A woman wearing a headscarf is sitting on the ground by a body of water, looking down. The scene is illuminated by the warm, golden light of a sunset or sunrise, with reflections on the water and a tree trunk visible on the right side.

Dengue

Turning up the volume
on a silent disaster

Over 90 per cent of disasters around the world go unnoticed – in silence. They're too small, too inconvenient or too easily overshadowed by other events. But for the millions of people they affect, these disasters are not silent. Often, the people whose lives are changed by these recurrent disasters are already in vulnerable situations.

In February and March 2013, the IFRC, 11 European National Societies and the European Commission's Humanitarian Aid and Civil Protection department joined together to highlight some recent silent disasters and our work responding to them. Through this month-long communications campaign, we turned up the volume on silent disasters and the importance of helping prepare people not only for the headline-grabbing disasters, but also the more frequent silent disasters. These disasters are anything but silent to those who must live with their effects.

In 2014 and beyond, the IFRC will be turning up the volume on other silent disasters, dengue being one of them.

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Cover photo: With no vaccine or antidote the only effective solution to stem dengue fever outbreaks is through public awareness. Teams deployed by the Dhaka municipal council have been running an awareness campaign via the media as well as fumigating areas where standing water poses a risk, but safeguarding a population of 11 million citizens is no easy task. Yoshi Shimizu/IFRC

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**Dengue: Turning up the volume
on a silent disaster
03/2014 E 500**

Follow us:



“Dengue is preventable and evidence shows it can be contained. During the 1950s and 1960s a strategy adopted by the Pan-American Health Organization to remove *aedes aegypti*, the vector responsible for dengue transmission, successfully reduced and in certain cases eliminated dengue in the Americas. We need a renewed commitment to integrated programming that includes improved management and diagnosis, increased awareness and community participation in controlling the vector and enhanced environmental sanitation. We aim to prevent dengue from ever returning to today’s level.”

Walter Cotte

Under Secretary General
International Federation of Red Cross
and Red Crescent Societies



1960s

15,000
dengue cases
per year

9 COUNTRIES

Philippines, Thailand,
India, Malaysia,
Singapore, Vietnam,
Myanmar, Laos
and Cambodia

390
million
dengue cases
per year

Present day

MORE THAN 100 COUNTRIES

THE AMERICAS
(caseload in 2010:
40.5 million)

AFRICA
(caseload in 2010:
48.4 million)

ASIA-PACIFIC
(Asia: caseload
in 2010:
204.4 million
and Oceania:
0.55 million)

THIRTY MOST ENDEMIC COUNTRIES

Brazil, Indonesia, Viet Nam, Mexico, Thailand,
Philippines, Colombia, Malaysia, Honduras, Costa Rica,
Sri Lanka, Bolivia, Cambodia, Myanmar, El Salvador,
India, Peru, Paraguay, Lao, Puerto Rico, Martinique,
Guadeloupe, Singapore, Guatemala, Dominican Republic,
Ecuador, French Guiana, Pakistan and Argentina

Source: WHO; Bhatt S, Gething PW, Brady O et al. Nature; Anders K.L. and Hay Simon. Lancet Infectious Disease

Executive summary

Over the past 50 years, dengue has spread from nine countries to over one hundred countries, a 30-fold increase in global incidence, making it the most rapidly-spreading vector-borne disease.

Today, almost half of the world's population lives in dengue-endemic countries. The disease burden has risen from 15,000 cases per year in the 1960s¹ to 390 million,² more than half the population of Europe. Once seen as an urban and peri-urban disease, dengue is increasingly becoming a challenge in rural areas as well.

Despite the unprecedented increase in dengue cases, **global media attention has been almost non-existent.** In 2010, the Haiti earthquake received nine times more coverage than dengue. Media neglect has contributed to insufficient donor support for long-term prevention activities. While official development assistance has increased almost two and a half times since 2000, reaching a peak of 128.7 billion US dollars in 2010,³ the financial support for dengue-related projects has remained low, with money being made available mostly for isolated outbreak response.

The lack of investment in dengue prevention and control has been mirrored by a lack of policy dialogue within the international community and among governments. While dengue is covered under vector-borne diseases for World Health Day in 2014, the lack of dedicated events, major announcements or a commitment to tracking data and progress in the fight against dengue demonstrate that this silent disaster continues to have a low profile among policy-makers.

Though dengue affects all segments of society, the burden is higher among the poorest and most vulnerable. Overall, the costs of dengue can be double, or even triple, the average monthly income of a family.⁴

This clearly has a significant economic impact upon the most vulnerable whose monthly income in many cases is significantly lower than the direct costs of the disease.

The facts about dengue and methods to contain and reduce it must be brought into the open. The International Federation of Red Cross and Red Crescent Societies (IFRC) is turning up the volume on this silent disaster and the importance of helping the most vulnerable people and communities suffering needlessly from a growing dengue epidemic.

The IFRC urges a shift in approach by all stakeholders from responding to isolated outbreaks to investing in long-term, integrated programming including community-level initiatives leading to sustainable behavioural change. This can be done by empowering communities with essential knowledge concerning hygiene and environmental sanitation, training and engaging community health volunteers to identify and refer suspected dengue cases and improving community-based disease surveillance. The IFRC further calls on governments, academic institutions and civil society organizations to collaborate on research that will provide critical information on the relationship between climate change and dengue. This will allow us to build a common approach to reducing dengue morbidity and mortality so that this debilitating disease does not continue to take its toll on vulnerable communities.

