of peak activity.

3.5 Budget: A detailed listing of costs for the various activities described in Section 3.1 (see also Step 14).

STEP 14. Determine your budget

Everyone wants to know how to achieve and sustain behavioural results as cheaply as possible, but in general you get what you pay for. Dengue is basically a problem of domestic and workplace water management and sanitation, and the behaviours required to improve this management are much cheaper than large-scale applications of insecticide. But it would be a mistake to believe that the problem can be addressed with little or no investment of funds and commitment of other resources (e.g. staff and time). It is a **huge challenge** to find ways of transferring to the community the responsibility, capability, and motivation for the prevention and control of dengue (Box 35).

BOX 35 • LESSONS LEARNT FROM SUSTAINED EFFORTS IN PUERTO RICO

A new approach to dengue prevention and control in Puerto Rico, focusing on social mobilization and communication for behavioural impact, was begun in 1985 when the programme employed a medical anthropologist from the University of New Mexico, who was fluent in Spanish and was an expert on Caribbean island and Puerto Rican culture. Social scientists were hired and formative research was conducted under her guidance for a period of two years, after which a number of creative interventions were developed and implemented, many of which are still maintained today. A strong alliance was built with Rotary International, and a grant for US$ 400 000 was obtained from the Rotary Foundation of Rotary International in 1987. This, plus in-kind funds from local Rotary Clubs and support from CDC, provided adequate resources to hire behavioural scientists and to develop and implement behaviour change strategies. In 1988, a collaborative programme with the Johns Hopkins University School of Public Health, funded by the Rockefeller Foundation, ensured world-class behavioural science guidance for continued formative research and development of social mobilization and communication strategies. Dengue teams from Honduras and Mexico were brought to Baltimore and Puerto Rico to train and carry out research under this programme. The Rotary partnership provided access to many top public relations firms with experience in marketing. Their creativity and resources were used to develop and implement many of the education materials and interventions.

This programme was evaluated by the Johns Hopkins University School of Public Health in 1994. The results suggested that the programme was highly successful in increasing the community knowledge about dengue, biology and control of *Ae. aegypti*. Yet it has failed to initiate behaviour change to control the mosquito and prevent disease transmission.

The fact remains that few dengue programmes have so far heeded an important lesson learnt long ago by the commercial marketing sector: it takes an **enormous effort** in terms of research, creativity, alliance building, funds, and other resources to achieve and sustain behavioural impact. In the public health sector, we have only to look at anti-smoking campaigns to appreciate the massive resources required to promote and maintain healthy behaviour. To tackle the problems posed by today's urban living conditions and lifestyles that have contributed to dengue's emergence will require substantial investment. **Many countries do not have a specific budget for dengue programmes, let alone for social mobilization and communication activities**. Such a budget would be very desirable and helpful in order to properly plan and implement activities. In Tool Number 5, we offer 10 ideas to help you achieve your optimum budget.

1 • ASSEMBLE A MULTIDISCIPLINARY PLANNING TEAM

2 • STATE PRELIMINARY BEHAVIOURAL OBJECTIVES

3 • PLAN AND CONDUCT FORMATIVE RESEARCH

4 • INVITE FEEDBACK ON FORMATIVE RESEARCH

5 • ANALYSE, PRIORITIZE, AND FINALIZE BEHAVIOURAL OBJECTIVES

6 • SEGMENT TARGET GROUPS

7 • DEVELOP YOUR STRATEGY

8 • PRE-TEST BEHAVIOURS, MESSAGES, AND MATERIALS

9 • ESTABLISH A MONITORING SYSTEM

10 • STRENGTHEN STAFF SKILLS

11 • SET UP SYSTEMS TO MANAGE AND SHARE INFORMATION

12 • STRUCTURE YOUR PROGRAMME

13 • WRITE A STRATEGIC IMPLEMENTATION PLAN

14 • DETERMINE YOUR BUDGET

15 • CONDUCT A PILOT TEST AND REVISE YOUR STRATEGIC IMPLEMENTATION PLAN

STEP 15. Conduct a pilot test and revise your Strategic Implementation Plan

While you need to devote a lot of attention to the objectives, strategies, activities, and monitoring procedures of your Strategic Implementation Plan, and the resources needed for its implementation, the "process" of social mobilization and communication implementation is often overlooked.

Pilot-testing represents an important first step in implementing a social mobilization and communication plan. During piloting, formative research is again used to obtain feedback from participants involved in the plan's implementation as well as from staff on the quality of the activities in all their dimensions – from educational materials to the appropriateness of the personnel chosen to deliver the activities.

Pilot-testing serves at least three basic functions:

- Ensuring that the chosen strategies have no obvious major deficiencies.
- Fine-tuning possible approaches so that they speak to target audiences in the most effective ways.
- Convincing staff and partners.

Ensure that the chosen strategy has no obvious major deficiencies

Even with the best formative research, the development of a social mobilization and communication plan is still necessarily a creative process. The Steps you have just worked through will produce a number of alternate strategies to achieve a particular behavioural objective, only one of which will be used. But there is much that can go wrong. Pilot-testing and gradual introduction of interventions with constant monitoring helps to avoid major investments in ineffective activities. Think of the pilot test as a "test run", an incubation period, an opportunity to work out the "bugs" before committing to carrying out a strategy on a larger scale. Essentially, you want to know before committing to full implementation whether the chosen strategy will work effectively. Pilot-testing can save a programme substantial finances by helping stakeholders avoid expensive misdirected activities.

Fine-tune possible approaches

Pilot-testing will help you to know whether the overall strategy (the messages, materials or activities) will generate the desired effect. When it does not, piloting gives you the opportunity to make modifications to better shape the strategy.

Convince staff and partners

Pilot tests can also help to "sell" proposed strategies internally among your own planning team or to partner agencies by providing information on target group reactions and behavioural responses (Box 36).

BOX 36 • GOING TO SCALE IN HONDURAS

The development of the *Untadita* showed how formative research can be effectively used (see page 13 and Tool Number 2). Research teams identified different cleaning methods in the community, and those methods were tested by entomology teams in order to find those that were effective. Bleach and detergent were found to have basic advantages but also disadvantages in the control of the immature larval stages, but mixed together their effect was greater. A social science team went to the community to validate the mixture and the messages.

Community trials took place in the neighbourhoods of El Progreso in 1996, before the *Untadita* could be promoted as a technical tool for the entire country. Many health employees and authorities needed to try the *Untadita* before they decided to recommend it for nationwide use. Also, the fact of having two publications on the *Untadita* and a report on the El Progreso experience helped to facilitate its acceptance. When the mobilization got the political support, it was time to work on the validation and editing of educational materials for a national audience.

Conducting a pilot test and using pilot-test results

When you conduct a pilot test, you need to make sure that any changes you observe are the result of your strategy and not of other events that are occurring in the target group. To be certain that it is your strategy that is bringing about the observed changes, always try to include a control group to which nothing beyond routine activities is being done. By comparing target and control groups, you can be much more confident that your strategy was responsible for any observed changes. When conducting a pilot test, try and ensure that the group receiving your strategy is as nearly identical as possible to the group serving as the control.

No matter how the behavioural results from the pilot test are captured, stored, or analysed, the next important task is the determination of whether the strategy can proceed to full implementation or whether modifications are needed. Here, the community-centred view of planning must dominate. In other words, you must learn what primary and secondary audience members said, what they did, what additional information and resources they wanted and in what form, and so on.

Modifying strategies after a pilot test is often a very difficult task. A pilot test may show that your behavioural objectives were unrealistic, that target groups have to be regrouped, or that certain activities resulted in no behavioural impact. A pilot test may indicate that an internally prized set of posters or promotional event (such as the "anti-mosquito month") must be abandoned. The behavioural responses may even show a need to rethink your entire approach. But this is what social mobilization and communication for behavioural impact is all about. It is self-adjusting. It is designed to motivate programme beneficiaries, not to make programme staff happy. In social mobilization and communication, the only constants are change and adaptation.

Final words of advice

Subscribing to the COMBI Planning framework outlined in this guide means that you must negotiate relevant and effective behaviours with all the various partners needed for the prevention and control of dengue fever. Every result you seek must be a sustainable behavioural result: someone has to **do** something – and continue doing it. It is not enough that they are aware, or are knowledgeable, or are even convinced; they need to **act** and **keep acting**. In short, achieving and sustaining behavioural results is the measure against which your efforts in dengue prevention and control should be judged.

Understanding behaviour and behavioural environments requires **research**. Not just one-off studies but a continual "dialogue" with your key partners, whether householders, neighbourhood groups, city planners, donors, politicians, or others.

As well as research, you will need to develop clearly focused **strategies**. Better strategy development involves explicitly researching how to reinforce or modify specific behaviours from the outset and targeting a few behaviours that are simple and cheap to put into practice. But you will also need a dash of creativity to develop social mobilization and communication strategies that have real and long-lasting behavioural impact. You should use your periods of formative research as the "breeding sites" for novel ideas. **"Behavioural epidemics" are needed to combat dengue epidemics**. But you can't start a behavioural epidemic unless you have really infectious ideas!

And while many strategies can contribute to behavioural results, no strategy can be implemented in a coordinated and thus effective manner without careful **organization**. Someone has to communicate the right thing, in the right way, at the right time, to the right people, with the right effect.

So by now, you and your multidisciplinary planning team have moved backwards and forwards between COMBI's 15 Planning steps. You now have:

— precise, feasible behavioural objectives;

— a detailed understanding of the political, economic, social, cultural, and behavioural challenges that lie ahead;

— carefully analysed your internal and external resources;

— a clear idea of the various target groups your programme is trying to reach;

— a creative and comprehensive strategy focused on a few key behaviours;

— designed and thoroughly pre-tested specific products, behaviours, messages, and materials;

— contracted partner agencies to complete or implement particular activities;

— set up production and distribution systems;

— established ways to measure behavioural impact once implementation begins;

— trained or have plans to train staff and relevant programme partners;

— created a database of information on communities and programme partners;

— developed new ways of organizing staff, revitalized old partnerships, and made new alliances;

— pilot-tested whole activities and adjusted your Strategic Implementation Plan accordingly, ready for full implementation.

You should have a well-researched, comprehensive, and fully tested Strategic Implementation Plan. Congratulations!

OK, it's not much fun planning, but as part of your sense of responsibility for the bottom line – **ACHIEVING AND SUSTAINING BEHAVIOURAL IMPACT** – you should now believe very strongly in and be able to convince others of the need to systematically think through the major steps when planning social mobilization and communication for behavioural impact.

We end this guide by offering words of advice from those programme managers, dengue specialists, and social scientists who are currently reshaping dengue fever prevention and control. Hopefully, we can all follow in their footsteps…

Ngan Chanta, To Setha, Duong Socheat, Stefan Hoyer
Cambodia

■ Determine the larval ecology in the operational area and use this as a basis for focusing interventions on the most important habitat/s.

■ Even apparently simple technical interventions require intensive dialogue with community groups and multidisciplinary research. For example, product development and testing of a mosquito-proof cover for household water storage jars in a rural area of Cambodia has so far involved aspects of formative research, engineering (19 designs initially), and entomology. At each stage of the development process, product testing has been carried out with the intended end-users of the jar cover. This has resulted in important improvements.

■ Having responsibility for an activity does not mean that you have all the answers at the outset. Be prepared and willing to assume a flexible management approach to intervention development that allows it to take the appropriate course, negotiated with all the stakeholders.

Jorge Luna, Adriana Bueno, Jackeline Hernandez, Ivan Chain, Rafael Escalante, Sonia Angarita
Colombia

■ Take sufficient time while planning and designing the programme to evaluate actions and interventions and to define valid indicators for each activity.

■ It is not necessary for everything to be ready before the programme begins. With time available for research and evaluation, it is possible to learn, change and/or include new things that are found to work as the programme develops. Behaviour change is very interactive and dynamic, and things are changing as the programme goes forward.

- Make efforts to control mosquitoes other than *Ae. aegypti* that disturb residents. This is important to many people.

- It is necessary and important to create a multidisciplinary working group with (at least) the following areas represented: social sciences; entomology (biology); education and communication. The educational-communications goals should be based on results from research and evaluations that combine appropriate qualitative and quantitative methods.

Elli Leontsini, Guillermo Gonzálvez, Julia Rosenbaum
Dominican Republic

- Basing new behaviours upon existing ones is one way to assure feasibility.

- Test new behaviours in the entomology laboratory, if needed.

- Test for acceptance and feasibility through negotiation trials of improved practices, where householders become programme consultants.

- Offer people (behavioural) options.

- Link behaviours to a perceived priority, which may not necessarily be dengue (particularly relevant for longer-term prevention programmes as opposed to emergency campaigns, even though the actual behaviours promoted may be the same).

- In our case, negotiation was transformed from a formative research tool, initially, to a social mobilization and communication tool, in building alliances and in interpersonal communication during household visits.

Alumita Bera, Joe Koroivueta
Fiji

- Concentrate on small behaviour changes: e.g. just concentrating on tyres and drums and just prompting simple modifications to the existing behaviours.

- Start where people's own knowledge and behaviours are at and build on this in an incremental fashion. Formative research needs to be pulsed throughout campaign development and implementation to make ongoing modifications. Keep listening to people; do not do baseline research and then sit back and wait five years before doing an evaluation.

- Use annual campaigns timed to match community concerns and epidemiological risks. Change your emphasis slightly each year to keep the campaign fresh.

Eduardo Fernández, Mercedes Martínez, Catalina Sherman
Honduras

- Negotiate from the beginning for good political support for all stages of the programme, especially the formative research.

- Diversify the number and type of professionals designing the programme in order to include from the beginning more expertise in education, communication, community organization, and entomology.

- Work hard at linking research with implementation and at moving from small-scale to large-scale implementation.

Rita Kusriastuti, Thomas Suroso, Sustriayu Nalim, Wibowo Kusumadi
Indonesia

- Conduct a situation analysis incorporating epidemiological aspects, vector control issues, sociobehavioural data, and infrastructure availability (staff, funding, logistics, etc.).
- Work in partnership with community leaders, local organizations or NGOs, and all levels of the government right from the beginning of the programme.
- To achieve and sustain behavioural impact, you need time, money, and a comprehensive plan.
- Appoint one person to conduct regular monitoring/close supervision of field activities.
- There are bound to be mistakes or shortfalls, the unexpected may happen, but learn from them, change what can be changed, and improve what needs to be improved.
- Involve people in the planning process right from the beginning, respecting the local culture – people's beliefs and traditions. These will contribute to a sense of ownership, which will in turn contribute to the sustainability of the programme.

Mohd. Raili Suhaili, Everold Hosein
Malaysia

- Establish a small group of people (rather than a large committee) who are committed and dedicated and who can plan and execute a project.
- Beware of miscommunication between your planning team and those personnel who are supposed to execute the plan and between the programme and community representatives. Overcome miscommunication by repeating messages or information over and over again.
- The community/household will readily get themselves involved if the targets set for them are reasonable and apparently achievable. For instance, getting them to inspect their own house for 30 minutes on one day every week is much more doable than just asking them to get rid of mosquitoes' breeding sites.

Lourdes Rivas Gutiérrez, Jorge Méndez Galván, Rosario Nájera Vázquez, Miguel Inette Burgos, Silvia Canto Celis, Fabiola Sabido Montoya
Mexico

- The easier and more similar a proposed behaviour is to that which is currently being done, the lower the cost, the greater the perceived benefit, the greater the probability that the behaviour will be adopted by the target audience. Nevertheless, many times a behaviour is not feasible in its ideal form yet is absolutely necessary to solve the problem. When this happens, a compromise behaviour that would have a similar impact on the problem should be worked out with entomologists.
- In planning a communications intervention, one must bear in mind that people differ from one another and that it is a serious error to design, produce, and send messages as though the entire population were identical. For educational communications interventions to achieve behavioural results, it is imperative to identify the target group intended to adopt the prescribed behaviours.

- Large-scale changes in the population's behaviour cannot be expected. There can be immediate responses, but these are limited to concrete stimuli. The desirable patterns of behaviour required for dengue control are grounded within educational and participatory processes achievable over the long term.

Gary Clark, Duane Gubler, Hilda Seda, Carmen Pérez Guerra
Puerto Rico

- It is important to have an organized committee with key, committed agency/partner personnel.
- Strong commitment to the programme by partners is critical for success.
- Participants must know their roles and be adequately equipped and trained to accomplish assigned tasks.
- Target groups and all interested parties should be included in all steps of the planning.
- Dengue is "our" (public health agency's) problem; the community has other problems and priorities that we should take into consideration.
- Working with the community is complex and requires the participation of social scientists for success to be achieved.
- It should be recognized that community-based dengue prevention requires continuous education and feedback as programmes evolve and are dynamic. Flexibility in approaches is required to adapt to changing circumstances and situations.
- Success and sustainability require full partnership between government agencies and the community in planning, funding, implementing, and maintaining programmes.

