



Red Cross/Red Crescent Climate Guide
Health and Care



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Throughout human history climate and health have been inextricably linked. Certain kinds of climate – moderate ones, broadly speaking, warm but not too hot, with low humidity and fresh breezes – were seen as innately healthy. Weather extremes, by definition, are potentially injurious to health – if not life and limb.

The latest (2007) report from the Intergovernmental Panel on Climate Change (IPCC) says that “climate change currently contributes to the global burden of disease and premature deaths” (see table below). And it will continue to do so: increased malnutrition and consequent disorders, with implications for child growth and development, can be expected. There will be more deaths, disease and injury from heatwaves, floods, storms, fires and droughts.

Studies in temperate areas have shown that climate change is projected to bring some benefits, such as fewer deaths from cold exposure. But “overall”, the scientists add, “these benefits will be outweighed by the negative health effects of rising temperatures worldwide, especially in developing countries”.

There and elsewhere: “Those at greater risk include the urban poor, the elderly and children, traditional societies, subsistence farmers and coastal populations.”

Very few national Red Cross/Red Crescent societies will be untouched by the health implications of climate change. In particular health fields – malaria prevention, for example – National Societies may suddenly find themselves doing more, perhaps much more, of the same work in the same place; or possibly the same work in a completely new location.

Or they may face quite new challenges altogether – like “killer” heatwaves in northern Europe.

Hot and hotter still

When tens of thousands of people gathered early one morning in July 2006 in the Dutch city of Nijmegen for the annual competitive walk of up to 50 kilometres, they were already cursing the heat, which rose rapidly above 30 °C. By the end of the first of the planned four days, two walkers had died of heatstroke and hundreds more had been taken ill. It was a totally unprecedented turn of events.

The temperature in Nijmegen was forecast to rise to 36 °C and the organizers, facing a terrible dilemma, decided to cancel the rest of the event – the first time that weather shut the walk down since the start nearly a century ago.

According to Fleur Engel of the Netherlands Red Cross (NRC), heatwaves were then “not seen as a major risk, despite the severe European heatwave of 2003, which claimed up to 1,400 Dutch lives” and more than 33,000 in the rest of Europe, mainly elderly people. The far more familiar climate threat in the Netherlands, of course, a delta of three rivers, half of whose territory lies below sea level, is *flood*, not heat.

The Netherlands Red Cross and the Red Cross/Red Crescent Climate Centre in The Hague had in 2004 started an education programme on climate change

A Netherlands Red Cross volunteer providing water during a heatwave. The risk of such heatwaves is rising rapidly due to climate change. Photo: Netherlands Red Cross





“There is a need for psychological support for those who lose their property through floods”

ETHEL KAIMILA, MALAWI

for branches in which volunteers gave presentations linking climate change and work for vulnerable people at home and abroad. The NRC contacted the government and it was agreed that a national plan for both heatwaves and cold waves would be developed, says Engel, “but after a few meetings early in 2006 there was still little sense of urgency”. Later that year, after two heatwaves during the summer, things finally changed for good, and the national heatwave plan was written.

This plan is the result of good cooperation between different institutions and the NRC. It targets those people who are most vulnerable to extreme heat and describes the tasks and roles of different parties involved, such as health services, general practitioners, nursing homes and volunteer organizations. It includes a health warning system, guidelines for volunteers and a sticker with simple advice on what to do when temperatures rise.

Now as summer heatwaves build, the National Societies in France, the Netherlands and elsewhere are much better prepared than they were to send

volunteers to visit elderly people, sweltering alone in their apartments, or distribute bottled water to motorists stuck in traffic – like they did in Romania, for example, during the intense 2007 heatwave in south-east Europe.

In Europe, and especially northern Europe, where deadly heatwaves have been a rarity, it may get significantly worse. British scientists at the Meteorological Office’s Hadley Centre report that by the 2040s, the 2003 European heatwave (the hottest and deadliest ever) might seem normal.