“ Knowledge and resources at community level must be fully harnessed in the fight against dengue through integrated health programming. The most effective way to provide preventive and curative services on a large scale is via the community-based health workforce. The role of community health workers and volunteers is increasingly recognized for its potential to meet the most urgent challenges in the context of prevention and care and its contribution towards universal health coverage. ”

Dr. Stefan Seebacher, MD, MPH, MNM, Head of IFRC Health department



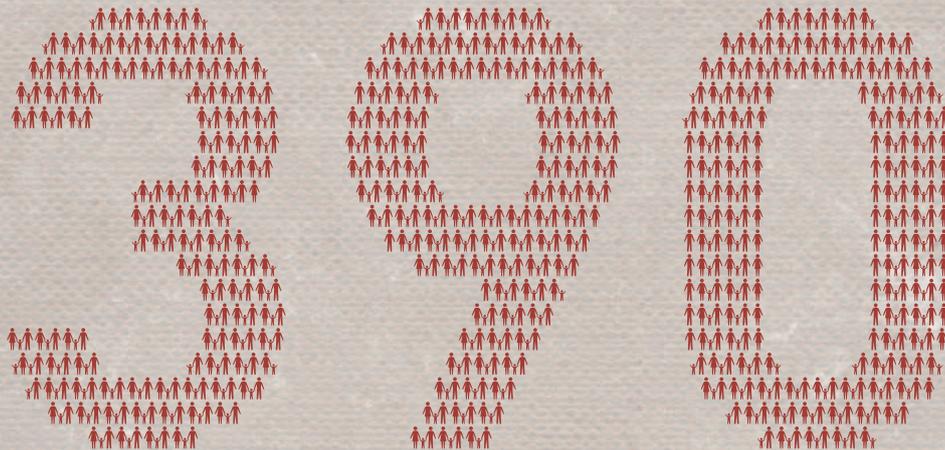
Today over 40 per cent of the world's population is at risk from dengue and severe dengue. About 2.5 per cent of those affected from dengue die. Without proper preventive health and care services fatality rates can exceed 20 per cent. Early diagnosis and access to proper health services can bring down the mortality rates to below one per cent.



A call to action

In order to reduce the overall burden of dengue, the IFRC is **turning up the volume** by calling on:

- **Governments** to strengthen capacity to respond to the dengue caseload and harness integrated community health services (including the community-based health workforce)⁵
- **Donors** to support and sustain delivery of integrated community healthservices that include training and community engagement on life-saving hygiene and environmental sanitation practices
- **Partners⁶** including National Red Cross and Red Crescent Societies to advocate for and build innovative partnerships to:
 - improve disease surveillance
 - conduct essential research to establish the true burden of the disease and the impact climate change may have on its spread
 - ensure continued research for the development of a dengue vaccine
 - sustain community workers and volunteers to provide basic preventive health and care services and foster community-based action to enhance the interface between the community and formal health system.



MILLION CASES



What is dengue?

**DENGUE DOES NOT HAVE A CURE
BUT CAN BE MANAGED**



Dengue is a mosquito-borne viral infection.

The infection causes flu-like illness and can occasionally develop into a life threatening form called severe dengue.

The second time you get dengue the symptoms can be more severe.

How does it spread?



The mosquito typically bites during the day, particularly in the early morning and at dusk.

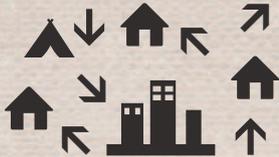


The mosquito breeds mostly in man-made containers.

Why is dengue spreading?



**POPULATION
GROWTH**



**UNPLANNED
URBANIZATION**



**LACK
OF SANITATION**



LONG-DISTANCE TRAVEL
120 MILLION TRAVELLERS AT RISK



**INEFFECTIVE
MOSQUITO CONTROL**

What is the human impact?

40%

of the world's population
is at risk



Every **one minute**
someone is admitted
into hospital

01

Every **25 minutes**
a young life
is lost to dengue.

25

Dengue: A silent disaster

Dengue is a major public health issue, described by the IFRC as a silent disaster. It has catastrophic consequences for the individuals, families and communities affected. A long-term strategy covering effective vector control, access to health services and early clinical management are steps towards ensuring that people are no longer abandoned to unnecessary, silent suffering caused by the disease.

A silent disaster is typically a small or medium-sized, sudden or slow-onset disaster or crisis with fewer casualties than major disasters, but nevertheless with catastrophic consequences for the individuals, families and communities affected. Silent disasters invariably go unreported in the international media and are generally out of the public eye. They are frequently recurrent and regularly fail to attract sufficient funding and resources to provide essential humanitarian aid for those affected.

For silent disasters and crises, we not only need to provide immediate relief and recovery assistance, but also to support preparedness measures to reduce vulnerabilities and increase the resilience of those people and communities who regularly battle with silent disasters.

Dengue is a silent disaster that is escaping the attention of media, donors and policy makers.

Dengue and severe dengue (previously known as dengue haemorrhagic fever)⁷ affects most tropical and sub-tropical countries in Asia-Pacific, the Americas, Africa and the Eastern Mediterranean. The overall disease burden varies from region to region, with Asia-Pacific housing 75 per cent of those at risk. Little is known about dengue incidences in Africa due to low awareness by healthcare providers, other prevalent febrile illnesses and lack of diagnostic testing and systematic surveillance.

Recent studies suggest that the annual caseload of dengue could be as high as 390 million, three times the WHO estimate.⁸ It is a major cause of morbidity and mortality – approximately 500,000 people (mainly children) with severe dengue require hospitalization every year. The proportion of deaths among those who contract the disease is significant. WHO estimates that 2.5 per cent of those affected succumb to the disease annually. However, due to the combination of lack of awareness about the disease and timely and proper diagnosis, the case fatality ratio can be as high as 20 per cent.