Mike Nathan, Sydney Toney, Annette Wiltshire and members of the CCH/Government of Italy Integrated Vector Control Project Advisory Committee
Saint Vincent and the Grenadines

- Try to broaden community-based strategies away from a singular disease-based model to one that embraces wider issues of environmental sanitation.
- There is no blueprint that can be followed for a community-centred programme; the way forward for each community must be "customized". Nevertheless, a set of behaviour change principles and a strategic planning process should be used when implementing community-based approaches to *Ae. aegypti* control.
- Behind every "success" there has been a committed individual or group of individuals who have had sufficient freedom to nurture the process. Conversely, failures have been largely characterized by a lack of commitment or by a multitude of other professional demands placed on the officers responsible for the project. Without understanding and tangible support from the higher echelons of the ministry or ministries concerned, persons given the responsibility for implementation quickly become frustrated and disillusioned by the process.
- For an intersectoral approach to social mobilization and communication, other public or private sector agencies or organizations may be better positioned to lead the process than ministries of health.

- Don't look for short-term and spectacular declines in *Ae. aegypti* populations, such as can be achieved through widespread use of insecticides, except perhaps during epidemics. On the contrary, the gains derived from social mobilization and communication approaches to vector and pest control will be long-term and incremental ones, and they will be manifested in the adoption of healthier lifestyles and environmental sanitation behaviours in general.

Hilson Toaliu, George Taleo, Jean Mitchell, Chris Chevalier
Vanuatu

- IEC development has been the traditional practice to inform the public on health issues. Professionals usually take for granted that the public will be well informed with advice and information directed to them. This normally fails if people's knowledge about the issue was not explored. Formative research is a tool that must be used to inform programme planning and intervention. People are the target; therefore learn from them what they know and what their practices are to help develop the strategies aimed to change their behaviours.

- Programme activities will struggle to be achieved in a vertical fashion. Managing programmes to realize horizontal opportunities will enhance implementation. Develop partnerships with other agencies and NGOs to achieve and sustain behavioural results.

- Training is an essential part of the programme. Ongoing training should always be incorporated into programme plans.

- Behavioural and virological surveillance should be ongoing, even between outbreaks.

Vu Sinh Nam, Tran Van Tien, Truong Uyen Ninh, Brian Kay, John Aaskov, Ahmet Bektas, Ron Marchand
Viet Nam

- Develop a sound knowledge base about DF/DHF and methods of vector control among the community.

- Develop systems and campaigns to support the introduction and ongoing use of control measures such as copepods for large water containers together with disposal of small containers at the household level.

- To gain political support, you should point out the impact of DF/DHF on health, economic, and social development in your country; show the advantages of methods that you plan to use and compare them with old methods and other countries; generate demand from communities.

THE TOOLBOX

TOOL 1
USEFUL BOOKS, REPORTS, ARTICLES, AND WEB SITES

TOOL 2
CONDUCTING FORMATIVE RESEARCH

TOOL 3
SOCIAL MOBILIZATION AND COMMUNICATION STRENGTHS AND WEAKNESSES CHECKLIST

TOOL 4
ANALYTICAL METHODS FOR SETTING BEHAVIOURAL OBJECTIVES

TOOL 5
TEN IDEAS FOR ACHIEVING THE OPTIMUM BUDGET FOR SOCIAL MOBILIZATION AND COMMUNICATION

TOOL 1 • USEFUL BOOKS, REPORTS, ARTICLES, AND WEB SITES

TOOL 2 • CONDUCTING FORMATIVE RESEARCH

TOOL 3 • SOCIAL MOBILIZATION AND COMMUNICATION STRENGTHS AND WEAKNESSES CHECKLIST

TOOL 4 • ANALYTICAL METHODS FOR SETTING BEHAVIOURAL OBJECTIVES

TOOL 5 • TEN IDEAS FOR ACHIEVING THE OPTIMUM BUDGET FOR SOCIAL MOBILIZATION AND COMMUNICATION

TOOL NUMBER 1. Useful books, reports, articles, and Web sites

THIS TOOL AIMS TO:

- provide you with further references around dengue
- provide more general resources on programme design, implementation, and evaluation.

Suggested material is taken from the internet, books, and journal articles.

The following topic areas are covered:

1. Internet sites to help you find articles
2. Internet sites with useful dengue links
3. Other useful internet sites
4. Technical documents and reports
5. General dengue fever references
6. Selected control strategy papers
7. The economic impact of dengue
8. How to conduct surveillance and develop indicators
9. How to conduct formative research, with examples
10. The role of social science
11. How to build community participation
12. How to develop health communication, education and promotion, social marketing, and mobilization strategies
13. How to conduct evaluations

Disclaimer: this tool is not a comprehensive collection of articles, but an ongoing compilation of selected information resources

1. INTERNET SITES TO HELP YOU FIND ARTICLES

Free medical journals
http://freemedicaljournals.com

Access to 990 free journals.

Health InterNetwork
http://www.healthinternetwork.net /

General access to abstracts without subscription. Institutions in countries with GNP per capita below US$ 1000 are eligible for free access to full articles on subscribing. Institutions in countries with GNP per capita between US$ 1000–US$ 3000 are eligible for access at reduced prices.

INASP (International Network for the Availability of Scientific Journals)
http://www.inasp.org.uk /
http://www.inasp.org.uk/health/links/contents.html

A cooperative network aiming to improve worldwide access to information. It contains information on the best ways to obtain journals in different parts of the world and a database for many abstracts of African journals.

The National Library of Medicine
http://www.ncbi.nlm.nih.gov/entrez/journals/noprov/loftext_noprov_A.html

PubMed full journal list. Varying degree of access to material without subscription.

World Health Organization Library and Information Networks for Knowledge
http://www.tdnet.com/who

Limited access.

2. INTERNET SITES WITH USEFUL DENGUE LINKS

Centers for Disease Control and Prevention dengue main page in English and Spanish
http://www.cdc.gov/ncidod/dvbid/dengue.htm
http://www.cdc.gov/spanish/enfermedades/dengue.htm

Four page clear synopsis of history, current trends and future outlook for prevention and treatment. Information about geographical variation in strains included.

DengueNet
http://oms2.b3e.jussieu.fr/DengueNet/
www.who.int/denguenet

WHO has created this Internet-based surveillance tool (known as DengueNet) to:

- collect and analyse standardized data in a timely manner and present epidemiological trends, as soon as new data are entered.
- display, in real-time, important indicators such as incidence data, case-fatality rates for DHF, proportion of dengue cases that are DHF, frequency and distribution of cases, and distribution of virus serotypes. Data are presented in graphic, map and tabular formats and as free text.
- provide unrestricted access to useful information that can help public health professionals to improve epidemic preparedness, case management and reduce case-fatality rates. Currently, dengue statistics from 1995 to 2001 can be accessed on DengueNet.

Pan American Health Organization dengue Web site in English and Spanish
www.paho.org/english/hcp/hct/vbd/dengue.htm /
www.paho.org/spanish/hcp/hct/vbd/dengue.htm

Surveillance data, prevention and control activities, general information and links, upcoming events, many full text articles of papers referenced.

Pan American Health Organization dengue materials (only available in Spanish)
http://www.paho.org/spanish/hcp/hct/vbd/dengue_misc_posters.htm

South-East Asia Regional Office of the World Health Organization
http://w3.whosea.org/dengue/index.htm

This site also contains recent volumes of SEARO's annual *Dengue Bulletin* publication (e.g. go to **http://w3.whosea.org/DengueBulletin21/index.htm** for volume 21). Copies of the Bulletin can also be obtained from respective WHO regional offices in New Delhi and Manila and from national WHO country representative offices.

World Health Organization dengue fever main page
http://www.who.int/ctd/dengue/strategies.htm

Disease status, control activities, links, and some full text articles of the papers referenced in this Tool.

World Health Organization dengue research and development
http://www.who.int/tdr/diseases/dengue/default.htm

Disease information in relation to dengue research. The TDR library contains other useful resources such as an image library.

World Health Organization dengue surveillance and response
http://www.who.int/emc-documents/surveillance/docs/whocdscsrisr2001.html/dengue/dengue.htm

3. OTHER USEFUL INTERNET SITES

Community Tool Box
http://ctb.ku.edu/

Web site created and maintained by the University of Kansas Work Group on Health Promotion and Community Development in Lawrence, KS, and AHEC/Community Partners in Amherst, MA. Currently, the core of the Tool Box is the "how-to-tools". These how-to sections use simple, friendly language to explain how to do the different tasks necessary for community health and development. For instance, there are sections on leadership, strategic planning, community assessment, advocacy, grant writing, and evaluation to give just a few examples. Each section includes a description of the task, advantages of doing it, step-by-step guidelines, examples, checklists of points to review, and training materials. Additionally, you will find links to hundreds of other helpful web pages and listservs in areas such as funding, health, education, and community issues. Help is provided by a troubleshooting guide. You can also purchase materials created by team members in their General Store.

Healthy Cities
http://www.who.dk/healthy-cities

Web site provided by the WHO Regional Office for Europe describing Healthy City news and events, technical documents, case studies, strategy documents, newsletters, links to Healthy Cities (European), contacts, and services provided by the Regional Office (including information, training and capacity building, representation and consultancy, networking and international cooperation).

InterWATER
http://www.wsscc.org/interwater/

Offers information about more than 600 organizations and networks in the water supply and sanitation sector in developing countries.

Links to programmes promoting sustainable cities
http://www.cleancities.net/suscities.htm

Web page produced in support of the Philippines Clean Cities Project. Contains many useful web links to key international organizations associated with healthy cities, Asian sustainable cities programmes, and other great resources.

The Communication Initiative
http://www.comminit.com

A partnership of development organizations seeking to support advances in the effectiveness and scale of communication interventions for positive international development. It provides information on communication and development experiences and thinking, links people engaged in communication action, provides peer commentary on programmes and strategies, and tries to promote strategic thinking on communication, development issues and problems.

WHO (2002). *Scaling up the response to infectious diseases: a way out of poverty*. Geneva, World Health Organization (document WHO/CDS/2002.7).
http://www.who.int/infectious-disease-report/2002/index.html

Outlines how increased investment in health can be well spent, stressing how interventions, health system strengthening, and behaviour change together can help achieve global health goals. It is intended to provide the broad outlines of a single "road map" to scaling up efforts to control the major diseases of poverty: malaria, HIV/AIDS, and tuberculosis. While no single plan will suit every country, this report points towards models that can be emulated, and policies and initiatives that have yielded repeated success and that can be extended to provide direction for the emerging global movement against diseases of poverty.

4. TECHNICAL DOCUMENTS AND REPORTS

Chiang Mai Declaration on Dengue/Dengue Haemorrhagic Fever (Strengthening efforts to control dengue in the new millennium), 20–24 November 2000, Chiang Mai, Thailand.
http://w3.whosea.org/denguebulletin24/review2.htm

The delegates of the First International Conference on Dengue/DHF in the new millennium recommended that all countries at risk for dengue transmission develop and implement sustainable prevention and control programmes, and resolve to:

- strongly endorse the WHO global strategy for prevention and control of DF/DHF;
- advocate increased political commitment and resources for improved and sustained prevention and control efforts;
- promote active intersectoral partnerships involving international, regional, national and local agencies, NGOs, foundations, private sector and community organizations;
- build and strengthen capacity of health systems for DF/DHF treatment, surveillance, prevention and control; and
- pursue, encourage, and support the development, application, and evaluation of new and improved tools and strategies for DF/DHF prevention and control.

Lloyd L (2003). *Best practices for dengue prevention and control in the Americas*. Washington, DC, Environmental Health Project, Strategic Report 7. Prepared for the USAID Bureau for Latin America and the Caribbean under EHP Project 26568/E.V.4.LACDENGUE. Available in English and Spanish.
http://www.ehproject.org/PDF/Strategic_papers/SR7-BestPractice.pdf

In response to the growing need of health staff to address dengue prevention and control, the USAID Bureau for Latin America and the Caribbean requested a document that describes current thinking and practices for the prevention and control of dengue fever. The conceptual framework for the document is that of comprehensive, integrated dengue prevention and control, a framework the Pan American Health Organization proposed in 1994. This framework is supported by CDC and WHO. This report includes 11 examples of practices currently in use in several countries, nine from the Americas, one from South-East Asia, and one of global application.

PAHO (1994). *Dengue and dengue haemorrhagic fever in the Americas: guidelines for prevention and control*. Washington, DC, Pan American Health Organization (Scientific Publication No. 548). Also published in Spanish in 1995: *Dengue y dengue hemorrágico en las Américas: guías para su prevención y control (Publicación científica de la OPS No. 548)*.

PAHO (1999). *A blueprint for action for the next generation: dengue prevention and control*. Washington, DC, CDC Programme, Division of Disease Prevention and Control, PAHO.
http://www.paho.org/English/HCP/HCT/VBD/hct-136-99.pdf

PAHO (2001). *Marco de referencia. Nueva generación de programas de prevención y control del dengue en las Americas [Frame of reference: a new generation of prevention and control programs in the Americas.]* (document OPS/HCP/HCT/206/02).

Describes the nexus of 10 key components of a comprehensive, integrated dengue prevention and control programme being recommended by PAHO, taking into consideration the risk factors and the new challenges that the disease is creating for governments and society.

PAHO (2001). CD43/12, 2001 43rd Directing Council. *Dengue prevention and control*. 53rd Session of the Regional Committee.

Review document and resolution CE128.R3 proposed to the Directing Council for consideration. Includes key issues for deliberation, how to build effective programmes, current status of dengue vaccination development and guidelines for PAHO's technical cooperation.

SEARO (1999). *Prevention and control of dengue and dengue haemorrhagic fever: comprehensive guidelines*. New Delhi, WHO Regional Office for South-East Asia (WHO Regional Publication, SEARO No. 29).
http://w3.whosea.org/searono29/pdf.htm

TDR (2000). *Recommendations of the Scientific Working Group on Dengue, 3–5 April 2000*. Geneva, UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases.
http://www.who.int/tdr/publications/tdrnews/news62/dengue.htm (not full document)

WHO (2002). *Dengue fever and dengue haemorrhagic fever prevention and control*. Resolution WHA55.17.
http://www.who.int/gb/EB_WHA/PDF/WHA55/ea5519.pdf
http://www.who.int/gb/EB_WHA/PDF/WHA55/ewha5517.pdf

WHO (1999). Strengthening implementation of the global strategy for dengue fever/dengue haemorrhagic fever prevention and control. Report of the Informal Consultation, 18–20 October 1999. Geneva, World Health Organization. http://www.who.int/emc-documents/dengue/whocdsdenic20001c.html

WHO (1997). *Dengue haemorrhagic fever. Diagnosis, treatment, prevention and control*, 2nd ed. Geneva, World Health Organization.

WPRO (1995). *Guidelines for dengue surveillance and mosquito control*. Manila, WHO Regional Office for the Western Pacific (Western Pacific Education in Action Series No. 8). [New edition due 2003]

5. GENERAL DENGUE FEVER REFERENCES

Books

Gubler DJ, Kuno G, eds (1997). *Dengue and dengue haemorrhagic fever*. London, CAB International Press.

Halstead SB, Gomez-Dantes H, eds (1992). *Dengue. A worldwide problem, a common strategy*. Mexico City, Mexico, Ministry of Health.

Selected papers

Gibbons RV, Vaughn DW (2002). Dengue: an escalating problem. *British Medical Journal*, 324:1563–1566.

Gratz NG (1973). Mosquito-borne disease problems in the urbanization of tropical countries. *Critical Reviews in Environmental Control*, September 1973.

The situation, beliefs and knowledge around dengue and its control 30 years ago; an overview of the prevalence of many mosquito borne diseases in relation to urbanisation in each continent and details of international control measures. An inevitable long-term 'natural suppression' of the disease reservoirs as countries develop was foreseen at time of writing.

Gratz NG, Jany WC (1994). What role for insecticides in vector control programs? *American Journal of Tropical Medicine and Hygiene*, 50(6) Suppl:11–20.

Gubler DJ (1998). Dengue and dengue haemorrhagic fever. *Clinical Microbiology Reviews*, 11:480–496.

Gubler DJ (2002). Epidemic dengue/dengue haemorrhagic fever as a public health, social and economic problem in the 21st century. *Trends in Microbiology*, 10:100–102.

Guzmán MG, Kourí G (2002). Dengue: an update. *Lancet Infectious Diseases*, 2:33–42.

A predominantly clinical paper discussing dengue manifestations, pathogenesis and plausible mechanisms, and the immune response to infection; includes a detailed section on how dengue is diagnosed and the technology that has made this possible.

Halstead SB (1994). Dengue in the health transition. *Gaoxiong Yi Xue Ke Xue Za Zhi*, 10:Suppl S2–S14.