But what of the poorer south, the “low-latitude” tropical countries where – most observers agree – climate change impacts will be far more damaging?

In sub-Saharan Africa there is something occurring that could be described as drought-flood-drought, and it is already claiming many thousands of lives.

Africa: drought-flood-drought

Ethel Kaimila, programme coordinator of the Malawi Red Cross, believes that life expectancy in her country has fallen to 39 partly because of the repeated droughts, which fit the pattern of climate change. “Now the boreholes are dry,” she says. “Skin conditions get out of control due to lack of water, scabies is on the increase.

“There is a need for psychological support for those who lose their property through floods: they do not understand why it is happening so frequently. Volunteers need to learn new communications skills.”

According to a January 2006 report by Tapiwa Gomo of the International Federation: “Many of the areas [of Malawi] hardest hit by floods have suffered droughts that have led to a hunger crisis.”

There are also fears of malaria, with receding floodwaters leaving behind stagnant pools where the mosquitoes that carry it – the disease “vector” – multiply rapidly.

The National Society in Malawi has focused its efforts on the provision of shelter by pre-positioning tents in flood-prone districts across the country. As the rainy season ends, households rebuild and the Red Cross tents can be stored for future use.

The rapid succession of drought followed by flood followed by drought again is creating new “complex” emergencies in Africa – almost permanent disaster conditions, according to Abdishakur Othowai, drought project manager at the Kenya Red Cross Society. Large numbers of people are being displaced and ending up in camps where the HIV rate soars.

“Our policy,” he says, “is to tell people that we have to adapt, because this phenomenon will be with us for a very long time.”

Robert Akankwasa, head of disaster management at the Ugandan Red Cross, points out that Ugandan weather records from the 1960s and 1970s are “totally different” to the present, yet people are not clear about whether this is a symptom of full-scale climate change or just a blip.

Either way, there is little debate about one lethal by-product of the worsening floods in the country: cholera. “Now we have increasing cases of cholera every rainy season,” says Akankwasa, “within mainly urban areas”. This is probably caused by a combination of climate change and unregulated construction intensifying dangerous rainwater “run-off”.

Ugandan Red Cross workers, however, are optimistic about the National Society’s ability to respond. After the 2007 cholera outbreak, in which about a third of cases proved fatal, the National Society trained over 250 volunteers in Bundibugyo and Hoima districts – two of the worst affected – in the causes and symptoms of cholera, disease management, hygiene and sanitation.

During a door-to-door public information campaign more than 5,000 households were contacted as well as six primary schools in Bundibugyo. In Hoima community leaders even enacted by-laws aimed

at improving domestic sanitation. With emergency funding from the International Federation, volunteers were able to use megaphones and play educational videos on market days and at religious and cultural meetings.

The message from Uganda: cholera can be beaten.

Rift Valley Fever and Tanzania’s silent disaster

Julius Kejo, who runs disaster preparedness for the Tanzanian Red Cross, remembers they were very lucky to have been hosting some guests from Kenya at about the time Rift Valley Fever (RVF) was first spotted in humans during the recent outbreak.

The Kenyans, much more familiar with RVF and its symptoms, realized that cattle urinating blood in a village they were visiting were suffering from the potentially fatal viral disease, which is also spread by infected mosquitoes and can be caught by humans. A little later the fears were confirmed when they heard of five confirmed cases in the same area.

“The communities were not getting the right information on how to prevent the spread of the disease,” Julius recalls, “so as Red Cross what we could do was prepare leaflets carrying proper information.”

But the disease did eventually spread to ten administrative regions of Tanzania, killing nearly half the more than 300 people infected, according to the authorities. The central region of Dodoma, where 85 people died, was the worst hit.

There is no fully proven link to the recent outbreak, but the mosquitoes that carry RVF are known to breed rapidly in flooded areas. And as Julius says, “some people we’ve met have lived in the same place since the 1960s and never experienced the kind of floods we’ve had lately”.