It is difficult to attribute an average global cost to the illness since the dengue burden remains largely hidden due to poor surveillance, severe under-reporting and misdiagnosis. It is often masked by symptomatically similar illnesses. All the same, studies indicate that dengue in the Americas alone costs 2.1 billion US dollars annually and that the South-East Asian economies could lose 2.36 billion US dollars due to the disease.⁹ Globally the number of disability-adjusted life years¹⁰ lost to dengue per year is estimated at 528 per million.¹¹

The economic cost of dengue and severe dengue varies between countries due to the differences in the burden of the disease and in expenditure towards control and case management. Studies carried out in eight countries¹² suggest that the overall costs of a non-fatal ambulatory case averaged 514 US dollars and a non-fatal hospitalized case at a staggering 1,394 US dollars.¹³ It is estimated that, combining ambulatory and hospitalized cases and including the risk of death, the overall cost of a dengue case is 828 US dollars. In addition, outbreaks can overwhelm hospitals and health systems can get overstretched, disrupting the management and flow of patients with other diseases, adding to the pressure for limited health services.

Dengue affects the most vulnerable

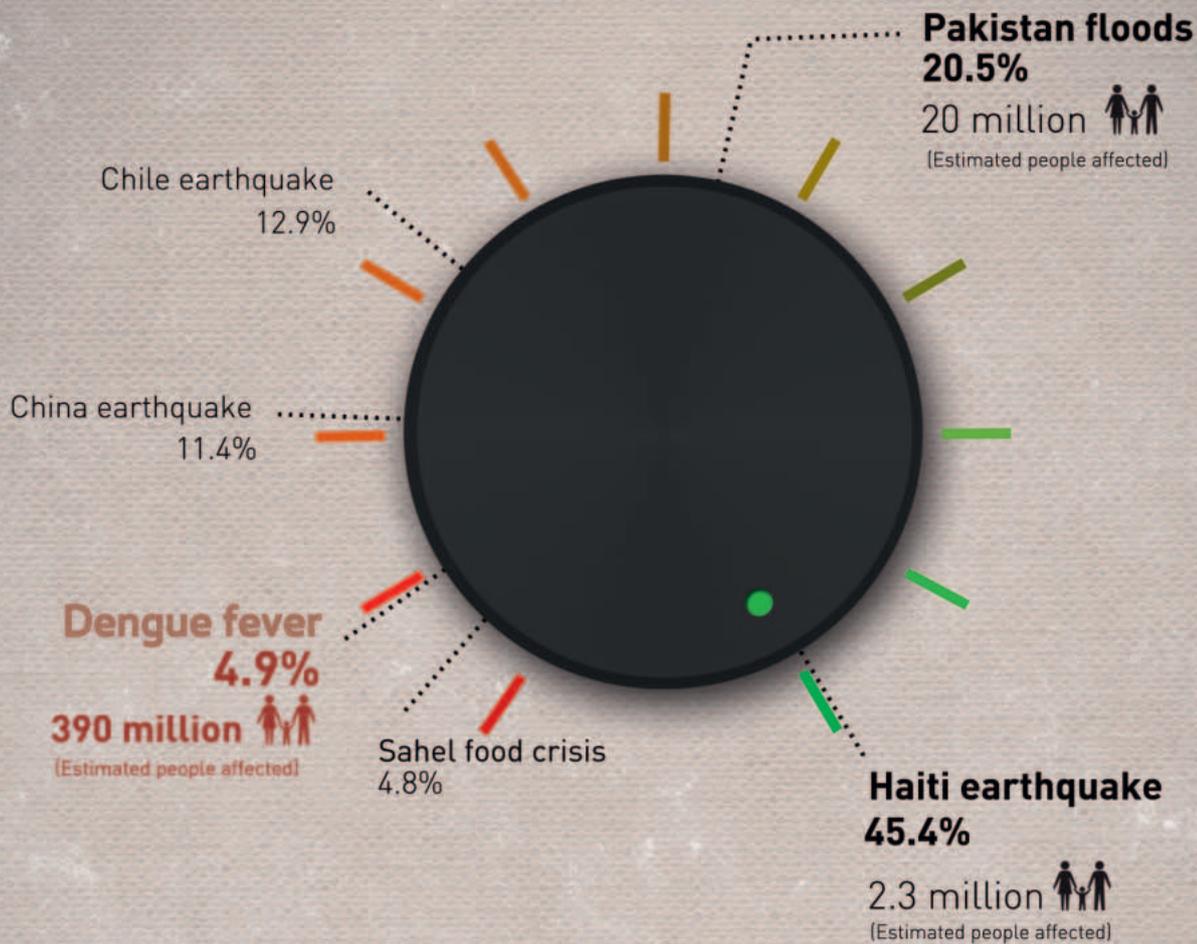
Though dengue affects all segments of society, the burden is higher among the poorest and most vulnerable since they are more likely to live in areas with inadequate water supply and sanitation, where conditions are favourable for the vector to multiply. Furthermore, they have limited access to healthcare and information regarding the disease.

Estimates suggest that approximately 60 per cent of dengue-related costs are not directly associated with healthcare expenditure. On an average, between 14.8 and 18.9 days are lost as the patient is incapacitated or a family member needs to stay at home to care for children or sick relatives.¹⁴ Loss in productivity owing to illness and premature death account for indirect costs.