New breeding sites and less compliance with control programmes means that modern Asian societies must count dengue as a real threat. Potential types of new leadership from large municipalities, environmental agencies and the private sector are explored.

6. SELECTED CONTROL STRATEGY PAPERS

Ashencaen Crabtree S et al (2001). Community participatory approaches to dengue prevention in Sarawak, Malaysia. *Human Organization*, 60(3):281–287.

Participatory action research approach (with model provided); evaluation includes measuring the degree of community participation in different parts of the project, the degree of community benefits, and reduction in *Aedes aegypti* breeding sites. Authors also discuss potential problems with future project sustainability.

Ault SK (1994). Environmental management: a re-emerging vector control strategy. *American Journal of Tropical Medicine and Hygiene*, 50(6) Suppl:S35–S49.

An overview of environmental management as a re-emerging strategy for the control of vector-borne diseases and how it can be linked to other methods of vector control. Examples of community participation in conjunction with environmental management for dengue in the Dominican Republic and Mexico are given.

Beans BE (2002). It takes a town. *PAHO Perspectives in Health*, 6(2).
http://www.paho.org/English/Dpi/Number12_article5.htm

Brings together examples from community, political and scientific leaders on how they have implemented strategies and skills to keep containers free from becoming breeding sites for *Aedes aegypti*.

Cave B, Curtis V (1999). *Effectiveness of promotional techniques in environmental health*. WELL study. London and Loughborough, Water and Environmental Health (Task No. 165).
http://www. lboro.ac.uk/well/

Reviews 31 papers on behaviour change in environmental health. The authors found that poor methodology in conception, execution and measurement gave many projects poor results. Only when better-designed interventions and evaluations take place can we determine why so many efforts appear to fail. Recommendations for better designed interventions and evaluations are given.

Chen YR et al (1994). Ecology and control of dengue vector mosquitoes in Taiwan. *Gaoxiong Yi Xue Ke XueZa Zhi*, 10 Suppl:78–87.

Report on the establishment of a waste recycling system and breeding site reduction campaign that led to a reduction in dengue incidence. Authors conclude that integrated pest control is the best and most effective method for dengue fever control, and should include solid waste and drinking-water management.

De Oliveira RM (1998). Dengue in Rio de Janeiro: rethinking popular participation in health [Article in Portuguese]. *Cad Saude Publica*, 14 Suppl(2):69–78.

Discusses popular participation in health as experienced in relation to the dengue epidemic intervention in the late 1980s and early 1990s in Rio de Janeiro. It discusses why a particular social movement was developed, its constitution, and the role it and other popular movements have played. It also addresses how social scientists should perceive such movements – looking at their role within a wider context rather than solely as educators of member organizations. Within its role in a wider network, such popular movements have an important part to play in endemic disease control measures.

De Oliveira RM, Valla VV (2001). Living conditions and life expectancies of working class groups in Rio de Janeiro: re-thinking dengue control and popular mobilization [Article in Portuguese]. *Cad Saude Publica*, 17 Suppl:77–88.

Following on from the previous article, the authors discuss how combining accumulated scientific knowledge and popular local knowledge resulted in an intervention to stem the late 1980s epidemic in Rio de Janeiro. They also discuss why health professionals need to look beyond any epidemic towards more daily endemic processes that interact to affect people's health.

Dias JC (1998). Community participation and control of endemic diseases in Brazil: problems and possibilities [Article in Portuguese]. *Cad Saude Publica*, 14 Suppl(2):19–37.

Discusses why community participation has not been encouraged in highly centralized systems such as Brazil, despite its rationality and importance within the social process. Several examples of community participation in Brazilian endemic disease situations are described and discussed.

Dunn FL (1983). Human behavioural factors in mosquito vector control. *Southeast Asian Journal of Tropical Medicine and Public Health*, 14 (1):86–94.

Looks at different control measures, and why those responsible for designing and implementing control strategies might choose a particular type of method over others. No "gold-standard" control method is given; rather, the aim of the article is to encourage more thoughtful designing of programmes.

Fernández EA et al (1998). Trial of a community-based intervention to decrease infestation of *Aedes aegypti* mosquitoes in cement washbasins in El Progreso, Honduras. *Acta Tropica*, 70:171–183.

Discusses an intervention that involved effective cleaning of washbasins through a well publicized five-stage sequence. Success was due to people being shown clearly how to clean effectively, and because the intervention did not necessitate a dramatic change in behaviour. It is hoped that through encouraging greater hygiene promotion and interpersonal communication, chemical and biological larvicides that may be either more costly or less acceptable to householders, will not be necessary.

Gordon AJ (1988). Mixed strategies in health education and community participation: an evaluation of dengue control in the Dominican Republic. *Health and Education Research*, 3(4):399–419.

A detailed review of an intervention in which four different levels of community participation and information transmission were part of a pre-test/post test study design. The aim was to see the effective levels of time, resources and programme allocation of each component. Authors conclude that both national and community level educational interventions are needed to complement each other and avoid their respective drawbacks.

Gubler DJ, Clark GG (1994). Community-based integrated control of *Aedes aegypti*: a brief overview of current programs. *American Journal of Tropical Medicine and Hygiene*, 50(6) Suppl:50–60.

Advocates that community-based programmes are now regarded as the only long-term solution for prevention and control of dengue. Examples of community-based programmes are given with emphasis on Puerto Rico. A culturally appropriate biological approach is needed. Community interventions need objectives that can be quantitatively evaluated and progress indicators must look at both knowledge/attitudes and vector density/disease incidence.

Gubler DJ (1989). *Aedes aegypti* and *Aedes aegypti*-borne disease control in the 1990s: top down or bottom up. *American Journal of Tropical Medicine and Hygiene*, 40(6):571–578.

Script of Gubler's Charles Franklin Craig Lecture giving a historical overview of dengue epidemiology and control measures. A sustainable and cost effective intervention will only come through a citizen-centred bottom-up approach that is based on reducing larval load, as highlighted in Puerto Rico. The strategy used there included surveillance, hospitalization of large numbers of people in DHF outbreaks, education of the medical community and motivation of the public.

Halstead S (2000). Successes and failures in dengue control – global experience. *Dengue Bulletin*, 24:60–70.
http://w3.whosea.org/DengueBulletin24/ch13f.htm

Despite the admirable achievement of the control and near eradication of *Aedes aegypti* in the Western hemisphere in the mid-twentieth century, today this species is more abundant and widespread than at any time in human history. As a result, dengue viruses have spread to be among the most common pathogens on earth. This paper reviews the history of the success and then the failure to control *Aedes aegypti*. Two crucial failures contributed to the dismal story of dengue control: (1) no major educational institution has ever committed itself to solve the problem; and (2) there are no outraged and vocal citizen groups. At least 10 sectors of society have some interest in or responsibility for the control of dengue: national health, city health, environment, urban planning, justice, education, science and technology, the media, private sector, and people themselves. The current roles of these sectors in the control of dengue are given. This is followed by a description of the more active roles that might be adopted by each of these sectors. Finally, advocacy methods are described for use by physicians, public health workers, and scientists who face the problem of dengue on a daily basis.

Jennings CD et al (1995). *Aedes aegypti* control in the Lao People's Democratic Republic, with reference to copepods. *American Journal of Tropical Medicine and Hygiene*, 53(4):324–330.

An evaluation of the predatory abilities of copepods. Authors conclude that they could be well accepted by the community at low cost as part of a long-term persistent strategy. The suitability of this approach might be limited to wells rather than water storage containers.

Kay BH et al (2002). Control of *Aedes* vectors of dengue in three provinces of Viet Nam by use of Mesocyclops (Copepoda) and community-based methods validated by entomologic, clinical, and serological surveillance. *American Journal of Tropical Medicine and Hygiene*, 66:40–48.

Kittayapong P, Stickman D (1993). Three simple devices for preventing development of *Aedes aegypti* larvae in water jars. *American Journal of Tropical Medicine and Hygiene*, 49(2):158–165.

Knudsen AB, Sloof R (1992). Vector-borne disease problems in rapid urbanization: new approaches to vector control. *Bulletin of the World Health Organization*, 70(1):1–6.

Provides an overview of the effects of rapid urbanization on health. Authors argue that authorities should not rely on routine insecticidal spraying but rather on a more integrated vector control strategy built on community mobilization and sound environmental management practices.

Kouri GP et al (1989). Dengue haemorrhagic fever/dengue shock syndrome: lessons from the Cuban epidemic, 1981. *Bulletin of the World Health Organization*, 67(4):375.

Epidemiological and clinical paper that examines why adults as well as children were badly affected in the 1981 epidemic in Cuba and what risk factors pre-disposed people to infection. In light of the fact that other epidemics are likely, the control measures that had an impact are reported: rapid diagnosis, early treatment and a national vector elimination campaign.

Kroeger A et al (1995). Community-based dengue control in Colombia: people's knowledge and practice and the potential contribution of the biological larvicide Bti (*Bacillus thuringiensis israelensis*). *Tropical Medicine and Parasitology*, 46:241–246.

Knowledge around dengue in Cúcuta was found to be fragmented and infestation was very high. Application of Bti in this study lead to satisfactory results. The potentially greater acceptability of Bti over other biological treatments is discussed.

Lines J et al (1994). Trends, priorities and policy directions in the control of vector-borne diseases in urban environments. *Health Policy and Planning*, 9(2):113–129.

Overview of vector-borne diseases and short-term and long-term control measures, based primarily on insecticide regimens. Table with broader factors needed for a successful control programme is included. Authors urge that the areas of responsibility between different sectors of local services be clearly defined, and state that decentralized PHC systems are generally incapable of ensuring control measures. Community support is essential but specialized technical skills are also required.

Lloyd L et al (1992). Results of a community-based *Aedes aegypti* control programme in Mérida, Yucatan, Mexico. *American Journal of Tropical Medicine and Hygiene*, 46(6):635–642.

Results from a successful community-based communication programme aimed at production site elimination/control through changing knowledge and behaviour. Authors maintain that community-based projects can be effective in changing behaviour and reduction of production sites.

Lloyd L et al (1994). The design of a community-based health education intervention for the control of *Aedes aegypti*. *American Journal of Tropical Medicine and Hygiene*, 50(4):401–411.

A useful paper for understanding how to conduct formative research, develop recommendations for behaviour change and develop supportive education messages and materials. The programme was aimed at the most important larval habitats and only simple behaviour changes were sought. Community participation was a vital output for the programme. Advantages and disadvantages of different communication mechanisms are discussed. Community dynamics must be investigated before designing community-based strategies and a high level of community involvement is needed throughout.

Mazine CAB et al (1996). Disposable containers as larval habitats for *Aedes aegypti* in a city with regular refuse collection: a study in Marília, Sao Paulo State, Brazil. *Acta Tropica*, 62:1–13.

An examination of what the community perceives as refuse, based on the fact that despite daily refuse collections in Marília, non-useable and non-returnable containers are still stored. Other dimensions of the problem include the presence of informal refuse collectors in search of saleable material, and dumping of refuse in vacant lots and along roads. An intervention based on these findings is discussed, and the establishment of a market for containers that act as breeding sites is proposed.

Nathan MB, Knudsen B (1991). *Aedes aegypti* infestation characteristics in several Caribbean countries and implications for integrated community-based control. *Journal of the American Mosquito Control Association*, 7:400–404.

Sherman C et al (1998). *La Untadita*: a procedure for maintaining washbasins and drums free of *Aedes aegypti* based on modification of existing practices. *American Journal of Tropical Medicine and Hygiene*, 58(2):257–262.

Sinh Nam V et al (1998). Eradication of *Aedes aegypti* from a village in Viet Nam, using copepods and community participation. *American Journal of Tropical Medicine and Hygiene*, 59(4):657–660.

A study investigating the use of *Mesocyclops* copepods as a biological control method in Northern Viet Nam. Community participation for recycling unused and discarded containers was also encouraged. Households were treated in 1994 and at the time of writing, *Aedes aegypti* has not reappeared, providing a strong case for wider application.

Sinh Nam V et al (2000). National progress in dengue vector control in Viet Nam: survey for *Mesocyclops* (Copepoda), Micronecta (Corixidae) and fish as biological control agents. *American Journal of Tropical Medicine and Hygiene*, 62(1):5–10.

Describes the expansion of a successful dengue control programme using *Mesocyclops*. These are abundant in Viet Nam and can be incorporated into specifically designed community-based control programmes aided by Micronecta and fish.

Swaddiwudhipong W et al (1992). Effect of health education on community participation in control of dengue haemorrhagic fever in an urban area of Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 23(2):200–206.

Evaluation of a successful two-year community health education project that included mass media, lectures and discussions, and twice-annual house-to-house visits.

Valla VV (1998). On popular participation: a matter of perspective. [Sobre participacao popular: uma questao de perspectiva.] *Cadernos de Saude Publica*, 14 Suppl(2):7–18.

Winch P et al (1992). Effectiveness of community participation in vector-borne diseases. *Health Policy and Planning*, 7(4):342–351.

Discusses why participatory approaches have been historically difficult to implement in the control of disease vectors in Latin America. Reasons given include the historical (until recently) 'success' of vertical programmes, lack of success in other community-based programmes and too narrow-scope interventions. Examples of participatory programmes for other diseases are given. Community participation is vital but success depends on the community and local government agreeing and being committed to the proposals.

Winch P (1998). Social and cultural responses to emerging vector-borne diseases. *Journal of Vector Ecology*, 23(1):47–53.

Discusses lessons learnt from HIV prevention that should be learnt by vector control programmes. Using examples, it is shown that building an environment that favours behaviour change is vital and that those most often affected are marginalized people. Geographic Information Systems particularly using social variables, and transmission modeling, can help show the geography of social inequalities and can indicate where structural and environmental interventions to promote human behaviour change might be most effective.

Winch P et al (2002). Community-based dengue prevention programs in Puerto Rico: Impact on knowledge, behaviour, and residential mosquito infestation. *American Journal of Tropical Medicine and Hygiene*, 67(4):363–370.

Authors present results from an evaluation of televized public service announcements and posters, elementary and pre-school educational programmes, and an exhibit at the Children's Museum in Old San Juan, Puerto Rico. The evaluation instruments included knowledge and practices surveys administered to children and their parents, surveys of house lots for larval container habitats, focus groups, and interviews with programme organizers and participants. Exposure to the programmes was found to be associated with increased dengue-related knowledge, increased proportion of tyres protected from rain, decreased proportion of water storage containers positive for mosquito larvae, and increased indoor use of aerosol insecticides. Exposure to the elementary school programme was associated with slightly lower indices of residential mosquito infestation. The programmes have resulted in high levels of awareness, some behaviour change, and limited change in larval indices. Concludes that greater emphasis on the skills necessary for community members to keep containers free of mosquito larvae would increase programme effectiveness.

Yasumaro S et al (1998). Community involvement in a dengue prevention project in Marília, São Paolo, Brazil. *Human Organization*, 57(2):209–214.

Looks at how refuse is classified and disposed of, in preparation for an educational intervention. Rather than being an individually defined process, refuse collection and disposal is dependent on many stakeholders. The authors discuss an intervention that involved selective refuse collection, with participation of both householders and informal refuse collectors. The authors conclude that perhaps the most effective behaviour change intervention would additionally be the establishment of a local market for used materials.

7. THE ECONOMIC IMPACT OF DENGUE

Selected papers

Gubler DJ, Meltzer M (1999). Impact of dengue/dengue haemorrhagic fever on the developing world. *Advances in Virus Research*, 53:35–70.

Meltzer MI et al (1998). Using disability-adjusted life years to assess the economic impact of dengue in Puerto Rico: 1984–1994. *American Journal of Tropical Medicine and Hygiene*, 59(2):265–271.

Contests that disability-adjusted life years (DALYs) for dengue are equal to those for other diseases, such as tuberculosis and intestinal helminth diseases; therefore resources for dengue should be increased. The majority of DALYs are borne by those who suffer a classic case of dengue fever lasting approximately four days, which equates with a large economic cost.

Okanurak K et al (1997). The cost of dengue haemorrhagic fever in Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, Dec, 28(4):711–717.

Reports the economic loss of DHF to the government, to patients, and to families. Figures are based on both direct patient costs and indirect opportunity costs. Remembering different players and different types of cost is important in any economic evaluation.

Von Allmen SD et al (1979). Epidemic dengue fever in Puerto Rico, 1977: a cost analysis. *American Journal of Tropical Medicine and Hygiene*, 28(6):1040–1044.

Cost of the 1977 dengue epidemic using direct and indirect costs was estimated to be in the region of US$ 6 to US$ 15.6 million, of which epidemic control measures comprised 7.8–20.2%.

Selected papers

Chan AST et al (1998). Development of an indicator to evaluate the impact, on a community-based *Aedes aegypti* control intervention, of improved cleaning of water-storage containers by householders. *Annals of Tropical Medicine and Parasitology*, 92(3):317–329.