In the sober language of the International Federation’s emergency appeal: “Tanzania has been impacted



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JULIUS KEJO, TANZANIA

by extreme climatic conditions since October 2006. Rains spread across the country with a growing intensity. Several lakes and rivers overflowed”.

Floods, of course, are not uncommon in Tanzania. But “a striking feature of this year’s disaster,” according to the appeal, was its “intensity, duration and scale”. Many said that its magnitude was unprecedented and its effects the worst in many years.

The people affected were left in appalling sanitary conditions, lacked access to safe water and suffered from the intense heat that encouraged the spread of disease. The Red Cross called the Tanzanian floods a “silent disaster”.

Tanzania’s RVF was also apparently the result of a change in the range of infectious-disease vectors. The mosquitoes that carry it found themselves with a much larger flooded area to breed in, and for much longer.

According to Washington DC-based climate and health specialist Kristie Ebi: “The cause-and-effect chain from climate change to changing health patterns is complex and includes factors like wealth, public health infrastructure, medical care, and access to nutrition, safe water and sanitation. The severity of future impacts will be determined by changes in climate as well as factors unrelated to climate, and by how well people adapt.”

The risks, will be much greater in low-income countries where the current burden of ill health is already high and the public health system relatively weak. Countries like the island nations of the Pacific and Papua New Guinea.

Problems in paradise

The Melanesian countries of Papua New Guinea, the Solomon Islands, Vanuatu and Fiji are especially prone to floods, cyclones and droughts as well as earthquakes and tsunamis, unrelated to climate. The age-old western perception of the Pacific as a paradise is now profoundly ironic: it is a deeply troubled region.

Papua New Guinea is a textbook example of a country that faces a cocktail of seismic disasters and worsening climatic extremes, yet is very poorly equipped to adapt. Malaria is another major challenge. For many years, Papuans have watched malaria occurring at higher and higher altitudes as the climate warmed.

The National Society in Papua New Guinea knows malaria is out there in remote highland areas where it was unknown before. But with very limited resources it is struggling to get an accurate assessment of exactly where.

Other countries such as Tuvalu and Kiribati are spread out over thousands of square kilometres and the lure of urban infrastructure and economic prospects brings people into the capitals from the remote outer islands. This puts pressure on dwindling water

resources and creates associated health problems such as diarrhoea.

Mining for sand and gravel often compounds the effect of rising sea levels and the lack of land on these small coral atolls forces people to live in areas that are flooded by frequent “king tides”. The Tuvalu Red Cross put its Emergency Response Team into action for the first time by assisting the government to evacuate people whose houses had been swamped by such a tide.

Samoan village systems remain strong and provide a safety net – and most government services are administered through them. However there is a growing number of people that fall outside this traditional support network – those moving to urban areas, for example, in the hope of better lives for their families, people immigrating to Samoa from other countries, and others denounced by fellow villagers for various misdemeanours who are left on the fringes without access to adequate health services.

These groups are vulnerable to current and future climate risks because of their socio-economic status and often their already-poor health. As part of the Samoan Red Cross climate project, a Vulnerability and Capacity Assessment is being used to try to build their resilience. Vaccinations against typhoid are being provided and other health problems addressed.

During the climate change conference organized by the Red Cross/Red Crescent Climate Centre in The Hague in 2007, representatives of many other national societies shared stories of possible climate-related changes observed in various diseases, from malaria outbreaks in Jamaica and Madagascar to dengue fever in Palau. New health risks are emerging, and the Red Cross and Red Crescent Movement needs to prepare for these changing threats.

Health and Care

How-to guide

The humanitarian mission of the Red Cross and Red Crescent is to improve the lives of vulnerable people, and their health plays a central role. As we have seen above, National Societies around the world are already grappling with new health emergencies, which are likely to be caused by climate change.

Therefore proactive adaptation strategies, policies and measures need to be taken to relieve the disease burden of the most vulnerable groups. Health impacts are likely to affect cross-cutting programmes within National Society disaster-management, risk reduction and care programmes.