It is estimated that on average 45 per cent of the direct and indirect costs associated with dengue are borne by a patient and his/her family.¹⁵ In countries like Cambodia, however, these costs may be up to 90 per cent. Overall, the costs can be double, or even triple, the average monthly income.¹⁶ This clearly has a significant economic impact upon the most vulnerable whose monthly income in most cases is significantly lower than the direct costs of the disease. This

Turning up the volume on dengue a silent disaster

Proportion of the combined media coverage
for selected disasters in 2010



Highlights

- The Haiti earthquake received **45.4%** of the combined media coverage (print, news websites and blogs) of the 2010 selected disasters in 160 countries
- Dengue fever ranks fifth out of six selected disasters with a Media Prominence Score of **4.9%**, slightly ahead of the Sahel food crisis

VS In comparison

- 22** times less media coverage than the Haiti earthquake in the Americas in 2010
- 5** times less media coverage than the Pakistan floods in the Asia Pacific region
- 9** times less media coverage than the Haiti earthquake worldwide

Regional media coverage



- In the Americas, **81.4%** of the media coverage is focused on the Haiti and Chile earthquakes
- In the Asia Pacific region, **67.9%** of the media coverage is about local disasters, namely the Pakistan floods and the China earthquake

Economic impact of dengue



Americas



South-East Asia



Non-fatal ambulatory cases



Non-fatal hospitalized cases



Hospitalized cases cost three times of what an ambulatory case costs



On average **45%** of the health costs are borne by the patient or the family



Costs can be **triple** the family's monthly income



Ambulatory cases

14.8 days lost



Hospitalized cases

18.9 days lost

Note: The statistics used reflect both direct and indirect costs incurred due to dengue. Direct costs are those associated with the provision of healthcare. Indirect costs are those associated with the loss in productivity from illness and death.

situation is further exacerbated if those affected need to either sell their belongings or take a loan to pay for medical costs, both common occurrences. As a result of loss of income, decrease in productivity and costs incurred due to medical expenses, the economic burden of the disease erodes the resilience of the affected household.

Whilst the statistics are shocking, it is clear that sufficient investment is not going towards battling dengue. Dengue does not receive the international media attention it deserves and is, in general, out of the public eye – a silent disaster. In order to increase the resilience of individuals and their communities so that they prevent and respond more effectively to the disease we need to look beyond responding to outbreaks alone and move towards more sustainable measures to reduce risk factors.

Dengue can be controlled

Dengue has been curbed before and can be controlled once again. Evidence shows that by 1967, dengue morbidity had been successfully reduced in the Americas following a strategy adopted by the Pan-American Health Organization to remove *aedes aegypti*, the vector responsible for the transmission

of dengue. However, due to a combination of reduced political will, insufficient financing to sustain intensive control efforts and increasing decentralization of national public health authorities, the campaign lost momentum. As a result, the vector re-established itself in areas from which it had been eliminated.¹⁷

The IFRC is **turning up the volume** by calling for increased support and engagement for **long-term integrated programmes including community initiatives leading to prevention and control of dengue**. This requires commitment and action from governments, increased research, investment from donors, collaboration with civil society organizations and participation from affected communities.



Maldives

In 2011, Maldives saw a record of 2,909 cases of dengue. Through its volunteering network, the Maldivian Red Crescent is raising awareness in schools, carrying out community clean-up activities and distributing information, education and communication materials to empower communities with the knowledge to battle dengue. By 2013, the cases of dengue had decreased by 155 per cent in eight of the ten atolls where the National Society is operating. The National Society is also a part of the government's dengue task force that was established in 2012 and has a contingency plan in place to respond to outbreaks.

The Red Cross and Red Crescent approach

In the battle against dengue, knowledge is power. As auxiliaries to their governments or public authorities and with a strong volunteer base, National Red Cross and Red Crescent National Societies provide a vital interface between governments and communities. They are in a unique position to represent the needs of the most vulnerable and bridge the gap between communities and health services, thereby improving access to health. The Red Cross and Red Crescent is also developing partnerships with peer organizations and governments to implement effective dengue prevention and control strategies.

Strengthening capacity

Through community-based programmes such as health and first aid (CBHFA), water, sanitation and hygiene promotion initiatives and risk reduction, among others, Red Cross Red Crescent is empowering its volunteers and communities with knowledge and skills to reduce health risks (including dengue). It is imperative that volunteers are recognized as a part of the community health workforce and are trained in the basics of the vector (mosquito), disease symptoms and vector control in order to communicate effectively to their communities the difference between various vector-borne diseases, mode of transmission and symptoms of dengue.¹⁸

Early identification and referral

As auxiliaries to their governments or public authorities, National Red Cross and Red Crescent Societies provide support to the most vulnerable populations to ensure access to basic services. Dengue is a debilitating disease but it can be managed effectively. For this to happen, it is important that the community health workforce, including volunteers, is aware of dengue symptoms and can detect new cases of dengue early. Every person suspected of having dengue must be immediately referred to a health professional. Early detection and referral can prevent further complications and the death of a patient.

Social mobilization and behaviour change

The Red Cross and Red Crescent volunteers play a key role in community outreach activities. Volunteers mobilize communities to raise awareness about the disease, how it is spread, how to protect themselves from dengue and how to recognize symptoms. In doing so, they assist communities to adopt behaviour change that reduces the risk factors to both the individual and the community, which in turn has a direct impact on the disease transmission.

Surveillance

Accurate data on dengue cases is key to controlling the incidence of the disease, informing the population about the danger and preventing outbreaks. Surveillance is crucial in providing the information necessary for risk assessments and in taking prompt action to control the vector. Even though it is difficult to establish early warning systems to predict dengue outbreaks, it remains important to look at annual peaks of the disease and tailor the planning to target pre-seasonal, seasonal and post-seasonal peaks. While disease surveillance is often primarily the responsibility of governments, information on disease patterns should be shared collaboratively with organizations working on dengue prevention and control. This applies during an epidemic or outbreak, but also generally, to ensure that those who are working on prevention and control are aware of any longer-term seasonal or geographic shifts in disease patterns. In addition, volunteers and community-based organizations can aid local authorities in data collection by reporting cases. Improved surveillance data would not only give a better indication of the true burden of the disease but also facilitate diagnosis, management of cases and contribute towards the development of a dengue vaccine.