An attempt to develop a more precise *Aedes* larval indicator. This new indicator differentiates whether all immature larval stages are present, or only first- and second-instar larvae. The use of such an indicator could: 1) make control programmes more efficient by allowing the greatest efforts to be targeted at households that have medium-to-high levels of infection and; 2) be used for assessing changes in cleaning water storage behaviour within a project.

Focks DA et al (2000). Transmission thresholds for dengue in terms of *Aedes aegypti* pupae per person with discussion of their utility in source reduction efforts. *American Journal of Tropical Medicine and Hygiene*, 62(1):11–18.

A technical paper presenting threshold simulation models for use in assessing the risk of transmission of dengue and in providing targets for the degrees of suppression required to prevent or eliminate transmission in source reduction programmes. Practical advice on the use of thresholds is provided for operational control projects.

Lok CK (1985). Methods and indices used in the surveillance of dengue vectors. *Mosquito-borne Disease Bulletin*, 1(4):79–88.

A technical document providing indices to determine incidence before, during and after a control campaign of larvae and adult vectors. Pros and cons of using different indices in different settings, parameters for working out the threshold density of the vector for transmission of DHF and examples of survey forms are provided.

Tun-Lin W et al (1995). Understanding productivity, a key to *Aedes aegypti* surveillance. *American Journal of Tropical Medicine and Hygiene*, 53(6):595–601.

Australian-based study that looked at what criteria could be used for achieving a faster, more economical, and accurate assessment of vector populations. Some container types were found to contribute disproportionately to the *Aedes aegypti* population. Control programmes could be made more efficient if efforts were concentrated on these sites of key vector productivity. Justification for methodology including a modified Breteau Index is given.

Tun-Lin W (1996). Critical examination of *Aedes aegypti* indices: correlations with abundance. *American Journal of Tropical Medicine and Hygiene*, 54(5):543–547.

Australian-based study evaluating immature stage indices for *Aedes aegypti*, with respect to their relationship to immature and adult female densities. No alternative index was regarded as being superior to the Breteau Index, including the Adult Productivity Index measuring both container type frequency and immature density. However, estimating immature indices is labour intensive and new cost effective methods of adult surveillance should be pursued.

9. HOW TO CONDUCT FORMATIVE RESEARCH, WITH EXAMPLES

Abramson JH (1990). *Survey methods in community medicine*. Edinburgh, Churchill Livingston.

Agyepong IA et al (1993). *The malaria manual: guidelines for the rapid assessment of social, economic and cultural aspects of malaria*. Geneva, World Health Organization (document TDR/SER/MSR/95.1).
http://www.who.int/tdr/publications/publications/malaria-manual.htm

Introduces and describes anthropological research methods for the rapid assessment of social, economic, and cultural information. The manual draws on discussions and outcomes of a meeting held in Baroda, India, in 1991, to discuss the feasibility of undertaking rapid epidemiological, community and anthropological assessments of tropical diseases.

Bernard HR (1994). *Research methods in anthropology: qualitative and quantitative approaches*, 2nd ed. Thousand Oaks, CA, Sage Publications.

Grbich C (1999). *Qualitative research in health: an introduction*. Thousand Oaks, CA, Sage Publications.

Krueger RA (1988). *Focus groups: a practical guide for applied research*. Newbury Park, CA, Sage Publications.

Markovic M et al (2001). *Public health research methods*. Melbourne, University of Melbourne, Key Centre for Women's Health.
http://www.kcwh.unimelb.edu.au./cddemo.htm

A CD-ROM designed as supporting material for self-directed learning and as teaching aid for workshop/course facilitators. It contains an index, lectures, exercises, links to web-based resources, and a selected bibliography. Each lecture is accompanied by a PowerPoint Presentation and PowerPoint Overhead Transparencies that can be used by course facilitators. For more information, contact Milica Markovic (**milicam@unimelb.edu.au**). Costs AU$ 20.00 plus postage and handling fee.

Mays N, Pope C, eds (1996). *Qualitative research in health care*. London, BMJ Publishing Group.

Morgan DL (1998). *The focus groups kit*. Thousand Oaks, CA, Sage Publications.

Pelto PJ, Pelto GH (1987). *Anthropological research: the structure of inquiry*, 2nd ed. Cambridge, Cambridge University Press.

Quinn-Patton M (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA, Sage Publications.

Reviere R et al, eds (1996). *Needs assessment: a creative and practical guide for social scientists*. Washington, DC, Taylor & Francis.

Scrimshaw NS, Gleason GR, eds (1992). *Rapid assessment procedures: qualitative methodologies for planning and evaluation of health related programmes*. Boston, MA, International Foundation for Developing Countries.

Scrimshaw SCM, Hurtado E (1987). *Rapid assessment procedures for nutrition and primary health care*. Tokyo, United Nations University; Los Angeles, University of California, LA, UCLA Latin American Center Publications.

Simpson-Hébert M (1983). *Methods for gathering socio-cultural data for water supply and sanitation projects*. United Nations Development Programme. Washington, DC, World Bank (Interregional Project INT/81/047 (TAG Technical Note 1).

Smith PG, Morrow RH (1991). *Methods for field trials of interventions against tropical diseases: a toolbox*. Oxford, Oxford University Press.

Spradley JP (1988). *The ethnographic interview*. New York, NY, Holt, Rinehart and Winston.

Weller SC, Romney AK (1988). *Systematic data collection*. Newbury Park, CA, Sage Publications.

Winch P et al (2000). *Qualitative research for improved health programs: a guide to manuals for qualitative and participatory research on child health, nutrition, and reproductive health*. Prepared by the Department of International Health, Johns Hopkins University, School of Hygiene and Public Health for Support for Analysis and Research in Africa (SARA) Project. Washington, DC, Academy for Educational Development.

Aims to bring together – in one document – descriptions and ordering information about all the currently available manuals and guides on qualitative and participatory research related to child health and nutrition and reproductive health. For copies, contact: Support for Analysis and Research in Africa (SARA) Project Academy for Educational Development, 1875, Connecticut Avenue NW, Washington, DC, 20009. Tel: +1-202-884-8000. Fax: +1-202-884-8447. E-mail: **saramail@aed.org**. Web site: **http://www.aed.org**

Witkin BR, Altschuld JW (1995). *Planning and conducting needs assessments: a practical guide*. Thousand Oaks, CA, Sage Publications.

Selected papers

Dégallier N et al (2000). People's knowledge and practice about dengue, its vectors and control means in Brasilia (DF) Brazil: its relevance with entomological factors. *Journal of the American Mosquito Control Association*, 16(2):114–123.

Knowledge, Attitudes, and Practices (KAP) study of a potentially at-risk community. Questionnaire-based research showed that concerted health education campaigns have increased people's knowledge, but this has not necessarily resulted in behaviour change, as assessed here by presence or absence of vectors in people's houses.

Dobbins JG, Else JG (1975). Knowledge, attitudes and practices related to control of dengue haemorrhagic fever in an urban Malay kampung. *Southeast Asian Journal of Tropical Medicine and Public Health*, 6(1):120–126.

Interviews with 10% of households showed that although the population was informed and concerned about dengue, mosquito control was more aimed towards pest control rather than dengue control. Little detail concerning methodology is given; results are given in detail. Recommendations including mass media, spraying and cooperative community action are discussed.

Gordon AJ et al (1990). Cultural factors in *Aedes aegypti* and dengue control in Latin America: a case study from the Dominican Republic. *International Quarterly of Community Health Education*, 3:193–211.

Gupta P et al (1998). Knowledge, attitude and practices related to dengue in rural and slum areas of Delhi after the dengue epidemic of 1996. *Journal of Communicable Diseases*, 30(2):107–112.

Study interviewing 687 subjects after the 1996 dengue epidemic. Interviews were designed to find out knowledge of disease, source of information and whether they had used personal protection against the disease during the epidemic.

Kendall C et al (1990). Exploratory ethnoentomology. Using ANTHROPAC to design a dengue fever control program. *Cultural Anthropology Methods Journal, Newsletter*, May.

Modelling of key informant interviews in El Progreso, Honduras, using ANTHROPAC, to explore which insects women felt were most harmful to human health. They found that many women shared the same opinions about which insects were more harmful, with *Aedes aegpyti* being perceived as dangerous because of its black colour.

Mulla MS et al (2001). Mosquito burden and impact on the poor: measures and costs for personal protection in some communities in Thailand. *Journal of the American Mosquito Control Association*, 17(3):153–159.

Use of a simple questionnaire to gain information on public perception of mosquito annoyance and the costs involved in the purchase of chemicals and devices for personal protection. Findings included that individual mosquito control costs are high compared with community-based measures. An assessment of stocks available and their contents was also made.

Rosenbaum J et al (1995). Community participation in dengue prevention and control: a survey of knowledge, attitudes and practice in Trinidad and Tobago. *American Journal of Tropical Medicine and Hygiene*, 53(2):111–117.

The study found a high level of awareness about dengue and its etiology, but a poor understanding of the symptoms meant little concern about the health risks. No correlation was found between knowledge of dengue and levels of *Aedes aegypti* abundance at respondents' premises. Broad based environmental sanitation strategies are needed when planning community-based vector control initiatives.

Swaddiwudhipong W et al (1992). A survey of knowledge, attitude and practice of the prevention of dengue haemorrhagic fever in an urban community of Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 23(2):207–211.

More than 90% of the study population knew that dengue is transmitted by *Aedes* mosquitoes and that water jars were common breeding places, but ant traps and cement baths that also act as reservoirs were less frequently mentioned. Recommendations on health education and communication methods are given.

Winch P et al (1991). Beliefs about the prevention of dengue and other febrile illnesses in Mérida, Mexico. *American Journal of Tropical Medicine and Hygiene*, 94:377–387.

Whiteford LM (1997). The ethnoecology of dengue fever. *Medical Anthropology Quarterly*, 11(2):202–223.

10. THE ROLE OF SOCIAL SCIENCE

Esmara H (1986). The role of the social scientists in the control of tropical diseases. *Southeast Asian Journal of Tropical Medicine and Public Health*, 17(3):333–341.

> Argues that the social scientist has much to offer in health development. Up to time of writing, a social sciences perspective had looked little further than the economic perspective. Many areas where other social disciplines play an important role are discussed – determining the impact of social conditions on disease transmission and control; evaluating health policies; dealing with the transfer of health technology and attracting political support.

Kendall C et al (1991). Urbanization, dengue, and the health transition: anthropological contributions to international health. *Medical Anthropology Quarterly*, 5(3):257–268.

Kendall C (1998). The role of qualitative research in negotiating community acceptance: the case of dengue control in El Progreso, Honduras. *Human Organization*, 57:217–221.

Popkin B (1982). A household framework for examining the social and economic consequences of tropical diseases. *Social Science and Medicine*, 16:533–543.

> Social science methods used by economists can provide a framework for designing tropical disease impact research. A New Home Economics framework (analysis at the household or individual level) is used for looking at health status in response to diseases and how this affects total household time allocation, full income, market income and other measures of welfare. Research design and data considerations are also discussed.

Winch PJ et al (1994). Vector control at the household level: an analysis of its impact on women. *Acta Tropica*, 56:327–339.

11. HOW TO BUILD COMMUNITY PARTICIPATION

Hess DR (1999). *Community organizing, building and developing: their relationship to comprehensive community initiatives*. Paper presented on COMM-ORG: the online Conference on Community Organizing and Development.
http://comm-org.utoledo.edu/papers99/hesscontents.htm

Howard G (2002). *Healthy villages: a guide for communities and community health workers*. Geneva, World Health Organization.

Macdonald M (2000). Building partnerships for dengue control: the challenges and opportunities - experiences from other disease control Programmes. *Dengue Bulletin*, 24:83–91.
http://w3.whosea.org/denguebulletin24/ch2f.htm

> Argues that private and commercial sectors represent a great force that can help increase the reach and sustainability of preventative and disease management services. Examples are drawn from diarrhoeal disease control programmes, contraceptive marketing, and insecticide-treated mosquito nets for malaria control in Africa. Care must be taken to "segment" the market so that public sector resources can be targeted to those who really need it in a way that does not disrupt investments from other partners. Often a neutral task force is needed to mediate and articulate the mutual benefits of the partnerships. Steps in the partnership model include an inventory of capacities, consensus meetings, market research, communications, monitoring plans, etc. Protocols are also available for improving diagnosis and treatment in the private sector. Specific to *Aedes* control, these examples

suggest novel ways of dealing with non-essential containers, safer water jars, copepods, and ovicidal soap. Likewise, for disease recognition and management, there may be ways of improving practices in the vast, and largely unregulated, private sector. In short, we need to expand our definition of "community" to include the private and commercial sectors, who can be mobilized to meet mutual "business" and "public health" objectives.

Mancheno M et al (2001). *No más problemas de salud. Manual técnico para el control de malaria, dengue, chagas, leishmaniosis y oncocercosis [No more health problems. Technical manual for the control of malaria, dengue, chagas, leishmaniasis and onchocerciasis.]* México, DF, Editorial Pax México.

Manderson L et al (1992). *Bringing the people in: community participation and the control of tropical diseases*. Geneva, UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (Social and Economic Research in Tropical Diseases, Resource Paper No. 1).

Minkler M (1997). *Community organizing and community building for Health*. Piscataway, NJ, Rutgers University Press.

Narayan D, Srinivasan L (1994). *Participatory development tool kit: training materials for agencies and communities*. Washington, DC, World Bank.

Service MW (1993). Community participation in vector-borne disease control. *Annals of Tropical Medicine and Parasitology*, 87(3):223–234.

A thorough article looking critically at examples where community participation has been successful and less successful. The importance of understanding people's perceptions and customs, knowing about how to bring about behaviour change, and the role of "incentives" are discussed. The author feels that the behaviour change needed with dengue control is too great to be solved by a community approach and that insecticidal spraying would give better results.

Stone L (1992). Cultural influences in community participation in health. *Social Science and Medicine*, 35(4):409–417.

Twumasi PA (1981). Community involvement in solving local health problems. *Social Science and Medicine*, 15A:169–174.

Werna E et al (1998). *Healthy city projects in developing countries: an international approach to local problems*. London, Earthscan Publications.

Whyte A (1986). *Guidelines for planning community participation activities in water supply and sanitation projects*. Geneva, World Health Organization.

Woelk GB (1992). Cultural and structural influences in the creation of and participation in community health programmes. *Social Science and Medicine*, 35(4):419–417.

WHO (1991). *Community involvement in health development: challenging health services*. Geneva, World Health Organization.

WHO (1997). *The PHAST Initiative. Participatory hygiene and sanitation transformation. A new approach to working with communities*. Geneva, World Health Organization (document WHO/EOS/96.11).

Zakus JDL, Lysack CL (1998). Revisiting community participation. *Health Policy and Planning*, 13(1):1–12.

12. HOW TO DEVELOP HEALTH COMMUNICATION, EDUCATION AND PROMOTION, SOCIAL MARKETING AND MOBILIZATION STRATEGIES (books, reports, and Web sites only)

Andreasen A (1995). *Marketing social change: changing behaviour to promote health, social development, and the environment*. San Francisco, CA, Jossey-Bass Publishers.

Anthology of Health Communication Materials
http://www.comminit.com/mahealthanthol/sld-7194.html

An ongoing compilation of materials that have already been used with success in the field and have the recognition of people working in communication and development. A resource for academics and practitioners working primarily in the field of health communication. Some of the materials will also be very useful in other communication areas. Categories include: children and adolescents; curriculum development; evaluation; gender; general health-related topics; HIV/AIDS; media materials; participation and social mobilization; reproductive health and family planning; strategic communication; training materials.

Department of Health & Human Services, Centers for Disease Control and Prevention (2002). *Safe water systems for the developing world: a handbook for implementing household-based water treatment and safe storage projects*.
http://www.cdc.gov/safewater/manual/1_toc.htm
http://www.cdc.gov/spanish/agua-segura/s1_toc.htm (Spanish version)

Developed to help bridge the gap in developing countries between populations served by existing water projects and those most in need, this 221-page handbook offers a tool for providing inexpensive appropriate-technology alternatives in situations where resources are not available for improvements in infrastructure. The manual is for programme managers, technical staff, and other organization personnel who work to implement projects to improve water quality. The manual is designed to take people through the necessary steps to initiate the planning process, assemble a team, decide between various water treatment and storage options, and devise strategies for distribution, cost recovery, promotion, behaviour change, and monitoring and evaluation. Contact information for people with experience in similar projects who may provide technical assistance is included. Following the introduction, 12 sections detail 12 steps to plan and implement a project using the Safe Water System. Nine annexes provide additional detail for some steps, model forms, worksheets, example brochures, and monitoring instruments. The final section describes other water treatment technologies.

Dickin K et al (1997). *Designing by dialogue: a program planners' guide to consultative research for improving young child feeding*. SARA Project, Academy for Educational Development. Also available in Spanish.