But how to start?

Step 1: Collecting general background information

In order to integrate climate change effects on health, the first step is to get a good understanding of the changing risks that your country may be facing. This is part of the development of the national climate risk assessment about the impacts of climate change in the country and for your National Society (see *Getting Started: How-to guide, step 3*).

Identify all possible health related impacts in your country and

gather extra information from partner organizations and institutions, such as the health ministry and professional health care institutions.

The following questions may help to assess risks:

- Are we in contact with the right experts, organizations or institutions to understand the health risks of climate change in our country?
- Did we identify possible health impacts related to climate change in our different programmes?
- Are we aware of possible health impacts or disease outbreaks related to climate change and other vulnerabilities for all different regions in the country?

Step 2:

Assessing priorities and integrating climate change into the strategy of the National Society

Raising awareness about health impacts of climate change internally in the National Society will be a good start. Listing the main disease burden within the different target areas will be useful for prioritizing operations. As disease outbreaks are often related to extreme weather events and disasters, priorities are closely related to disaster-management response and risk-reduction activities. Health impacts can also be identified within social-care programmes.

However, it is important to integrate activities linked to climate change into other existing health-care programmes as well; for example, community-based first aid or other first aid training, participatory health promotion or prevention programmes. These should include interventions for diseases expected to increase or appear with climate change, such as diarrhoea.

Successful programmes from elsewhere can be a source of inspiration, for example the distribution of treated bed nets to prevent malaria, as part of measles and polio vaccination campaigns, with regular visits by community volunteers.

The following questions may help to prioritize and prepare for the risks:

- Are we making use of all possible weather and climate information that may help us to predict health impacts?
- Do we need to intensify capacities within our health programmes?
- Are we prepared to deal with the impacts identified, for example malnutrition, infectious disease outbreaks caused by changes in the range of vectors, heat wave related health impacts?
- Are we directing medication supplies to the right disaster prone areas?

This Niger woman and her baby received a bed net in the massive distribution campaign undertaken by the International Federation in 2005–6 to help fight malaria. Malaria is one of several diseases spread by mosquitoes which can be affected by climate change. Photo: John Haskew/International Federation of Red Cross and Red Crescent Societies



Depending on priorities, the National Society could proceed to one or more of the activities below.

Step 3: Enhancing preparedness for response and contingency planning

Identify new activities or intensify existing activities that might be effective interventions for the most common causes of ill health linked to climate change.

Questions to address:

- Can we promote or advocate public health intervention at different levels within the society?
- Is new funding needed to engage in health operations or expand existing programmes?
- What has been done in other countries (or by other organizations) to avoid vector-borne disease outbreaks, reduce vulnerability or improve bad hygienic conditions?
- Are we monitoring for diseases which may appear because of climate change? Are we prepared to deal with unfamiliar diseases by collecting information or asking advice from other National Societies who have experience with them?
- Do we need extra training for volunteers to deal with, for example, health and sanitation, or infectious diseases and displacement? Is education on how to prevent and respond to health threats integrated into ongoing education activities with local communities?

Step 4: Enhancing disaster risk reduction

Heat alerts in France or water pumps in Nicaragua have proved to be efficient ways of reducing the health impacts of climate change.

But how can we integrate health impacts structurally in our country?

- Advocacy and longer term partnerships in every layer of the society
- Large programmes like the National Heatwave Plan in the Netherlands and WHO's Euroheat programme (see www.euro.who.int)
- Community health care: Is extra training needed for volunteers? What knowledge does the local community lack? What can be done to reduce risks based on vulnerability assessments?
- Examples of practical risk reduction options: seed banks as a safety buffer, elevated food and seeds storage, water harvesting and conservation, local clean-up campaigns to eliminate vector-breeding sites, community-based educational programmes raising awareness on prevention of transmission and treatment, and early warning systems.