Effective community-based vector control

Effective vector control measures are required to reduce morbidity and mortality associated with dengue. Controlling the vector reduces dengue transmission, which in turn will decrease the disease incidence. Most effective control strategies are simple and cost-effective to implement, especially when tools are integrated.¹⁹ Dengue vector control programmes are sustained mainly by community-based initiatives. For this reason it is crucial that the population at risk understands the importance of environmental sanitation. Environmental sanitation to reduce vector-breeding sites is particularly effective against diseases transmitted by vectors with a short flight or mobility capabilities, like *aedes*. By tackling this vector reproduction, not only is the risk of dengue reduced but also that of chikungunya²⁰ and yellow fever (prior to vaccination implementation). With close links to communities and large volunteer bases, Red Cross and Red Crescent is well-placed to scale up their community-based environmental sanitation activities.²¹

Reducing the burden of dengue is our collective responsibility

Dengue requires strong commitment, investment and coordination among governments, donors, civil society organizations, communities and individuals alike

HOW



Individuals and communities

- Actively engage in collective community response initiatives leading to positive behaviour change



Community health workforce

(including volunteers)

- Strengthening capacity required
- Early identification and referral
- Social mobilization and community engagement leading to behaviour change
- Effective vector control



Health services

- Strengthening capacity required
- Diagnose and manage dengue cases
- Integrated surveillance and preparedness

Environmental sanitation

Clean-up campaigns; keeping water containers covered; protecting or sealing off natural water sources



Building strategic partnerships

Population growth, urbanization, lack of sanitation and increased travel are spreading the disease to new places where it never occurred before. Given the magnitude of the problem, a coordinated effort is required at international, regional, national and community levels in an effort to decrease the burden of dengue, through initiatives such as the Association of Southeast Asian Nations dengue day. Continuous awareness-raising and educational activities must be accompanied by action to address water and sanitation issues such as inadequate waste management and sewage systems at the community level. For this it is necessary to collaborate and coordinate efforts with local authorities. The building of strategic partnerships with government, civil society and peer organizations is valuable: it not only helps to establish an effective platform for advocacy but is also cost-effective and leads to an increase in community reach.

Climate variability and change

Climate change means health risks are changing, but currently there is limited research and evidence base to establish the impact it will have on dengue trans-

mission. Since dengue is linked to climate – the vector and the virus in the infected mosquito replicates faster, bites more frequently and survives longer in higher temperatures – it is highly probable that it will continue to be introduced to new geographical areas. Further, even though the disease has a seasonal peak, dengue can occur any time of the year. The Red Cross/Red Crescent Climate Centre is a part of the International Consortium on Dengue Risk Assessment, Management and Surveillance (IDAMS) and is involved in research to study the extent the changing climate may have on dengue transmission. A better understanding of whether climate change increases the burden of dengue is important for awareness campaigns, surveillance, action on the ground to reduce morbidity and mortality and the development of effective prevention and outbreak control strategies.

The IFRC is **turning up the volume on this silent disaster** by calling on donors, governments and partners to **raise awareness, continue with research, strengthen integrated community health systems and support and sustain the community health workforce.**

Guatemala

Juan never imagined that dengue could have such a devastating impact on his family when his wife Maribel was diagnosed. At the time she was pregnant with their first child. Juan works as a labourer with an agricultural company. His wages barely cover the cost of food and his wife's antenatal care. Initially he reached out to his neighbours for help and medicines since he could not afford to take Mirabel to the nearest hospital, 45 minutes away. Given the seriousness of the situation, however, he eventually had to borrow money to take Mirabel to the hospital. The debt incurred due to dengue will take a substantial portion of his future wages, further eroding their already fragile economic situation.



Together



Governments

+



Donors

+



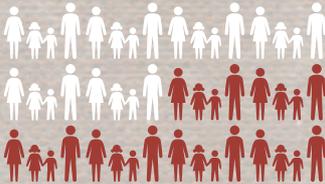
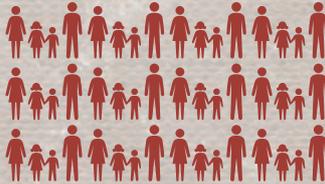
Communities and Red Cross Red Crescent volunteers

We will contribute to WHO targets of:

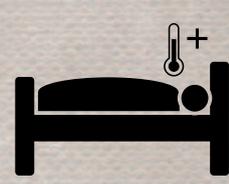
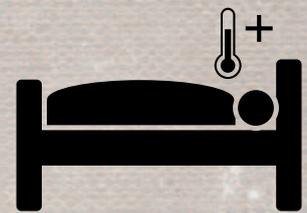
ESTIMATING
THE TRUE BURDEN
OF DENGUE BY 2015



REDUCING DENGUE
MORTALITY BY AT LEAST
50 PER CENT BY 2020



REDUCING DENGUE
MORBIDITY BY AT LEAST
25 PER CENT BY 2020



Defeating dengue is possible

Reducing the burden of dengue is not the responsibility of any one actor. This global challenge demands a strong response from governments, donors and civil society alike in prioritizing dengue prevention and control. Empowering communities is essential in reaching the most vulnerable individuals and households and reducing the dengue burden. Together we can build more resilient communities and reduce the unnecessary mortality and morbidity caused by dengue.

From a public health perspective, the health sector plays an important role in raising awareness and bringing available, accessible, acceptable and quality care within the reach of the most vulnerable populations. Together, knowledge and information enable the population at risk to access health services, and engage in behavioural change.

The necessity of informing people about the threat of dengue and ensuring they know how to protect themselves, identify with the symptoms and manage their environment is our collective responsibility. Working as auxiliaries in coordination with governments, National Red Cross and Red Crescent Societies, with their large volunteer bases, are an important resource in providing populations, including hard-to-reach communities, with information and access to health.

Donors play an important role in providing funds to bring about change. Strategic partnerships with civil society and other peer organizations mean that all actors committed to change can join forces to achieve effective measures to prevent and control dengue.

Together, governments, trained and supported community health workforces (including volunteers), donors, the research community and civil society can prevent dengue-related deaths and reduce its economic burden on already vulnerable populations.