Downie RS et al (1990). *Health promotion models and values*. Oxford, Oxford University Press.

Elder JP et al (1998). Strategies for health education. In: Sana Loue, ed. *Handbook of immigrant health: community-based methods*. London, Kluwer Academic Press, Pp.567-585.

Glanz K, Lewis FM, Rimer BK, eds (1997). *Health behaviour and health education: theory, research, and practice*, 2nd ed. San Francisco, CA, Jossey-Bass.

Green LW, Kreuter, MW (1991). *Health promotion planning: an education and environmental approach*. Mountain View, CA, Mayfield.

Howard-Grabman L, Snetro G [forthcoming]. *How to mobilize communities for health and social change*. Baltimore, MD, Johns Hopkins University, Center for Communication Programs.

Hubley J (1993). *Communicating health: an action guide to health education and health promotion*. London, Macmillan.

Kotler P et al (2002). *Social marketing: improving the quality of life*. London, Sage Publications.

Published as a second edition in 2002, this book features a step-by-step process designed to help readers plan and execute a social marketing campaign. Each of the eight steps is illustrated with actual cases, research highlights, and examples of social marketing campaigns that draw on different research methodologies. The appendix includes worksheets for each step that are intended to help students and practitioners complete a marketing plan. The methodologies in this text have been classroom-tested and refined by students who prepared marketing campaigns using this eight-step planning process.

McKee N (1992). *Social mobilisation and social marketing in developing countries: lessons for communicators*. Penang, Southbound.

An enquiry into the meaning, application and language of social communication, social marketing, social mobilization and participation in the context of developing communities. The aim of this book is to enhance the understanding of social mobilization, social marketing and community participation among communicators who sometimes set up unnecessary barriers between their various fields. The reader will see that elements of all three concepts are often required to foster development in public health, population and environmental fields. A model for development communication is proposed that is now being applied in other programmes such as environmental sanitation and basic education.

McKee N et al (2000). *Involving people, evolving behaviour*. Penang, Southbound.

This book is aimed at people who are involved in designing, implementing and monitoring social sector programmes and projects for developing and disadvantaged communities, anywhere in the world. It is a multisectoral and interdisciplinary synthesis of field experiences and lessons learnt, which offers fresh insight and debate in the context of behaviour development and change. Its aim is to challenge traditional approaches to programme design, using a range of different perspectives from the personal to the political, with a view to increasing the impact and sustainability of international development programmes.

McKenzie JF, Smeltzer JL, eds (2000). *Planning, implementing and evaluating health promotion programs: a primer*. Boston, Allyn and Bacon.

McKenzie-Mohr D, Smith W (1999). *Fostering sustainable behaviour: an introduction to community-based social marketing*. Gabriola Island, Canada, New Society Publishers.

Moore M, Rosenbaum J (2000). *Behavior change interventions*. Washington, DC, United States Agency for International Development, Bureau for Humanitarian Response, Office of Private and Voluntary Cooperation (USAID/BHR/PVC), PVO Child Survival Grants Program Technical Resource Materials.

Available via the web with Adobe Acrobat: **http://www.usaid.gov/hum_response/pvc/child.html**

Use the search function on the USAID Web site page (near top right hand corner of screen) and type in "CSGP Technical Reference Materials". Click on the "Seek" button. Click on the first reference listed to bring up the document (see pages 30-40).

Nutbeam D, Harris E (1999). *Theory in a nutshell: a guide to health promotion theory*. Sydney, McGraw-Hill Companies, Inc.

PAHO (1992). *Manual de comunicación social para programas de salud. [Manual of Social Communication Programmes for Health.]* Washington, DC, Pan American Health Organization, Programa de Promoción de la Salud [Health Promotion Programme].

This guide shows the steps necessary for the development, implementation and evaluation of a social communication plan for health programmes.

PAHO (1992). *Making health communication programs work in Latin America and the Caribbean*. Washington, DC, Pan American Health Organization, Health Promotion Program.

PAHO (1996). *Health promotion: an anthology*. Washington, DC, Pan American Health Organization (Scientific Publication No. 557). Also available in Spanish.

ISBN 92 75 11557 5
Order code: SP 557
Price: US$ 32.00 / US$ 24.00 in Latin America and the Caribbean.
This book is a collection of articles and case studies that present real-life perspectives of health promotion and the strengthening of community action in health programmes. Additionally, the role of Health Education, some methodological aspects of health promotion programme evaluation, and social advocacy in health promotion are discussed, as well as some projects based on community perspectives.

PAHO (2001). *Social communication for health promotion programs for adolescents*. Washington, DC, Pan American Health Organization.
http://www.paho.org

Piotrow PT et al (2003). *Advancing health communication: the PCS experience in the field*. Baltimore, MD, Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (Center Publication 103).
http://www.jhuccp.org/pubs/cp/103/103.pdf

Based on the worldwide experience of the Population Communication Services (PCS4) project (1995–2002), led by the Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs, this guide is designed to help organizations carry out effective communication programs by addressing some of the major problems likely to arise. It also offers practical lessons as to what works, what works better, and what does not work in the rapidly evolving and advancing field of health communication.

Rasmuson MR et al (1988). *Communication for child survival*. Washington, DC, United States Agency for International Development, Bureau for Science and Technology, Office of Health and Office of Education.

Roberts A, Pareja R (1995). *Herramientas para desarrollar destrezas en Comunicación para la Salud. [A tool box for building health communication capacity.]* HealthCOM DOCID NO: PN-ABU-931. www.aed.com. Also available in Spanish.

As a how-to manual, this helps the reader to understand what is planning, implementation and evaluation of a Social Communication Programme in the world of public health. Didactic, it is a classic tool for the development of programmes.

Seigel M, Doner L (1998). *Marketing public health: strategies to promote social change*. Gaithersburg, MA, Aspen Publications, Inc.

Slater S, Saadé C (1996). *Mobilizing the commercial sector for public health objectives: a practical guide*. Arlington, VA, BASICS.

Alliances between the commercial and public sectors are more than an area for possible exploration; they are becoming essential. Partnerships that result in affordable health products, behaviours, and programmes present universal benefits. The purpose of this guide is to provide the map, compass, and tools needed to explore and develop alliances between the public and private health sectors. The guide describes the process for conducting an initial exploration of the potential for a public/private partnership in a given commercial and health environment. It enumerates steps to be taken to establish the partnership and identifies the roles and responsibilities of each partner. The guide then details the activities the partnership should plan to achieve the public health objectives it sets.

Order this guide and other useful documents through the Academy for Educational Development Web site: **http://www.aed.org/health/health_pubs.html**

ToolxCHANGE
http://www.changeproject.org/tools/toolxchange.html

Consists of brief descriptions of new tools and approaches addressing what CHANGE Project staff, partners and expert colleagues consider to be important gaps in the current array of methods for bringing about positive health-related changes at the individual, household, community, institutional and policy levels. Tools and approaches are organized under four categories: Planning, Intervention, Evaluation, and Maintenance. The ideas and instruments described (or proposed for development) help to advance the state-of-the-art in health behaviour change. The CHANGE Project is implemented through a USAID cooperative agreement with the Academy for Educational Development in collaboration with the Manoff Group.

United Nations Children's Fund and World Health Organization (2000). *Communication handbook for polio eradication and routine EPI*.
http://www.basics.org/pdf/WHO_UNICEF_BASICS_Polio_eng.pdf

United States Department of Health and Human Services, Public Health Service, National Institutes of Health (1992). *Making health communications programs work: a planner's guide*. Bethesda, MD, Office of Cancer Communications, National Cancer Institute (NIH No. 92-1493).

Demonstrates in a didactic manner the steps necessary for the design, implementation, and evaluation of a social communication plan in health programmes.

Weinreich NK (1999). *Hands-on social marketing: a step-by-step guide*. Thousand Oaks, CA, Sage Publications.

WHO (1987). *Communication: a guide for national diarrhoeal disease control programmes*. Geneva, World Health Organization.

WHO [forthcoming]. *Planning Communication-for-Behavioural-Impact (COMBI) Programmes for Health*. Tunis, WHO Mediterranean Centre for Vulnerability Reduction.

This manual is intended primarily to enable a communication-trained health professional to apply COMBI to achieve clearly defined behavioural objectives in health. For those with prior COMBI training, the manual will serve as a quick reference to the concepts and planning steps used in developing a COMBI Plan. At the same time, for the health professional with no communication background, the manual will provide an overview of the process involved in designing such a plan. The manual does not attempt to cover in depth all the tools used in COMBI design. It presumes some understanding of fundamental communication principles and techniques. It also presumes that other specialists will be involved in a COMBI design exercise, such as specialists in the fields of advertising, market research, and impact evaluation.

13. HOW TO CONDUCT EVALUATIONS (books and reports only)

Feuerstein M (1988). *Partners in evaluation: evaluating development and community programmes with participants*. London, Macmillan.

Figueroa ME et al (2002). *Communication for social change: an integrated model for measuring the process and its outcomes*. Working paper developed by Johns Hopkins University's Center for Communication Programs for the Rockefeller Foundation as part of their Communication for Social Change Strategy (Communication for Social Change Working Paper Series No. 1).

Available via the web with Adobe Acrobat:
http://www.rockfound.org/Documents/540/socialchange.pdf

Hawe P et al (1990). *Evaluating health promotion: a health worker's guide*. Sydney, MacLennan and Petty.

Patton MQ (1990). *Qualitative evaluation and research methods*. Newbury Park, CA, Sage publications.

Patton MQ (1997). *Utilization-focused evaluation*, 3rd ed. Thousand Oaks, CA, Sage Publications.

Rootman I et al, eds (2001). *Evaluation in health promotion: principles and perspectives*. Copenhagen, WHO Regional Office for Europe.

Rossi PH et al (1999). *Evaluation: a systematic approach*. Thousand Oaks, CA, Sage Publications.

Shordt K (2000). *Action monitoring for effectiveness*. IRC International Water and Sanitation Centre. Technical Paper No. 35. Prepared with financial assistance from the Danish International Development Agency (DANIDA). Price: €27.00. US$ 27.00. Order code: TP 35-E.
http://www.irc.nl/products/publications/title.php?file=tp35e

Focuses on practical methods to improve projects/programmes in the short term. It emphasizes use of monitoring information at the lowest level possible, with referral to other levels as needed. This two-volume book describes how to organize and facilitate monitoring activities that are built into ongoing programmes. Part I describes the approach, emphasizing participation by those people who have a vested interest in "getting it right" and solving problems. Part I also describes data collection methods, simple sampling and analysis. Part II contains 30 Fact Sheets, each of which provides practical examples of indicators, methods, and tools for monitoring a specific topic, such as construction quality, costs, and community participation. This book is based on 10 years of experience at community, district and national levels first in Asia and then in Africa and Latin America. It has been written especially for senior and supervisory staff involved in water and environmental sanitation programmes, although the methods are relevant to other development sectors. Target audience: programme managers and field staff, NGO and consultant personnel, community workers, hygiene promoters, communication specialists, community members involved in managing service.

TOOL 1 • USEFUL BOOKS, REPORTS, ARTICLES, AND WEB SITES

TOOL 2 • CONDUCTING FORMATIVE RESEARCH

TOOL 3 • SOCIAL MOBILIZATION AND COMMUNICATION STRENGTHS AND WEAKNESSES CHECKLIST

TOOL 4 • ANALYTICAL METHODS FOR SETTING BEHAVIOURAL OBJECTIVES

TOOL 5 • TEN IDEAS FOR ACHIEVING THE OPTIMUM BUDGET FOR SOCIAL MOBILIZATION AND COMMUNICATION

TOOL NUMBER 2. Conducting formative research

Several steps are involved in conducting a formative research study. Those listed here are intended to give programme managers an idea of what to schedule for. Time estimates given are for a full study investigating all issues rather than for a specialized study:

1. Planning the research (4 weeks)
2. Training (3 weeks)
3. Fieldwork (6 weeks)
4. Analysis and writing summary report of findings (6 weeks)
5. Final report writing (3 weeks)
6. Dissemination.

The cost of the research will vary and depends mainly on how many communities need to be visited (sampled) and the cost of personnel and transport. The larger the geographical area and the more diverse the population, the greater the number of days required in the field and the more expensive the research.

1. Planning the research

Planning involves the technical tasks of defining the preliminary behavioural objectives, the key research questions, adapting the protocol, pre-testing instruments (this can also be done during training), determining the sampling plan, and preparing for training. It also involves recruiting the research team and making logistic arrangements for the training and the research (Box 2.1). It is likely to take at least a month to accomplish these activities, but the amount of time can vary, depending on many things, including:

- The amount of experience the principal investigator has in doing formative research on behavioural issues associated with dengue prevention and control.
- The extent to which existing instruments need to be adapted to meet the specific programme needs or context.
- The availability of data collectors.
- Procedures for gaining ethical consent.
- The complexity of logistic arrangements (such as ease or difficulty in arranging transport or lodging).

BOX 2.1 • BUDGET CATEGORIES FOR A FORMATIVE RESEARCH FIELD STUDY

1 principal researcher: fee + per diem
Data collection team members: fee + per diem
1 data manager
1 secretary
1 driver
Vehicle/s or transport fees
Training venue
Analysis and report writing office space
Secure storage space for data
Gifts for community entry and refreshments for fieldwork
Copying and supplies for training and fieldwork

2. Training

The team will need to have basic background information on dengue transmission, control, and treatment; and receive training in the methodologies to be used in the field. The amount of time necessary will depend on the degree of experience the team has in using the instruments. Even a team composed of people who have used qualitative, participatory, and quantitative methodologies in other field studies will need about a week to become familiar with the data collection and recording

instruments. Training courses usually last 1–3 weeks depending on the initial level of expertise among the researchers and the scale of the proposed fieldwork. It is usually helpful to continue "coaching" the team in field skills, even when they start data collection. Training is also a good time to adapt and prepare tools through rigorous pre-testing.

3. Fieldwork

The amount of time required for conducting the fieldwork is highly variable and depends on a number of things, including:

- The nature and scope of the research questions.
- The degree of diversity of the population under study, which affects sample size.
- The geographical size of the region under study and the time required to travel from site to site.
- The size and expertise of the team.
- The number of households or communities to include in the sample depends mostly on the amount of diversity in the population under study. Each major cultural group which might have different behaviours associated with, for example, domestic hygiene, water container management, and treatment-seeking patterns should be included. Thus, the more diverse the population, the greater the number of communities needed. Ordinarily, a minimum of six communities is needed to check for variation and a maximum of eighteen is manageable – intervention/control studies also require certain numbers to produce comparable results. The principal investigator should work with those familiar with the region to develop an appropriate sampling plan.

Sometimes, a week in the field can shed much light on a specific question, but usually several weeks are necessary. A rule of thumb for executing the protocol is that four to five field team members can cover one community (urban neighbourhood, rural village) in 1–3 days. On average, the data collection period for a focused and well organized research study looking at household and community behavioural issues related to dengue is 2–6 weeks.

4. Analysis and writing summary report of findings

Analysis should be conducted on a daily basis in the field, and the final analysis should take place with team members immediately following the fieldwork. It is a good idea for the team to write a summary report of findings at the same time, so that findings can be documented while the information is "fresh" in their minds. This allows programme planners to use the basic results right away, without waiting for a fully detailed report. A useful rule of thumb is that for every day of data collection, allow for four days of analysis to the point that results are presented in a summary report.

5. Final report writing

The final report is the complete and more formal research report containing a description of the research design and method, and full documentation of the findings cited in the summary report. Ordinarily, this final version is prepared by the principal investigator. The timeframe for writing the final report will depend on the scale of the research. For a six-week field study, a final report will generally take 2–3 weeks.

6. Dissemination

A final step in the process is dissemination. Although not a formal part of the research itself, dissemination fulfils the purpose of the research: to provide practical information in a timely manner. A discussion of results with ministry officials and other interested parties held soon after the summary report is drafted gives them rapid access to the findings.

Where possible, communities involved in the research should be presented with some of the basic findings and given a chance to discuss them. This acknowledges their contribution to the research and provides a forum for checking whether they feel the results to be accurate (see also Step 4).

Formative research and dengue programmes

To conclude this Tool, let's take a look at how formative research has actually helped three dengue programmes.

Honduras (1990–1996)

- The first goal of a new approach to dengue control was to encourage a change from the institutional imposition model, which was centred on the activities of vector control staff and the use of chemicals alien to the home setting (e.g. temephos sand granules), to a more participative model that would be more family and community centred. It was also important that the new dengue prevention and control model should stimulate and build on the use of basic supplies and materials already available to the family and community.

El Progreso, Honduras, served as the research site for the development of the new community-based approach to *Ae. aegypti* control. To develop the model, it was necessary to identify community motivations and knowledge regarding *Aedes* control. This information was complemented with research to better understand existing community practices related to water storage, refuse disposal practices, and available refuse and water services. The effect of existing domestic behaviours on successful vector control was then assessed.