Step 5: Enhancing early warning

Together with other organizations, the Red Cross and Red Crescent can utilize early-warning systems to reduce health impacts of extreme weather events linked to climate change such as heatwaves, storms, floods

or droughts, as well as possible weather-linked malaria outbreaks and other diseases.

There are various websites issuing warnings of such extreme weather events and/or health impacts, or giving seasonal forecasts (see *Disaster Management*). Models predicting locations of meningitis outbreaks are being developed, which could enable targeted use of the limited amounts of vaccine available.

Questions to address:

- Who to alert among the population and relevant authorities, organizations, institutions, and the health sector? How to alert them? Which sub-populations are vulnerable and which information is necessary for effective response to warnings? What education is needed on how to respond?
- Are there forecasts of disease or allergies based on (weather-related) conditions that use models to predict health outcomes, e.g. malaria, meningitis, pollen, ozone? Are we using the information available to prepare: putting in place mosquito nets, cholera kits?
- Is active or passive surveillance in place, or should it be developed, volunteers trained (volunteers epidemic manual)?

Step 6: Awareness raising, establishing partnerships and advocacy

It is necessary to raise awareness on health impacts of climate change to enable adaptation.

In order to enlarge its scope, the International Federation has formed global alliances to address major health problems such as the Global Malaria Partnership, and works together with NGOs and UN agencies on hygiene promotion in Water and Sanitation Hygiene (WASH). These and other partnerships can be the basis for addressing health impacts of climate change.

With their branches reaching out to communities all over the world, National Societies are uniquely well placed to highlight the vulnerabilities and capacities of exposed communities and to mobilise others to respond by supporting them.

In view of the enormous health impacts of extreme weather related to climate change events, Red Cross/Red Crescent advocacy is crucial.

Questions to address:

- Is awareness-raising information tailored to the community, helping people adapt to new health situations arising with climate change?
- Is awareness raising integrated in other activities with the community?
- Is the National Society building partnerships which will help it address health impacts of climate change?
- Is the National Society engaged in advocacy which will help address the health impacts of climate change?

Step 7: Evaluation

As part of the regular evaluation effort, make sure that the National Society evaluates continuously whether health risks are changing. Every year's climate change impacts should be evaluated and projections for the coming year integrated into programmes (see *table 2*).

Checklist

- Collect general background information on possible health related climate change impacts in your country.
- Discuss within the National Society and set priorities for action.
- Assess how preparedness for disaster response and contingency planning may include the new health risks.
- Include health risks in your strategy for reducing disaster risk and if necessary address these risks in campaigns.
- Enhance early warnings for climate disease outbreaks that may be caused by climate change.
- Address climate change risks in existing health partnerships and join up in practical action, awareness raising and advocacy.

Pitfalls

There is a danger of overreacting to the outbreak of a new disease and causing panic among the population. It is therefore essential to gather correct information in order to take the right measures.

That climate change makes an area more suitable for a vector of

a disease does not automatically mean the disease will become established, as there are many other factors influencing this. As a consequence there are opportunities: to enhance the factors which prevent the disease from establishing itself, to monitor for the disease and if possible to "nip it in the bud".

Opportunities

With climate change altering the geographic coverage of certain diseases, national societies may need to strengthen collaboration in monitoring, identifying and responding to new health risks across borders. This may lead to improved health management at the regional level.

Further information

All information from this guide is available on www.climatecentre.org, including updates and links to relevant documents and sources of information, checklists, templates and best practice examples.

General Red Cross/Red Crescent guidance and policies on health, e.g. information on health in emergencies, water and sanitation, and epidemics, are available at www.ifrc.org.

The website of the World Health Organization (www.who.int) has information about many health issues, including interactions with climate change.