Dengue is a serious public health problem worldwide and governments, health authorities, local institutions and affected communities must be involved in dealing with it.

Fernando Fernández, ECHO's Regional Health Coordinator for Latin America and the Caribbean

With funding from the European Commission's Humanitarian Aid and Civil Protection department (ECHO) and the IFRC, the National Red Cross Societies in Colombia, Costa Rica, Guatemala, Honduras and Nicaragua responded to the 2013 dengue outbreak reaching 176,900 people.



Timor-Leste

To build the safety and resilience of vulnerable communities, Timor-Leste Red Cross Society uses the community-based health and first aid (CBHFA) approach to empower volunteers and individuals to take charge of their own health. By using simple tools, adapted to the local context, communities are mobilized to address and prioritize their health needs, including dengue prevention and control. CBHFA activities have been implemented in 12 of Timor-Leste's 13 districts, through 35 CBHFA trained facilitators. An estimated 50,000 people have been reached so far through this programme.



Case studies

Nicaraguan Red Cross: Efforts to increase community reach to battle dengue

In 2013, six departments of Nicaragua – Chontales, Madriz, Chinandega, Matagalpa, Managua and León – recorded the highest incidence of dengue since the same period four years before, affecting communities already living in dire poverty. The Ministry of Health reported 14 deaths and 57 cases of severe dengue. Dengue had affected 4,000 people.

In response to the outbreak, the Nicaraguan Red Cross collaborated with health authorities in the affected departments to raise awareness about the disease. Silvio Pirado, Vector and Rodent-Borne Diseases technician at the health centre in Malpaisillo, León says, “We have had potential and positive cases of dengue in this municipality. The Red Cross has supported us and that has been very helpful for our municipality in order to contain the disease.” He goes on to say, “Together with the Nicaraguan Red Cross, we have advanced in larval control and the elimination of breeding sites.” Households are also visited to spread information on the symptoms of the disease and preventive measures to take.

In the department of Madriz, the Red Cross branch is working with the municipality of Somoto. Armando Morales Manzo, Managing Director of the branch comments, “In addition to the approach that we have had with municipal authorities and the Ministry of Health, we have also approached the Ministry of Education. Teachers have been trained to assist in sensitizing the population.”

Azucena del Socorro, a teacher at a school in Somotillo, participated in the Madriz training workshops. Somotillo is a community with a high infection rate of dengue, malaria and leptospirosis. She shares the knowledge acquired from the workshops with students during class time as well as organizing meetings with parents to raise awareness about the importance of keeping houses and yards clean. Del Socorro explains to her students and their parents how drink bottles, and even papers thrown on the floor, can be breeding sites for *aedes aegypti* mosquitoes that transmit dengue. She stresses that this is a joint effort whereby everyone is working together to reduce the risk of the disease.

The Nicaraguan Red Cross has promoted community participation as being key in preventing and controlling dengue. Doctor Karla García-Rivas, National Health Director of the Nicaraguan Red Cross, explains that it has only been possible to carry out this work due to the willingness and the level of trust the community has shown by letting Red Cross volunteers into their homes to raise awareness.

The Nicaraguan Red Cross continues to work jointly with the government in efforts to mitigate and reduce dengue. Ensuring coordination and collaboration at different levels is critical. Each stakeholder provides a different type of complementary support, enabling more coverage and a more comprehensive response.



Viet Nam Red Cross Society: Dengue prevention

In the Binh Chanh district of Ho Chi Minh City, 70-year-old Nguyen Thi Kieu Nga, a Viet Nam Red Cross volunteer, makes house calls and explains the symptoms of dengue fever and how to identify the *aedes aegypti* mosquito. He hands out leaflets to householders: “No *Aedes* Mosquito, No Larvae, No Dengue!”

Dengue fever has been a major public health issue in Viet Nam for decades, but the rates of both infection and death have been reduced as a result of vigorous national efforts in prevention and control. Despite the fact that community health interventions halved the overall number of infections and deaths from dengue in 2011 compared to 2010, the number of infections in Ho Chi Minh City itself doubled during the same period. Reasons for this include rapidly expanding and densely populated urban areas that are full of ideal breeding sites for the dengue mosquito. This mosquito can breed anywhere from puddles on building sites, barrels of drinking water, stagnant drains to vases of flowers in peoples’ homes. Preventing the mosquitos from breeding around households is crucial to stopping the spread of infection. However, people are generally unaware of measures to take at a household level to destroy breeding grounds and protect themselves against dengue.

To raise awareness among the population, the Viet Nam Red Cross Society volunteers conducted activities on a large scale and distributed leaflets to households and to school students, put up posters on the symptoms of dengue and explained how individuals can prevent mosquitos from breeding around their houses.

Results of baseline and endline surveys showed that more than half of those surveyed were aware of dengue fever due to the activities carried out by the Viet Nam Red Cross Society. Individuals and households reached had increased knowledge of the symptoms of dengue and how to treat it. Further, there was increased awareness of the actions required to eradicate breeding sites: 91 per cent of those surveyed said they would try to prevent mosquito breeding in and around their households through targeted actions like protecting their drinking water supplies (through regular cleaning and adding little fish to the water), removing stagnant water from drainage and plants, supporting environmental cleaning campaigns and sleeping under bed nets during the daytime.

The Viet Nam Red Cross Society has developed a contingency plan that has enabled it not only to respond to outbreaks but also to scale-up prevention activities. To maximize the effectiveness of their work, the National Society uses seasonal rainfall patterns as a part of their contingency plan to determine the necessary course of action prior to the peak of the dengue season.



Paraguayan Red Cross: Urbanization fuelling spread of dengue fever

Over the past few years, Paraguay has seen an increase in dengue fever cases during the rainy season, causing loss of life and endangering the health of the most vulnerable. Although prevalent throughout the country, WHO reports that the highest rate of dengue is concentrated in urban areas where 60 per cent of the population resides.