The behavioural objectives of the programme were:

- To carry out the cleaning of water storage containers with effective procedures and sufficient frequency to eliminate the *Aedes* immature stages living in them.
- To remove tyres and other water-holding containers with the recommended frequency.
- Identification and elimination or control of other *Ae. aegypti* larval habitats in and around the household.

The identified behaviours corresponded with the most important larval habitats and focused on the control of the immature stages (eggs or larvae) of the vector. The results of the two research phases in El Progreso (1990 and 1991–1996) provided evidence about the potential of community participation in vector control with the promotion of technically effective and socially acceptable behaviours.

The novelty of the new behaviour was a "cleaner" (no pollution or externally introduced chemicals) and at the same time ovicidal technology based on the use of common household materials such as chlorine and detergent mixtures for water containers (*La Untadita* or the "little dab") and the use of either lime or salt in tyres to prevent the eclosion of larvae from eggs.

The *Untadita* process built on existing scrubbing and rinsing practices for cleaning the large cement basins (*pilas*) found in the vast majority of households; addition of bleach to the

BOX 2.2 • THE *UNTADITA* STICKER IN HONDURAS

NOTE: THIS REPRODUCTION IS SMALLER THAN ACTUAL SIZE. THE STICKER CAN BE PLACED ANYWHERE, BUT IS GENERALLY STUCK AT EYE LEVEL TO THE WALL OR WOODEN POST SUPPORTING THE COVERING THAT PROVIDES SHADE FOR THE PILA. THE STICKER IS USED FIRST AS A COMMUNICATION TOOL BY FIELD WORKERS WHEN NEGOTIATING POSSIBLE BEHAVIOURS AND THEREAFTER AS A BEHAVIOURAL PROMPT FOR HOUSEHOLDERS.

detergent without water resulted in a paste, which was smeared on the inside walls of the pila or drum, left for 10 minutes, and then the pila was ready to be scrubbed (Box 2.2). The programme's entomologists determined that the bleach damaged the egg casing so that further development was effectively interrupted. The addition of lime or salt to the inside of a tyre resulted in the absence of larvae. The biological mechanism was not looked at.

Saint Vincent and the Grenadines (1992–1997)

■ Project activities in the village of Calliaqua demonstrated how social science was combined with entomology to address a community need that, while not directly tackling a dengue problem, improved relations between the vector control staff, environmental health officers, and the general public.

Calliaqua is a coastal community with a high groundwater table, and those homes with pit latrines experienced problems with flooding of the latrines. Most other homes had septic tanks. The formative research study revealed that residents considered mosquitoes to be their number one problem. An entomological survey indicated that the mosquito problem was due primarily to *Culex quinquefasciatus* mosquitoes breeding in the flooded pit latrines and septic tanks. The Senior Environmental Health Officer and staff, with guidance from PAHO, tested the efficacy of shredded, waste polystyrene (SWAP) in the pit latrines to prevent mosquito breeding. A low cost emergence trap that could be used on pit latrines and septic tanks was designed to identify the source(s) of the *Culex* mosquitoes. The emergence traps were placed on the latrines overnight and the latrines were monitored daily. The study demonstrated that SWAP was effective in preventing mosquito breeding in flooded pit latrines for months.

The team presented the findings to the community and offered expanded polystyrene beads (the commercial equivalent of SWAP) to residents for use in their latrines. However, many residents did not believe that the mosquitoes were coming from the latrines and septic tanks. The team used the emergence traps designed for the study to demonstrate to homeowners the productivity of their latrine or septic tank by leaving the trap on it overnight and checking it the next morning with the homeowner. The impact of seeing the quantity of mosquitoes captured in the trap generally resulted in the homeowner either fixing the cracks in the septic tank or requesting Styrofoam for the pit latrine. According to vector control staff, of the more than 100 faulty septic tanks identified by the project in Calliaqua, all but one were subsequently repaired by the owners.

Fiji (1998–2000)

Formative research conducted by a local team of researchers trained by a social scientist was used by Fiji's dengue programme on several occasions. In September 1998, a baseline formative research study was conducted throughout Fiji. This was the first national study on community knowledge, attitudes, and practices associated with dengue. The objectives of the study were:

1. To discover existing and preferred informational sources on dengue and mosquito control.
2. To learn how severe dengue is perceived to be in relation to communal and personal risk.
3. To learn what people consider are the signs, causes, methods of prevention, and treatment of dengue.
4. To find out what people know about mosquitoes, their breeding, ways to control their breeding and biting, and how people see mosquitoes in relation to dengue.
5. To discover the general public's opinions of community structures and government services and what solutions or barriers they saw as existing that might influence the likelihood of dengue occurring again in Fiji.

This community-based research used a combination of quantitative, qualitative, and participatory techniques to investigate why and how householders were dealing with dengue and mosquitoes and to gather their views on how local services were addressing the dengue problem. The research findings identified some very important issues overlooked in previous national anti-dengue campaigns. For example, people did not consider tyres (one of the major dengue mosquito breeding places in Fiji) as garbage and they were not removed during community "clean ups". Old tyres thrown away by vehicle owners would be picked up by others and taken home to be used as flowerpots. Another important finding was that families purchase empty 200-litre drums and keep them for storing water in both urban and rural areas, even in areas with regular piped water supplies. It was noted that family members were covering drums for their own reasons, e.g. to prevent leaves and bird droppings falling into the water drums or to prevent children from playing with the water. They were not covering the drums to prevent mosquitoes from breeding inside the drums.

The above findings helped the programme map out social mobilization and communication strategies that built on current practices. For example, promoting the idea that tyres used as flowerpots should be filled right up to the top with soil to help flowers grow well (and to prevent mosquito breeding, though this was a secondary message).

A follow-up study was then conducted in January 2000 to refine initial strategies. The objectives of this second study were:

- To determine how many drums and tyres are found around people's homes in different parts of Fiji and among different ethnic groups.
- To describe how and from where people acquire tyres and drums, who obtains or buys tyres and drums, and how much money is spent on acquiring each item.
- To record people's uses of tyres and drums and who (in the household) uses each type of container the most, including for drums, reasons for and frequency of washing, cleaning, and emptying.
- To document practices associated with the "covering", "protection", or "storage" of tyres and drums, including people's reasons for covering tyres and drums.

This second study combined entomological collection techniques with structured observations and interview data on the acquisition and use of drums and tyres in nine communities. Findings from this study pointed to the need to target women and children

regarding the correct management of tyres within households as well as second-hand car businesses and car repair shops from where most used tyres were obtained. The study also revealed the need to target informal drum salesmen who drive around urban settlements selling old drums.

A third study was conducted in February 2000 to investigate community perceptions of drum covers. The aim of these focus groups was to gain a better understanding of how and why drums are covered in Fijian and Indo-Fijian urban, periurban and rural households. The objectives of the study were to:

- Explore community opinions of a range of locally available materials that could be used in the manufacture or construction of drum covers.
- Describe the range of existing drum cover practices and reasons for covering drums.
- Explore community opinions of the suitability, affordability, and usability of a sample of pre-designed drum covers.

Data from this third study were to be used to inform possible drum cover designs and message content in future communication campaigns accompanying the social marketing of a range of potential drum covers. The national coup in 2000, however, disrupted the design process. Follow-up studies are still required to investigate the acceptability, longevity, effectiveness, and marketing (communication, distribution, and cost) of a sample of drum covers for both long-term dengue preventive measures and short-term dengue outbreak control measures.

Finally, the dengue programme has also used formative research to pre-test all messages and materials, each time with appropriate target audiences. Intensive and systematic pre-testing as followed by the dengue programme had never been practiced before in Fiji.

TOOL NUMBER 3. Social mobilization and communication strengths and weaknesses checklist

CHECKLIST FOR PERFORMING STRENGTHS AND WEAKNESSES ANALYSIS

- After discussing the issue with your multidisciplinary team, place a tick [✔] in the appropriate box
- If the level of performance is "unknown", score it as a "major weakness"
- Also indicate whether the issue is of high, medium or low importance to your current programme

	PERFORMANCE					IMPORTANCE		
	MAJOR STRENGTH	MINOR STRENGTH	NEUTRAL	MINOR WEAKNESS	MAJOR WEAKNESS	HI	MED	LOW
Social mobilization and communication plans and activities								
Programme reputation among the general public	❑	❑	❑	❑	❑	❑	❑	❑
Current intervention* – entomological impact	❑	❑	❑	❑	❑	❑	❑	❑
Current intervention* – convenience to consumer	❑	❑	❑	❑	❑	❑	❑	❑
Current intervention* – cost to consumer	❑	❑	❑	❑	❑	❑	❑	❑
Current intervention* – timing	❑	❑	❑	❑	❑	❑	❑	❑
Distribution of products/availability of services*	❑	❑	❑	❑	❑	❑	❑	❑
Assessment of the behavioural environment (see Step 3)	❑	❑	❑	❑	❑	❑	❑	❑
Detailed Implementation Plan for social mobilization and communication (see Step 13)	❑	❑	❑	❑	❑	❑	❑	❑
Beneficiary involvement in planning	❑	❑	❑	❑	❑	❑	❑	❑
Setting of specific behavioural objectives (see Step 5)	❑	❑	❑	❑	❑	❑	❑	❑
Targeting of population segments (see Step 6)	❑	❑	❑	❑	❑	❑	❑	❑
Social mobilization and communication strategies (see Step 7):								
■ use a comprehensive mix of communication actions	❑	❑	❑	❑	❑	❑	❑	❑
■ are gender-sensitive	❑	❑	❑	❑	❑	❑	❑	❑
■ match local calendars (beliefs and behaviours)	❑	❑	❑	❑	❑	❑	❑	❑
Pre-testing of behaviours, messages and materials (see Step 8)	❑	❑	❑	❑	❑	❑	❑	❑
Training of staff on social mobilization and communication (see Step 10)	❑	❑	❑	❑	❑	❑	❑	❑
Supportive legislation (see Introduction)	❑	❑	❑	❑	❑	❑	❑	❑
Monitoring of behavioural results (see Step 9)	❑	❑	❑	❑	❑	❑	❑	❑
Evaluation of behavioural results	❑	❑	❑	❑	❑	❑	❑	❑
Beneficiary involvement in implementation and monitoring	❑	❑	❑	❑	❑	❑	❑	❑
Beneficiary involvement in evaluation	❑	❑	❑	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑	❑	❑	❑

* Since you may be using several interventions (e.g. temephos, drum covers, refuse collection), answer these five questions for each intervention.

TOOL NUMBER 3. *Continued*

	PERFORMANCE					IMPORTANCE		
	MAJOR STRENGTH	MINOR STRENGTH	NEUTRAL	MINOR WEAKNESS	MAJOR WEAKNESS	HI	MED	LOW
Finance								
Availability of capital specifically for social mobilization and communication	❑	❑	❑	❑	❑	❑	❑	❑
Cash flow	❑	❑	❑	❑	❑	❑	❑	❑
Financial stability	❑	❑	❑	❑	❑	❑	❑	❑
Ability to seek funds from other sources (see Steps 12 and 14, and Tool Number 5)	❑	❑	❑	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑	❑	❑	❑
Technical services								
Facilities	❑	❑	❑	❑	❑	❑	❑	❑
Behavioural surveillance (e.g. use of regular KAPB surveys)	❑	❑	❑	❑	❑	❑	❑	❑
Entomological surveillance	❑	❑	❑	❑	❑	❑	❑	❑
Viral surveillance	❑	❑	❑	❑	❑	❑	❑	❑
Clinical surveillance	❑	❑	❑	❑	❑	❑	❑	❑
Clinical management services	❑	❑	❑	❑	❑	❑	❑	❑
Emergency preparedness	❑	❑	❑	❑	❑	❑	❑	❑
Vector control research	❑	❑	❑	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑	❑	❑	❑
Organization								
Visionary, capable leadership	❑	❑	❑	❑	❑	❑	❑	❑
Able, motivated workforce	❑	❑	❑	❑	❑	❑	❑	❑
Multidisciplinary, creative planning team (see Step 1)	❑	❑	❑	❑	❑	❑	❑	❑
Other government sector coordination (see Step 12)	❑	❑	❑	❑	❑	❑	❑	❑
Designated staff in charge of social mobilization and communication (see Step 12)	❑	❑	❑	❑	❑	❑	❑	❑
Use of external expertise in social mobilization and communication (e.g. advertising firms)	❑	❑	❑	❑	❑	❑	❑	❑
NGO partnerships (see Step 12)	❑	❑	❑	❑	❑	❑	❑	❑
Private sector partnerships (see Step 12)	❑	❑	❑	❑	❑	❑	❑	❑
Flexible/responsive	❑	❑	❑	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑	❑	❑	❑

TOOL 1 • USEFUL BOOKS, REPORTS, ARTICLES, AND WEB SITES

TOOL 2 • CONDUCTING FORMATIVE RESEARCH

TOOL 3 • SOCIAL MOBILIZATION AND COMMUNICATION STRENGTHS AND WEAKNESSES CHECKLIST

TOOL 4 • ANALYTICAL METHODS FOR SETTING BEHAVIOURAL OBJECTIVES

TOOL 5 • TEN IDEAS FOR ACHIEVING THE OPTIMUM BUDGET FOR SOCIAL MOBILIZATION AND COMMUNICATION

TOOL NUMBER 4. Analytical methods for setting behavioural objectives

Identification of behavioural objectives is a critical step in planning social mobilization and communication. In this Tool, we offer you a number of different approaches to analysis that may stimulate your team's thinking and which can be conducted with some of the community members who participated in the initial formative research. Much of the data informing these analytical processes will be drawn from your formative research or will require some further formative research. By combining these methods, you should end up with clear, precise behavioural objectives that have been carefully prioritized. In the process, you will generate important information for use in subsequent planning steps.

In this Tool we consider:

- Problem analysis
- Risk factor analysis
- Force-field analysis
- BEHAVE framework analysis
- Priority analysis
- SMART Objective analysis.

This is not a comprehensive list, but it does represent some of the tried and tested ways to ground social mobilization and communication strategies in a thorough comprehension of the environments in which they are intended to operate.

Your planning team may feel that they need only use one form of analysis (typically people go for SMART Objective analysis) because the behavioural objectives appear straightforward. We caution against this, because achieving sustainable behavioural results is unfortunately much more complicated than simply establishing specific, measurable, appropriate, realistic, time-bound objectives (though this is hard enough!). We recommend that you use a combination of each method, since the creative links and jumps that take place during each analytical process build upon each other and will add to your strategic thinking. Using these different approaches will also result in a narrowing of data (whereby you can discard some of the information you collected during your formative research). But be warned. It's untidy!

Problem analysis[1]

Before you began the formative research, you should already have established a few key behavioural objectives that you hope to achieve. For example:

- To sustain the use of copepods in all household wells and tanks in periurban villages.
- To ensure householders use mosquito-proof drum covers.
- To persuade families to discard or manage old tyres effectively.
- To motivate caregivers to seek prompt clinic-based diagnosis for any fevers in children.

[1] UNICEF, WHO (2000). *Communication handbook for polio eradication and routine EPI*. Geneva, World Health Organization.

Your formative research should now have uncovered data that allow your team to examine these objectives with more rigour. The behaviours you probably focused on related to particular problems. Taking the examples above, the problems might have been stated as:

- People in periurban villages do not prevent larval infestation of their household wells and tanks.
- Householders do not protect their water drums from mosquitoes.
- Families do not discard or manage old tyres effectively.
- Caregivers do not seek prompt clinic-based diagnosis for fevers in children.

Are these problems that can be solved by social mobilization and communication, or are there non-behavioural causes which require other solutions such as better services? One way to tease out environmental factors influencing people's behaviours is to conduct a problem analysis.

Box 4.1 displays one paper-based method that you can use to systematically analyse various dengue-related problems.

BOX 4.1 • PROBLEM ANALYSIS

PROBLEM: Families do not discard or manage old tyres effectively.

MANIFESTATION: *Ae. aegypti* populations are not being reduced and cause dengue outbreaks.

LEVEL OF CAUSALITY	BEHAVIOURAL CAUSE	NON-BEHAVIOURAL CAUSE
Immediate causes: These causes may include programme structure, lack of information, capacity, motivation etc., problems of supply distribution	■ People do not know that dengue virus is transmitted by mosquitoes. They think it is caused by eating the wrong food. ■ People do not know that *Aedes* breeds in tyres. ■ People like to keep tyres rather than throw them away.	■ Tyre disposal or recycling services are not available. ■ Health personnel and car repair shop owners do not explain tyres are a potential problem or how to manage them properly.
Underlying causes: At the level of government policy and practices, and include causes such as the school system, kinds of health services available, etc.	■ Government does not allocate enough funds to environmental health department.	■ No infrastructure within government to establish a tyre recycling scheme. ■ No legislation against keeping old tyres.
Basic causes: Sociocultural, political, and economic factors.	■ DF is not a priority for the government.	■ People are poor and cannot afford to throw old tyres away but use them for many purposes.