Table 2: An overview of health risks related to climate change

Possible climate change impacts on health	Disease and premature death	Mechanisms	Possible adaptation measures
Change in range of infectious-disease vectors	Malaria, dengue, West Nile virus, leishmaniasis, Lyme disease, schistosomiasis	Diseases are transmitted by vectors or intermediate hosts (mosquitoes, sand flies, ticks, snails, rodents). Climate change can shift distribution of vectors/hosts, and/or lead to changes in transmission season. Effects on malaria are mixed depending on region. Cattle is vulnerable as well: e.g. Rift Valley Fever, blue tongue, which can have impacts on food supplies.	Additional surveillance to identify and prevent epidemics if vectors change their range. Medical training, increased medical supplies in new areas. Early warning systems, community education, awareness, mobilization, use of bed nets (long-lasting insecticidal), vector management measures, e.g. local clean-up campaigns to eliminate mosquito breeding sites.
Diseases increasing with higher temperatures, humidity or drought	Diarrhoeal disease, cholera, meningitis, skin disease, food poisoning	Temperature directly affects incidence of diarrhoeal diseases. Malnutrition is a possible consequence of diarrhoeal disease. Meningitis is associated with drought. Food poisoning: e.g. contaminated shell fish, salmonellosis are linked to temperature.	Monitoring water and food quality, access to safe water, sanitation, drainage, health education, hygiene promotion, oral rehydration. Medical training, increased medical supplies.
Deaths and injuries and disease from extreme-weather events: storms, hurricanes, intense rainfall, floods and/or droughts and bushfires	Disasters: risk of immediate death and injury, mental-health effects Increased risk of waterborne diseases, malaria, dengue, diarrhoeal disease, cholera Malnutrition	Death and injury are due to flooding, storm damage (loss of infrastructure, housing), land slides, riverbank erosion etc. A number of vectors can breed in water after extreme weather events such as storms or floods. Leptospirosis (Weil's diseases) can be transmitted through contact with by rodents/pathogens after floods. Extreme rainfall or drought can cause microbial or chemical contamination of water or insufficient water, increasing risk of disease. Drought/flooding can lead to crop failure and consequent malnutrition. Displacement of population, loss of income can lead to malnutrition and disease.	Disaster management, Community risk reduction, Vulnerability and Capacity Assessment. Early-warning systems for vulnerable areas, evacuation training, trained volunteers, planting mangrove trees for coastal zone protection, shelters, higher storage spaces for food and seeds, higher houses, retention walls, dams, change in crop varieties and planting times/livestock, harvesting, conserving water, water reservoirs, fire breaks, teaching new income-generating skills in towns.

Possible climate change impacts on health	Disease and premature death	Mechanisms	Possible adaptation measures
Deaths and injuries and disease from extreme-weather events: heatwaves; increase in temperatures	Heat-related mortality, heat stress, heat stroke, dehydration, heart failure. Diseases linked to temperature increase (see above).	During heatwaves vulnerable groups are at risk: urban poor, elderly, babies, chronically ill and certain occupations. Some benefits: fewer deaths from cold are outweighed by negative effects. Snow decrease, glacier melt possibly lead to seasonal lack of water.	Early-warning systems, heat alarms through media, warning organizations concerned, education on medical impacts (within first-aid and social-care programmes), raising awareness of all risks.
Diseases related to air quality	Cardio-respiratory morbidity and mortality	Risks for air quality are due to: formation of ground-level ozone in urban areas with heat and sunlight; pollution from forest fires; changes in distribution and seasonality of allergenic pollen species, e.g. <i>Ambrosia artemisiifolia</i> .	Warning systems. Medical education. Raising awareness of all risks. Substantial health benefits from actions to reduce greenhouse gas emissions.
Effects of sea-level rise: salt-water intrusion and coastal erosion	Malnutrition, water-borne diseases	Effects of floods are listed above. Sea level rise will affect livelihood, agriculture: loss of crops, shortage of sweet water resources; loss of income from tourism, etc may lead to malnutrition. Displacement of populations may intensify malnutrition and diseases. These effects may be enhanced by coral bleaching/damage and decline of fisheries.	Education programmes for farmers by experts on different crop opportunities; planting of mangroves, protecting reefs.

From IPCC Working Group II (2007)