According to the Paraguayan Ministry of Health, in April 2011, the country suffered its worst dengue outbreak in history with a total of 38,206 confirmed cases and 62 reported deaths. The highest numbers of dengue cases and fatalities were reported in the department of Alto Parana followed by the Metropolitan area, encompassing ten cities and home to more than two million inhabitants.

Urbanization has given rise to new communities settling on the city outskirts where typical slum conditions prevail: overcrowding, a lack of solid waste management services and inadequate water supply and sewer systems. The unplanned urban growth has created ideal conditions for the increase of mosquito-transmitted diseases. This has been fuelled by the lack of awareness of water, sanitation and hygiene matters, which ties in with a lack of interest in prevention measures and low community involvement in activities that aim to prevent dengue fever and promote healthier living.

The Paraguayan Red Cross, in coordination with the municipalities and health centres, worked to reduce disease propagation through the elimination of mosquito breeding grounds, health and sanitation promotion and case detection. Operating within the framework of the national contingency plan, the initiative's main objective was to decrease both mortality and morbidity rates in Paraguay's most vulnerable areas by means of control and prevention, with a particular focus on children, older people and pregnant women who were the most affected. The National Society supported the implementation of joint actions between the Ministry of Health and the corresponding city councils for vector control and dengue fever prevention through community intervention, by providing educational information. The National Society also carried out a dengue-awareness communication campaign using different mass media outlets.

Time constraints make it nearly impossible to change a community's mind-set in the midst of an emergency operation. Communities where disease is at epidemic levels must be approached prior to potential outbreaks and reached by awareness-raising information and sustained training. Combating the proliferation of breeding grounds and lowering dengue fever incidence in Paraguay can only be achieved by on-going action in the areas of health promotion, disease prevention, educational activities, risk awareness and risk reduction.



Stephen Ryan / Irish Red Cross

Philippine Red Cross: Preparing for dengue while recovering from Typhoon Haiyan

Yvette is a Red Cross nurse stationed near Tacloban, Philippines, one of the areas hardest hit by Typhoon Haiyan on 8 November 2013. Over three months, Yvette has been training Red Cross volunteers to empower local residents with knowledge on the signs and symptoms of dengue, as well as methods of prevention.

“We cover everything from the habits of mosquitoes and the type of mosquito that carries dengue, to the importance of never leaving water containers uncovered around the home,” explains Yvette. “It can be challenging for families in these conditions, after such a large disaster, but it is essential.”

In January and February 2014, the number of dengue cases reached alert levels in Tacloban, with approximately 470 cases reported to the World Health Organisation. While recovery from Typhoon Haiyan is progressing, it takes time, and with ongoing heavy rains, poor drainage systems and uncollected garbage lying around, it is a perfect breeding ground for the dengue mosquito.

Health authorities anticipate that in many areas, while the risk factors remain, dengue will increase. In the meantime, authorities together with health teams trained by the Philippine Red Cross are doing their best to contain the outbreaks with larvicide and fogging operations, as well as debris removal.

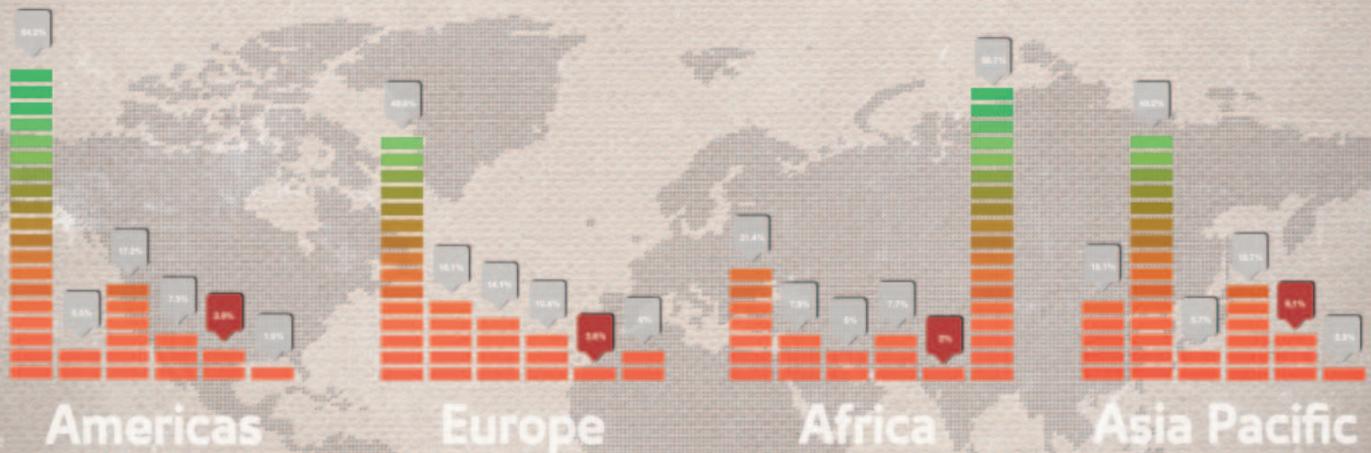
The Philippine Red Cross together with the IFRC has also prepared for the worst-case scenario of a dengue epidemic. With training being conducted by community health professionals such as Yvette, over 300 local nurses and midwives in Tacloban and Ormoc now have the most up-to-date information on dengue, as well as on acute diarrhoea prevention and control.

“The nurses and midwives are the first point of contact with communities, and fill a critical gap in the health-service delivery during this period of recovery for those affected by Haiyan,” explains Jim Catampongan, IFRC Asia Pacific Emergency Health Coordinator.



As auxiliaries to their governments National Red Cross and Red Crescent Societies can bridge the gap in providing critical health knowledge to their communities and ensure equitable access to health services for all.