This framework enables you to examine, in an integrated manner, the problems identified during your initial formative research. By doing so, you can start to pick between problems that are behavioural in nature and those that are not. For instance, notice in the case illustrated in Box 4.1 that formative research has indicated that "people" do not know there is a connection between mosquitoes and dengue and that "people" do not connect mosquitoes with tyres. Obviously this points towards some form of communication that should aim to increase people's knowledge on these two issues, but you should also appreciate that while important, this may not lead to behaviour change. People will need to be given more specific information about how to manage tyres, perhaps by filling them completely with soil if they use tyres for flowerpots, or perhaps by some tools (such as battery-operated drills used by mobile teams of boy scouts) or special services at car repair shops (where machinery for drilling holes in tyres more than likely exists). You also need to conduct more analysis to differentiate what segments of the population "people" refers to.

Notice too, how the team has identified a lack of communication between health workers and the general public regarding the potential problems caused by tyres. You should also notice how the team has highlighted the lack of information provided at the "point of service" where people obtain their tyres – e.g. car repair yards. Your creative juices should start to flow in terms of thinking through some possibilities of involving car repair shop workers or tyre sales staff as additional, if not the main, sources of information ("personal sellers") and advice about how to solve this problem.

The team has also established a basic cause, which may appear several times if they analysed other problems: the government has not prioritized DF as a major threat to public health. Here you can begin to see that without government commitment, no funds are allocated to the environmental health department and so no tyre recycling system is in place. Similarly, no legislation has been created to prevent dumping of old tyres. Are you thinking about what the team could try to do? If so, the analytical discipline is setting the creative wheels in motion – and that's the point!

Risk factor analysis[1]

Another useful analytical approach is to consider "risk factors". In Box 4.2 we provide an example of how a planning team has worked out from their formative research findings what the **main risk factors** are that lead to the **main problem**. In this case, the main problem is "dengue epidemics".

The main risk factors they identified are: (1) Dengue mosquito breeding sites in and around homes, schools, and workplaces; and (2) People's knowledge about dengue and mosquitoes does not translate into action. Then they have tried to work out how the main risk factors are caused by contributing risk factors. Here they have used their formative research to come up with 12 contributing risk factors, such as: "*Drums are highly valued and purchased but not covered*"; "*Old, unused water tanks still contain water*"; and "*People purchase plastic containers, tins, cans, etc., unaware that if not used safely or disposed of properly they become dengue mosquito breeding sites*".

[1] Hawe P, Degeling D, Hall J (1990). *Evaluating health promotion: a health worker's guide*. Sydney, MacLennan and Petty.

BOX 4.2 • RISK FACTORS AND CONTRIBUTING FACTORS THAT MUST BE ADDRESSED TO PREVENT DENGUE OUTBREAKS

Health problem: Dengue epidemics	**Goal:** Prevent dengue epidemics (further outbreaks probable but can prevent outbreaks from becoming epidemics through effective surveillance and focused response)
Main risk factors: Dengue mosquito breeding sites in and around homes, schools and workplaces	**Principal objectives:** ■ Reduce dengue mosquito breeding sites in and around homes, schools and workplaces by means of a social mobilization and communication campaign that targets container management
People's knowledge about dengue and mosquitoes does not translate into action	■ Motivate and encourage behaviour changes associated with container management and disposal
Contributing risk factors:	**Sub-objectives:** (*where meaningful, sub-objectives have specific target % and target date*)
1. Most people's concern about dengue is high but needs maintaining	■ Increase and maintain people's concern about DF and DHF-DSS (77% of people are concerned at present to 100% of people by [date])
2. Few people associate mosquito biting with dengue transmission	■ Increase and maintain the % of people who know that the bite of dengue mosquitoes is the only cause of dengue (from 15% at present to 70% by [date])
3. Refuse disposal practices and collection services allow breeding sites to accumulate at home, schools, workplaces and public spaces	■ Reduce the accumulation of refuse (suitable for dengue mosquito breeding) by improving garbage disposal practices at home/schools/workplaces ■ Improve garbage collection services
4. Tyres are highly valued and purchased but used and stored in unsafe ways	■ To increase % of householders who manage stored tyres correctly (from 4% to 70% by [date]) ■ Create and enforce effective legislation on the importation, distribution and use of tyres (including increased importation tax – tax used for dengue prevention programme)
5. Waste, unused tyres disposed of unsafely	■ Increase % of householders who dispose of unwanted tyres correctly (from 4% to 70% by [date]) ■ Create avenues to recycle or destroy old, unused tyres ■ Create legislation on the disposal of tyres
6. Drums are highly valued and purchased but not covered	■ Increase % of householders who manage drums used as water containers correctly (e.g. appropriate cover and scrubbing of inside surfaces) (16% to 90% by [date]) ■ Design and distribute culturally acceptable and affordable drum cover/s 40% of households to be using drum cover by [date] ■ Design and distribute for purchase a household water container (alternative to drums, e.g. smaller, plastic, sealable water container) that is dengue mosquito-proof, affordable (cheaper than drums) and culturally appropriate

BOX 4.2 • *CONTINUED*

Contributing risk factors:	**Sub-objectives:**
7. In some areas, official water supplies are non-existent or intermittent leading to household/ school/workplace storage of water in containers	■ Ensure that communities have a constant water supply
8. Many large water storage tanks (home and communal – village, school and workplace) are uncovered or cover is damaged	■ Create and enforce legislation to ensure large water tanks used in homes, communities, schools and workplaces (at manufacture stage and when in use) are dengue "mosquito-proof" ■ Repair existing or design new covers or provide alternative protection (e.g. biological control) for all existing water tanks in urban areas (in homes, communities, schools and workplaces) (___% of tanks to be protected by [date])
9. Old, unused water tanks still contain water	■ Remove (or make "mosquito-proof", e.g. add larvivorous fish) all old, unused water tanks in urban areas
10. People purchase plastic containers, tins, cans, etc, unaware that if not used safely or disposed of properly they become dengue mosquito breeding sites	■ Increase % of householders/school staff and students/workplace employees and managers who purchase small disposable containers dispose of these containers correctly (% increase by [date]) ■ Improve garbage collection services ■ Create and enforce legislation for proper labelling of containers (warning about risk of dengue mosquito breeding in container)
11. People unaware that flower pots and drip trays and other smaller containers at home, school and work provide breeding sites	■ Increase % of householders/school staff and students/workplace employees and managers who correctly manage non-disposable small containers (% increase by [date])
12. Legislation is weak leading to lack of enforcement of fines and little concern about allowing dengue mosquitoes to breed at home, schools and workplaces	■ Change (as necessary) and improve enforcement of the public health act legislation that imposes on the spot fines (including refuse disposal, covered drums/tanks, use of tyres, etc.)

Using this method of differentiating factors (rather like establishing immediate and underlying causes), the team was able to set out their programme goal to address the main health problem: "*to prevent outbreaks becoming epidemics, through effective surveillance and focused response*". Then they were able to set out principal objectives to address the main risk factors: "*Reduce dengue mosquito breeding sites in and around homes, schools, and workplaces by means of a social mobilization and communication campaign that targets container management*"; and "*Motivate and encourage behaviour changes associated with container management*". Then they established a series of sub-objectives (what will actually be achieved by the programme) to address the contributing risk factors. To achieve each sub-objective, a social mobilization and communication strategy was devised.

This planning team could have gone a step further in their risk factor analysis. They could have sorted the contributing risk factors into three classes:

1. **Predisposing** – Factors that predispose a person to behave in a certain way such as knowledge, attitudes, and beliefs.
2. **Enabling** – Factors that enable a behaviour or situation to occur or barriers created by societal forces or systems that prevent a behaviour occurring such as limited facilities, resources, laws, skills and knowledge. For example, knowledge of the association between water drums and mosquitoes that cause dengue may predispose a householder to want to use a drum cover, but the availability of drum covers enables her or him to actually cover the drum.
3. **Reinforcing** – Factors that reward or punish the person carrying out a behaviour or the maintenance of a situation. For example, in relation to drum cover use, a reinforcement factor might be the reduction in fines normally levied for allowing mosquitoes to breed in water drums.

Sorting out risk factors in terms of whether they are directly associated or contributing to health problems helps to identify and order the Plan's main objectives and sub-objectives in terms of magnitude of desired impact. Sorting factors into predisposing, enabling, and reinforcing is also crucial because unless interventions focus on factors in all three classes it is very unlikely that any change will occur or be maintained. Your team may find this ordering and classification a tiresome process, but the discussion will be worth the effort since they should start to:

- Sort out factors in terms of levels of importance and amenability to change and thus help to prioritize health problems.
- Realize the sorts of changes in all three classes of factors that would have to occur if proposed strategies are to work.

N.B. Your team may find it hard to distinguish between predisposers, enablers, and reinforcers. It is crucial not to allow discussions to get stuck at this point. The important process is to encourage team members to think about how factors interrelate and what combination of responses would have to be made to have an impact on the particular dengue problem.

Got you thinking again? That's good.

Force-field analysis[1]

Adapted from commercial marketing research, "force-field analysis" allows you to focus on the personal and societal forces at work, both negative and positive, when alternative behaviours are being considered. Force-field analysis poses the question: What are those 'forces' or factors in the field (community) that would help achieve or hinder achievement of the desired behavioural objective?

An understanding of these forces enables you to identify key issues that may or may not be amenable to social mobilization and communication strategies and whether they can be tackled by social mobilization and communication alone – to take appropriate strategy options. Understanding constraints and/or supporting factors provide useful information about those themes that will form the basis for your strategies.

Taking the example illustrated in Box 4.3, you can see that formative research has revealed people's current perception concerning dengue fever in a particular locality, and in this instance, the lack of perceived connection between mosquitoes and tyres (we assume that the planning team opted for management of tyres as one of their preliminary behavioural objectives). The team wants to get people to perceive differently and take action based on this perception (the best perception) and wants to avoid people perceiving that there's nothing they can do about dengue (worst perception). Crucially, the team has identified with research participants that even

BOX 4.3 • FORCE-FIELD ANALYSIS

WORST PERCEPTION	DRIVERS ("GOOD THINGS")	CURRENT PERCEPTION	BARRIERS ("BAD THINGS")	BEST PERCEPTION
There is nothing I can do about dengue and drilling holes in tyres will not make a difference	Family safety Mosquitoes are annoying	Dengue is a mosquito related disease in Trinidad and Tobago, but this is not a major threat to me and tyres have nothing to do with it	Familiarity with mosquitoes (they're always around) No difference in level of annoyance from *Aedes* mosquitoes (other mosquitoes still bite) Drilling a hole is not something that I can do by myself unless I have a drill Intangible benefit (people will not see a difference since dengue still occurs)	Any member of my family can get dengue and there is something that I can do to prevent it by drilling holes in tyres that I have lying around in my backyard
	↓		↓	
	Strategy Option: Reinforce Drivers to prevent worst perception		**Strategy Option:** Overcome barriers that will prevent achievement of best perception	

[1] WHO [forthcoming]. *Planning Communication-for-Behavioural-Impact (COMBI) Programmes for Health*. Tunis, WHO Mediterranean Centre for Vulnerability Reduction.

if the *Aedes* population was reduced, there would still be other mosquitoes. This is a barrier to the best perception (and is more than likely to result in the worst perception) if the team try to tackle the problem by focusing on tyres alone.

One Strategy Option begins to appear: the team has to focus on tyres but needs to deploy measures to control other mosquitoes as well. Notice too how the team has found out that most householders do not have the means to drill holes in tyres, so some form of door-to-door service or other means for drilling holes in tyres (e.g. at tyre replacement centres) will be needed. The team has also realized that people may not see any tangible benefit from this action, thus some form of feedback on either reduction in dengue cases or *Aedes* populations perhaps through regular news bulletins or face-to-face community meetings is probably needed.

The analysis has also highlighted that "family safety" is an important value in this population. People also find mosquitoes annoying. Both these findings point towards the development of messages that can build on current values and help promote the suggested action. For example: "Protect your family from mosquito bites. Drill holes in your old tyres…"; "Make old tyres wholy" (emphasizing religious beliefs); "Those old tyres once protected you from bumps in the road. But now they're protecting mosquitoes that bite your children!" N.B. all these types of messages and actions would need pre-testing with intended audiences before being implemented on a grand scale (see Step 8).

BEHAVE framework analysis[1]

A comprehensive approach to achieving and sustaining behavioural impact recognizes that individual behaviour change does not result from improved knowledge alone and cannot be promoted in isolation from the broader social context in which it occurs. Using the BEHAVE framework (Box 4.4) allows you to explore the full range of factors that must be addressed to effectively change behaviours at multiple levels.

Like risk factor analysis, discussing what information goes into the BEHAVE framework ensures your team takes one of the most critical step in planning social mobilization and communication: to identify the few key factors that most influence the target behaviour for your particular audience. This step is most often skipped by planning teams, and takes away from the effectiveness of programme activities.

The contributing individual, family, community, health system, and policy factors that influence healthy outcomes should be assessed for each behaviour and audience BEFORE planning activities. Once the most influential factors are identified, planners can identify which activities at the various levels (individual, community, health system and/or policy) best address the factors.

In the example presented in Box 4.4, the main expected result is to promote changes in the population's behaviours and to reduce the reproduction of *Aedes aegypti* at the household level in order to reinforce the prevention of dengue. Notice how the planning team has identified a specific target audience ("families with water stored in tanks"). The team has then identified the desired behavioural result. In this case, they propose an efficient technique for cleaning and treating tanks involving the application of chlorine. This proposed technique is based on formative research findings indicating that householders readily use chlorine products for other

[1] Moore M, Rosenbaum J (2000). *Behavior change interventions*. PVO Child Survival Grants Program Technical Resource Materials, United States Agency For International Development, Bureau for Humanitarian Response, Office of Private and Voluntary Cooperation (USAID/BHR/PVC). See also: http://www.changeproject.org/tools/xchangetools/tx_behave.html

BOX 4.4 • THE BEHAVE FRAMEWORK FOR PROGRAMME PLANNING

TARGET POPULATION	BEHAVIOUR	KEY FACTORS	INTERVENTIONS
Who? **A specific target audience**	***What?*** **Do a specific action that protects has a positive health outcome**	***Factors*** **A few specific key factors that address barriers, enhance benefits, and are most influential to the target behaviour**	***Interventions*** **Selected activities that address those key factors**
In order to help:	to:	we will focus on:	through:
Families with drinking-water* stored in tanks ** it is possible that we need to categorize according to the supply (source) of water – tap or rainwater – because of the reluctance of the population to put chlorine in rainwater (potable water) in the absence of other water resources* *The strategy for rainwater tanks will be to focus on better pipe/tap systems and community surveillance*	Clean (using effective methods) their tanks at least once a week or Treat walls of tanks with chlorine (using effective methods) and (with less emphasis) hermetically seal water tanks	Increasing the knowledge and skills of the female heads of households to clean and treat tanks **[household]** Reinforcing community advocacy and feedback to maintain "clean and healthy" neighbourhoods/blocks (free of diseases such as dengue, diarrhoea, etc.) **[community]**	■ training of health workers, NGOs and community volunteers ■ educational and participatory activities led by health workers and community volunteers ■ community monitoring of breeding sites at the household and village/community level ■ educational materials ■ mass media
		Promoting inclusion of "how to" instructions in chlorine bottles and bags **[institutional/public and private sector]** Promoting production and distribution of covers through micro-enterprises or other mechanisms **[community/institutional/private sector]**	■ meetings and agreements with the private sector (chlorine manufacturers, production units and micro-enterprises, etc.)
		Modifying or reinforcing policies and practices of the dengue programme (to include the new targeted behaviours) **[institutional]**	■ meetings and agreements with policy-makers and legislators
		Supporting community mechanisms to replace old tanks made of concrete (e.g. revolving funds) **[community]**	■ meetings and agreements with community organizations
		Promote improved tank cover designs **[community/institutional/private sector]**	■ meetings and agreements with the private sector (textile manufacturers, production units and micro-enterprises, etc.)

domestic purposes and already clean their tanks (but not yet in such a way that *Aedes* populations are reduced).

Notice how in the "Key Factors" column, the team has identified all the levels (in square brackets) that will need to be involved. The team realizes that the application of chlorine by householders will at some point have to involve those companies that produce chlorine. Changes will also have to be made to some existing policies of the dengue programme in order for field-based workers to be supported in the promotion of this new cleaning technique. For example, a new policy should clearly state that this approach has government approval.

Having identified the multiple levels at which potential barriers and benefits may exist, the team then specifies the range of interventions required to overcome or enhance these key factors. The preliminary list in the "Interventions" column would then be expanded in a full Work Plan. More details would be added to explain exactly how interventions such as "training of health workers, NGOs and community volunteers" and "arranging meetings and drawing up agreements" with chlorine producers would be implemented, monitored, and evaluated.