Proportion of media coverage for selected disasters per region in 2010



| | |
|---------------------|-------------|
| Haiti earthquake | 64.2% |
| Pakistan floods | 6.5% |
| Chile earthquake | 17.2% |
| China earthquake | 7.3% |
| Dengue fever | 2.9% |
| Sahel food crisis | 1.9% |

• In the Americas, the Haiti earthquake received almost two-thirds of the media coverage in 2010, with a Media Prominence Score of **64.2%**. Dengue fever ranks 5th with **2.9%** of the media coverage

| | |
|---------------------|-------------|
| Haiti earthquake | 49.9% |
| Pakistan floods | 16.1% |
| Chile earthquake | 14.1% |
| China earthquake | 10.4% |
| Dengue fever | 3.6% |
| Sahel food crisis | 6% |

• In Europe, the media coverage is mostly well balanced and in line with the worldwide totals. Dengue fever ranks 6th with **3.6%** of media coverage in this region.

| | |
|---------------------|-----------|
| Haiti earthquake | 21.4% |
| Pakistan floods | 7.3% |
| Chile earthquake | 5% |
| China earthquake | 7.7% |
| Dengue fever | 2% |
| Sahel food crisis | 56.7% |

• In Africa, more than half (**56.7%**) of the media coverage is about the local Sahel food crisis

| | |
|---------------------|-------------|
| Haiti earthquake | 15.1% |
| Pakistan floods | 49.2% |
| Chile earthquake | 5.7% |
| China earthquake | 18.7% |
| Dengue fever | 9.1% |
| Sahel food crisis | 2.3% |

• In the Asia Pacific region, the Pakistan floods received almost half of the media coverage (**49.2%**). Dengue fever ranks 4th with **9.1%** of all news stories in this region.

End notes



1. Anders K.L. and Hay Simon, 'Lessons from malaria control to help meet the rising challenge of dengue' in *Lancet Infectious Disease*, 2012 December; 12(12): 977–984. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3574272/
2. Macmillan Publishers Limited. 'The global distribution and burden of dengue' in *Nature*. Vol. 496, 25 April 2013.
3. UNDP. *Towards Human Resilience: Sustaining MDG Progress in an Age of Economic Uncertainty*, p. 147. New York, September 2011.
4. Denguematters. Issue 1 – The human costs of dengue. www.denguematters.info/content/issue-1-human-costs-dengue
5. The community-based health workforce comprises all those at the community level who contribute to better health outcomes by promoting health and providing primary health care. It includes: community health workers, trained volunteers (e.g., those affiliated with Red Cross Red Crescent National Societies); community-based organizations that promote health through behaviour change communication, health education and social mobilization; actors from key sectors (e.g. water, sanitation and hygiene, agriculture, food security, shelter and education) that contribute to promoting and improving the health of communities.
6. Partners is being used as an umbrella term to include National Red Cross Red Crescent Societies, international organizations, civil society organizations, academia, the private sector, communities and beneficiaries.
7. WHO. 'Dengue and severe dengue'. Fact sheet N°117. Geneva, Updated September 2013. Available at: www.who.int/mediacentre/factsheets/fs117/en/
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9. Disease Control Priorities Project. 'Tropical Diseases Lacking Adequate Control Measures: Dengue, Leishmaniasis, and African Trypanosomiasis'. Available at: www.dcp2.org/pubs/DCP/23/Section/3154
10. Disability-adjusted life years is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death.
11. WHO. Dengue: Guidelines for diagnosis, treatment, prevention and control. Geneva, 2009. Available at: whqlibdoc.who.int/publications/2009/9789241547871_eng.pdf?ua=1.
12. The eight countries where the study was carried out between 2005 and 2006 are: Brazil, El Salvador, Guatemala, Panama, Venezuela, Cambodia, Malaysia and Thailand; WHO and the Special Programme for Research and Training in Tropical Diseases (TDR). Dengue: Guidelines for diagnosis, treatment, prevention and control. Geneva, 2009. Available at: whqlibdoc.who.int/publications/2009/9789241547871_eng.pdf?ua=1
13. WHO. Global Strategy for Dengue Prevention and Control 2012 – 2020, p. 1. Geneva, 2012.
14. Ibid, p. 12.
15. www.oxitec.com/health/dengue-information-centre/the-economic-burden/
16. Denguematters. Issue 1 – The human costs of dengue. www.denguematters.info/content/issue-1-human-costs-dengue
17. Anders K.L. and Hay Simon, 'Lessons from malaria control to help meet the rising challenge of dengue' in *Lancet Infectious Disease*, 2012 December; 12(12): 977–984. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3574272
18. IFRC and Mentor Initiative. Community-based vector control strategies: Global trend local response. Technical working paper.
19. IFRC and Mentor Initiative. Community-based vector control strategies: Global trend local response. Technical working paper.
20. Chikungunya is a viral disease transmitted by the bite of infected mosquitoes such as *aedes aegypti* and *aedes albopictus*. It can cause high fever, joint and muscle pain, severe headaches, nausea, vomiting, rash and conjunctivitis. Chikungunya does not often result in death, but the joint pain may last for months or years and may become a cause of chronic pain and disability.
21. IFRC and Mentor Initiative. Community-based vector control strategies: Global trend local response. Technical working paper.

THE FUNDAMENTAL PRINCIPLES OF THE INTERNATIONAL RED CROSS AND RED CRESCENT MOVEMENT

Humanity

The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield, endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all peoples.

Impartiality

It makes no discrimination as to nationality, race, religious beliefs, class or political opinions. It endeavours to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

Neutrality

In order to enjoy the confidence of all, the Movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

Independence

The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.

Voluntary service

It is a voluntary relief movement not prompted in any manner by desire for gain.

Unity

There can be only one Red Cross or Red Crescent Society in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.

Universality

The International Red Cross and Red Crescent Movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.

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