Priority analysis[1]

Each of the four previous analytical processes have much in common but also slight differences that can, if applied conscientiously, throw slightly different lights on the behavioural objectives your team first set itself. **Problem analysis** reveals, among other things, whether problems are generated by behavioural causes and/or structural or environmental factors. **Risk factor analysis**, on the other hand, helps you begin to crystallize the range of objectives that are needed to achieve in order to have an impact on the main risk factors leading to dengue epidemics. **Force-field Analysis**, like Problem Analysis helps to reveal those environmental changes that are needed to support behavioural impact. Force-field analysis also extends your understanding of what benefits you need to enhance and what barriers you need to overcome to bring about behavioural impact. The **BEHAVE framework** provides a rationale for expanding the range of behaviour change activities beyond household level and for linking and coordinating communication activities with training, health systems support, product, and service improvements and policy changes that may not otherwise have been recognized as essential components of a social mobilization and communication plan.

So by now you should have not only readjusted your initial behavioural objectives but probably have added several more. But trying to achieve too many objectives is a recipe for low or no behavioural impact, so now it's time to prioritize which objectives really need to be achieved and can be achieved. While there is no limit on how many objectives a programme should settle on, remember that the fewer the objectives, the easier it is to design a focused plan that will achieve demonstrable results (the resources you have at your disposal will also play a part in deciding this!).

One simple way of prioritizing objectives is to assess the current behaviours to which they refer against a set of criteria (Box 4.5).

[1] UNICEF, WHO (2000). *Communication handbook for polio eradication and routine EPI*. Geneva, World Health Organization.

BOX 4.5 • CHANGEABILITY AND IMPORTANCE CRITERIA

DETERMINING IMPORTANCE

- *Relevance* – How strong is the link between the behaviour and the health problem?
- *Occurrence* – How frequently or rarely does the behaviour occur?
- *Impact* – Does the behaviour have a demonstrable effect on the health problem?

DETERMINING CHANGEABILITY

- *Stage of behaviour* – Is the behaviour just starting to occur or is it already established?
- *Amenability to intervention* – Is it known that interventions have succeeded with this problem?
- *Community capacity* – How committed is the community to solving the problem and what could they contribute (money, labour, materials) to its solution?
- *Feasibility* – What combination of interventions – technical, education, regulations, mobilizations, etc. – might change the behaviour? Given available resources, can these interventions be implemented?

For example, "People in periurban villages do not prevent larval infestation of their household wells and tanks". Using these criteria or others that you know about or may want to create, your team can arrange the behaviours you want to target into a two-by-two grid (Box 4.6).

BOX 4.6 • CHANGEABILITY AND IMPORTANCE GRID

	VERY IMPORTANT	NOT SO IMPORTANT
EASY TO CHANGE	***Priority 1*** More changeable, important behaviours High priority for programme focus	***Priority 3*** More changeable, less important behaviours. Low priority for programme focus
DIFFICULT TO CHANGE	***Priority 2*** Less changeable, important behaviours Priority for innovative strategies	***Priority 4*** Less changeable, less important behaviours Not worth spending resources on

As you can see in this grid, "Priority 1" behaviours are clearly the most cost-effective to focus your social mobilization and communication efforts on. There's little point focusing on "Priority 4" behaviours. Those behaviours your team has placed in the "Priority 3" cell may be changeable but do not contribute much to solving the dengue problem (e.g. getting people to safely discard small tins when these types of containers contribute very little to *Aedes* populations). For those behaviours categorized as "Priority 2", you may need to wait for further resources after you have raised more political commitment through achieving results against Priority 1 behaviours (in other words, once you have a few "success stories!"). Alternatively, you may want to experiment with some extremely innovative strategies knowing that if the targeted behaviours do change for the better, then the innovation, though risky, will have been a great investment and could lead to major steps forward!

Having prioritized the behaviours you want to target, it is now simply a matter of transferring this prioritization on to the behavioural objectives you established to address these behaviours.

SMART Objective analysis

If your team has creatively mixed and matched these five different analytical processes, they should now have a short list of feasible behavioural objectives. Your final analytical next step is to smarten them up (the objectives, not your team!).

Let's assume that the four objectives you originally hoped to achieve have been through your analytical mill. Based on this analysis, you have decided to drop one objective (the use of drum covers because you need more research to create a mosquito-proof cover) and have reduced another (communities have told you that they don't want copepods in their water tanks but are happy with copepods in their wells).

You know need to assess whether these modified objectives are SMART (Box 4.7).

BOX 4.7 • SMART OBJECTIVE ANALYSIS

- *Specific* – Does the objective clearly state what is desired in terms of behavioural result/s?
- *Measurable* – Are measurement criteria in terms of quality, quantity, timeliness, and/or cost specified?
- *Appropriate* – Are objectives culturally and locally acceptable?
- *Realistic* – Are objectives within realistic control of the targeted individual or group but ambitious enough to challenge?
- *Timebound* – Is the time (and/or milestones) by which the objective is to be achieved stated?

So now you might restate your objectives as follows:

- Within two years from now, to sustain the effective use of copepods by all well-owners in 20 rural villages in [district name].
- By [year], to increase the percentage of caregivers living in [city name] seeking clinic-based diagnosis within 24 hours of fever onset in children aged under 14 years, from 55% to 80%.
- Between March–October [year], to prompt 1000 householders in [place name] to prevent any tyre that is not attached to a car from accumulating water.

Each objective is now hopefully more **specific**. Each is more **measurable** in that progress can be assessed in terms of behavioural and/or entomological impact. We assume that your team has done its homework to examine whether each objective is locally **acceptable**. Each seems reasonably **realistic**. And each clearly states a **time period** for achievement. **N.B.** You may want to create *sub-objectives* that represent smaller, more manageable steps or phases that, once all complete, ensure the main objective has been achieved.

Even as you read these objectives you may still notice something that needs changing to make them more SMART. What changes would you make? Writing behavioural objectives is not as easy a task as many planners and managers believe. When you write your own objectives, always present them for rigorous peer review as this will always improve them.

TOOL 1 • USEFUL BOOKS, REPORTS, ARTICLES, AND WEB SITES

TOOL 2 • CONDUCTING FORMATIVE RESEARCH

TOOL 3 • SOCIAL MOBILIZATION AND COMMUNICATION STRENGTHS AND WEAKNESSES CHECKLIST

TOOL 4 • ANALYTICAL METHODS FOR SETTING BEHAVIOURAL OBJECTIVES

TOOL 5 • TEN IDEAS FOR ACHIEVING THE OPTIMUM BUDGET FOR SOCIAL MOBILIZATION AND COMMUNICATION

TOOL NUMBER 5. Ten ideas for achieving the optimum budget for social mobilization and communication[1]

Idea 1. Plan on planning

Our guess is that at least half of all expenses dedicated to social mobilization and communication are unplanned, in the sense that money is spent without thinking about how it fits into the big picture of dengue prevention and control. Many programmes develop social mobilization and communication strategies based on ideas generated in an air-conditioned office in a capital city, on the whim of a consultant, or on previous or last year's activities and budget with just a few modifications. Programmes often reprint their four-colour flip-charts, renew their communication consultant's contracts, store large quantities of videos, or spend money on fancy posters without any idea of whether these are good investments.

If you and your programme make a commitment to spend **nothing** on social mobilization and communication without first knowing what behavioural results you are trying to achieve and why, then you will avoid wasting resources (staff, time, materials, money) on activities that don't have much impact on behaviour. Because many don't. The more time you spend developing a strategy based on formative research and organizing your programme guided by this strategy, the more cost-effective and economical your programme will be.

Idea 2. Budget last

Budgeting is best done once you have worked out what your ideal Strategic Implementation Plan looks like. Try not to constrain your creativity by worrying too early about budget. Be led initially by your behavioural objectives not by budgetary obstacles. However, in the final analysis, you will probably need to prioritize activities according to their relative impact versus cost.

Questions to ask when calculating a budget include:

- What is the ideal budget you want?
- How much of the total programme budget can you put towards the social mobilization and communication plan?
- How much of the budget comes from grants or other outside funding and how much will be paid by your organization?
- Do you need to seek additional funding before proceeding?
- Given answers to the preceding questions, can your programme develop and implement social mobilization and communication strategies at this time?

Idea 3. Conduct a systematic search for funding

Your search for funding (financial and in-kind support) should be systematic. Begin by using local resources **as thoroughly as possible**, and only afterwards seek external resources – first elsewhere in the country, and then internationally.

Local partners should also be briefed about the likelihood of international donors appreciating applications that clearly demonstrate that local resources have already been thoroughly used; behaviours, messages and materials have been pre-tested and evaluated; strategies have been piloted (see Step 15); and that items in the application have been chosen as priorities via a broad consultation process.

[1] The original inspiration for providing 10 ideas comes from: Hiam A (1997). *Marketing for dummies: a reference for the rest of us!* Foster City, CA, IDG Books Worldwide Inc.

Idea 4. Use resource mobilization expertise from the non-health sector

Public health professionals often find themselves in situations where they have to negotiate for assistance from the business sector. Few of these health professionals are skilled in the art of securing sponsorship and fund-raising. So if you don't have a staff member with the necessary skills to raise sponsorship, why not consider hiring a professional fund-raiser or establishing a small fund-raising group of business professionals adept at selling ideas and winning sponsorship from fellow business people? For example, perhaps there are some retired chief executive officers who would be happy to volunteer a little time or would be willing, for a small percentage of every dollar they succeed in raising, to help you muster your ideal budget. With their networks, experience, and personal influence, a skilled fund-raiser can tap into resources a non-business professional may take years to even locate (Box 5.1).

BOX 5.1 • FUND-RAISING IN FIJI

Aware that the government has limited resources, a Project Development Officer (PDO) was recruited to an international project supporting the National Vector-Borne Disease Control Programme in 2000. The PDO was a former Police Administrative Officer and also happened to be the ex-national sevens rugby football coach (rugby sevens being the national sport). Because of his administrative skills and widespread popularity, the PDO raised more than FJ$ 100 000 from Fiji's private sector for dengue prevention and control in just nine months to cover the costs of communication materials and mobilization events – a remarkable achievement considering the national programme's annual budget is just FJ$ 53 000 for all vector-borne diseases. Donations continued despite a national coup.

Idea 5. Examine your fixed costs

What are your fixed costs (e.g. insecticides, entomological surveillance, training, supervision, materials production)? Are you expecting any returns on your interventions (e.g. selling insecticide-treated jar covers, charging for dengue diagnosis?) Will returns from these interventions be enough to cover your fixed costs?

Box 5.2 lists reasons why you might consider charging a small price for certain technological interventions (e.g. insecticide-treated jar covers).

BOX 5.2 • POINTS IN FAVOUR OF CHARGING A SMALL PRICE FOR TECHNOLOGICAL PRODUCTS

1. People value what they pay for more highly than what they obtain free.
2. People feel more comfortable in being able to provide at least some of their needs themselves, instead of depending on government hand-outs or charity.
3. The commercial distribution system can be quickly put to work to serve many people who may not be reached by others.
4. Charges help to support activities and to ensure that they continue if donor assistance ends.
5. Smuggling of products to other countries for quick profit may occur.

SOURCE: POPULATION REPORTS (JULY–AUGUST 1985). *CONTRACEPTIVE SOCIAL MARKETING: LESSONS FROM EXPERIENCE*. BALTIMORE, MD, JOHNS HOPKINS UNIVERSITY, POPULATION INFORMATION PROGRAMME (SERIES J, NO. 3).

Some changes to programme activities brought about by a new-emphasis social mobilization and communication for behavioural impact may actually result in substantial savings, such as the money saved when programmes discourage the use of insecticidal spraying (except in emergencies) or cut-back the need to conduct

entomological surveillance, data from which are generally not used appropriately. In addition to cutting fixed costs for insecticides, effective social mobilization and communication strategies (developed by following this Guide!) could eventually reduce other health service costs by reducing morbidity and mortality.

Idea 6. Target your audience

Most programmes waste much of their effort on people or organizations who will never change their behaviour or who join as partners because their environment does not allow them to or who shouldn't be partners in the first place. Think, for instance, about the waste involved in broadcasting a TV advertisement that thousands or millions view, when only a fraction of that audience is your target. We discuss targeting in Step 6.

Idea 7. Be wary of the seductive charms of "production values"

Consider this story. Recently while working in South Africa, a health official and a COMBI specialist were discussing the process of selecting an advertising agency. In the conversation, the health official began describing a "wonderful television advertisement" she had seen. She described the scene of a car travelling through tree-lined highways, etc., etc., and coming to a stop at a cliff, and so on. And then she said, "That was a great ad. Let's get that agency". The COMBI specialist asked, "What was the name of the car being advertised?" She paused for several seconds, thought for a while, and then muttered, "You, know, I don't know; but it was a damn good advert".

This is the danger of clever, creative advertising. And many of us are sweetly and understandably seduced by what we call "production values", those dimensions of an ad that would make one shout, "Wow! That's a wonderful ad". But in due course we learn that advertising contributes little to achieving and sustaining behavioural impact. Not all clever, creative, well-produced advertisements are losers; but we just need to be mindful of the seductive charms of "production values".

Advertising agencies in many countries can spend significant monies on production of TV spots. Some even go as far as hiring European directors to come in and shoot and edit spots. Vast sums of money can be spent hiring famous spokespersons, such as well-known actors and actresses. There is a common perception that famous talent (such as a film or sports star) can sell almost anything. This is not the case. One has to be very careful in selecting who becomes your spokesperson. The COMBI perspective would suggest that while famous talent might be helpful, it is far more important to have as a spokesperson a credible medical/health source to establish the rationale for the behavioural response being encouraged. And in turn this can be supported by famous people endorsing the behavioural request. But to rely solely on famous talent would be unwise.

Keep the advertisements simple; and engage the consumer in an earnest, intimate consideration of the behavioural recommendation, using credible spokespersons. One urges simplicity in the production of radio or TV spots. This is not a moment for fanciful creativity and gimmickry, or song and dance. It is a moment for intimate, credible, engaged communication with the consumer. With radio and television, despite the large audience, in the end one is chatting with just one other person.

There is always a less expensive mobilization or communication alternative. It just takes creativity and a risk-taking spirit to find it. So apply your creativity to see if there is a smaller-scale way to produce that intervention or perform that communication process. For example, consider searching for a low-cost supplier who can

make the product for you in small batches. Even if the total costs are slightly higher, your fixed costs will be much lower because you won't have to advance-order in quantity and then store extra units. Or find a distributor who can deliver the intervention for less cost that normal health service products are distributed. How, for instance, do canned drinks get to remote villages? Could the distributor help your programme?

Idea 8. Ask "What is it going to take?"

Most managers are thinking, "How can we make best use of our budget?" This is the wrong question. What if you asked the following questions at your planning meetings: "What's it going to take to have the highest level of behavioural impact? What's it going to take to be the best programme in our ministry of health this year?" You don't have to be the national programme manager to ask this question. You could ask: "What's it going to take to be the best provincial programme this year?"

Does the following sound familiar? "We don't have the budget to be the best". Or "We don't have the budget to dramatically improve our behavioural impact". Money. The reason for not being the best programme in the Ministry of Health is always related to money. It's never: "We don't think big enough". It's never: "We don't have enough enthusiasm". It's never: "We don't have good enough ideas".

What if you were asked: "How much money would you need to become the best?" Your answer might be a bit vague. You probably haven't thought about it; you're probably too focused on making your budget goals or improving a little. But you may also be a little afraid. What if you did have enough money to become the best and you still didn't make it? It's safer to be mediocre.

Becoming the best takes more than money. When lack of money is mentioned, then it's time for some creativity. A creative new behaviour that improves upon current practices by using local resources, an appealing package design, a clever approach to point-of-service promotion, a new way to communicate the message – any such innovations can help you to achieve widespread behavioural impact from small-scale investments.

Idea 9. Concentrate your resources

Don't spread yourself thin. Concentrate your staff, or your distribution points, or whatever you do in your programme, into certain areas or periods of time. Of course, the epidemiological context in which your programme is operating may not allow you to concentrate on particular regions, but carefully timing interventions is usually possible (see pages 48–49).

Idea 10. Roll out sequentially

Rolling out sequentially is a good way to concentrate your resources. The idea is to roll out a new intervention segment by segment (see page 37) or region by region, rather than trying to introduce it everywhere at once. You can roll out an expensive social mobilization and communication strategy in one or two communities, and then wait for your returns from this "investment" (e.g. increased political commitment, higher levels of private sector investment, behavioural impact) before funding the programme in additional regions. If you are patient, you will be able to fund a much higher level of social mobilization and communication and achieve a far greater impact than your current budget would seem to allow. Again, your epidemiological situation may not allow you to roll out, but if or when it does, this approach is useful to optimize your budget.