

# Response to the 2009 floods emergency in Namibia

Preventing diseases, saving lives



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*Rebuilding houses, rebuilding lives*

# Abbreviations

AIDS	Acquired Immunodeficiency Syndrome	ORS	Oral Rehydration Salts
ARV	Antiretroviral	PDNA	Post Disaster Needs Assessment
CERF	Central Emergency Response Fund (UN)	PHC	Primary Health Care
DDRM	Directorate of Disaster Risk Management	REMU	Regional Emergency Management Unit
EPR	Emergency Preparedness and Response	TB	Tuberculosis
FEMCO	Flood Emergency Management Coordination Office	UNDAC	United Nations Disaster Assessment and Coordination Team
HIV	Human Immunodeficiency Virus	UNAIDS	Joint United Nations Programme on HIV/ AIDS
IDSR	Integrated Disease Surveillance and Response	UNDP	United Nations Development Programme
ITNs	Insecticide Treatment Nets	UNESCO	United Nations Educational, Scientific and Cultural Organization
LLINS	Long Lasting Insecticide Treated Nets	UNFPA	United Nations Population Fund
MoHSS	Ministry of Health and Social Services	UNHCR	Office of the United Nations High Commissioner for Refugees
NGO	Nongovernmental Organization	UNICEF	United Nations Children's Fund
NRC	Namibia Red Cross	WFP	World Food Programme
OCHA ROSA	Office for the Coordination of Humanitarian Affairs, Regional Office for Southern Africa	WHO	World Health Organization
OPM	Office of the Prime Minister		



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## WHO Role in Emergencies

WHO provides technical assistance, medical supplies and coordination services during humanitarian emergencies.

WHO works with Governments, UN agencies, NGOs and other partners to address the needs of people in crisis in a comprehensive and coordinated manner.

## WHO Functions in Emergencies

WHO functions encompass the entire emergency cycle from preparedness to response and recovery. World Health Assembly Resolution WHA58.1 requests WHO to carry out four core functions:

- 1) timely and reliable assessments of suffering and threats to survival, using morbidity and mortality data;
- 2) coordination of health-related action in ways that reflect these assessments;
- 3) identification of, and action to, fill gaps that threaten health outcomes;
- 4) building local and national capacities, including transfer of expertise, experience and technologies, among Member States.



# Executive Summary

From March 2009, north-central and north-eastern Namibia experienced the worst flooding in decades. The six regions affected were Caprivi, Kavango, Oshana, Oshana, Oshana and Oshikoto. Nearly 700 000 people (over 30% of Namibia's 2.1 million population) were affected; more than 56 000 people were displaced, 28 932 of whom were accommodated in a hundred relocation camps.<sup>1</sup> Many of those affected by the 2009 floods had not yet recovered fully from the floods of 2008, reducing their resiliency to cope with the new disaster.

The MoHSS requested support from WHO to provide technical assistance to regional and district health officials to undertake a rapid needs assessment. WHO assisted the regional health management teams, particularly in the north-eastern parts of Namibia to conduct regular coordination meetings. This helped to monitor the situation in flood-affected areas and take the necessary actions in time.

This report examines the extent of the damages caused to the health sector as a result of the floods. It discusses the response by government and partners, particularly the contributions to this emergency by the WHO. Furthermore, it identifies the challenges experienced in the response and provides recommendations for improving health services to ensure effective emergency preparedness and response capability for future disasters.

While this report focuses on the flood disaster of 2009, the recommendations could be valuable for any other disaster, such as disease outbreaks, droughts and wildfires if effectively implemented.

The report shows that capacity building is required in life-saving skills across communities as well as in disease surveillance, emergency preparedness and response and planning across all regions affected.

<sup>1</sup> OPM DDM, Report on the 2009 Flood Disaster Response.





# Background

For the second consecutive year, torrential rains across Angola, Namibia and Zambia increased water levels in the Chobe, Kunene, Kavango and Zambezi rivers to such an extent that the north-central and north-eastern parts of Namibia experienced the worst flooding in decades. Six regions were affected: Caprivi, Kavango, Ohangwena, Omusati, Oshana and Oshikoto.

The effects of the flood varied by region with Caprivi Region being the worst affected as water levels exceeded those experienced in 2008 and previous years. Ohangwena, Omusati, Oshana and Oshikoto regions had the largest number of people affected. These four regions

are the most populated areas of Namibia, with a combined population of 800 000 people of which more than 600 000 people were affected by the floods.

Unlike the rapid onset of the 2008 floods, the impact of the 2009 floods was cumulative, with more devastation and human suffering due to the prolonged nature of the disaster. The floods also damaged more public infrastructure, with more than 50% of roads damaged in the affected areas. Many roads and bridges were still under repair due to damage from the 2008 floods which had significantly reduced access of the affected population to health facilities, schools and market places.

Disasters commonly cause emergency situations, both directly and indirectly (Table 1). When a disaster strikes, there are a number of health issues that arise. Lack of clean water, suspension of public health programmes or services, and displacement of large numbers of people into confined spaces can increase the spread of illnesses such as cholera. Often these illnesses can be more deadly than the original disaster. A disease outbreak may overwhelm the capacity of a city's under-resourced health services, creating an urgent need for support. In such emergency situations, local coping mechanisms are overwhelmed, and thus collective, specialized and external actions are required.



“A natural disaster is an act of nature of such magnitude as to create a catastrophic situation in which the day-to-day patterns of life are suddenly disrupted and people are plunged into helplessness and suffering, and, as a result, need food, clothing, shelter, medical and nursing care and other necessities of life, and protection against unfavourable environmental factors and conditions.”

*Guide to sanitation in natural disasters, WHO, 1971.*

Natural disasters include earthquakes, tsunamis, volcanic eruptions, landslides, hurricanes, floods, wildfires, heat waves and droughts. They have an immediate impact on human lives and often result in the destruction of the physical, biological and social environment of the affected people; they have a long-term impact on people's health, well-being and survival.



Causes	Health implications
<b>Direct effects</b>	
Stream flow velocity; topographical features; absence of warning; rapid speed of flood onset; deep flood waters; landslides; risky behaviour; fast-flowing waters carrying boulders and fallen trees	Drowning; injuries
Contact with water	Respiratory diseases; shock; hypothermia; cardiac arrest
Contact with polluted water	Wound infections; dermatitis; conjunctivitis; gastro-intestinal illnesses; ear, nose and throat infections; waterborne diseases
Environmental conditions leading to physical and emotional stress	Increased susceptibility to psychosocial disturbances and cardiovascular incidents
<b>Indirect effects</b>	
Damage to water supply systems; damage to sewer and sewage disposal systems; insufficient supply of drinking water; insufficient supply of water for washing	Possible waterborne infections and diseases (enteropathogenic E.coli, Shigella, hepatitis A, leptospirosis, giardiasis, campylobacteriosis); dermatitis; conjunctivitis; cholera; dysentery
Disruption of transport systems	Food shortages; interference with emergency response
Disruption of underground piping; dislodgment of storage tanks; overflow of toxic waste sites; release of chemicals; disruption of petrol storage tanks, possibly leading to fire	Potential acute or chronic effects of chemical pollution
Standing water; heavy rainfall; expanded range of vector habitats	Vector-borne diseases, e.g. malaria
Rodent migration	Rodent-borne diseases
Disruption of social networks; loss of property, jobs, family and friends	Psychosocial disturbances, e.g. post-traumatic stress disorder
Clean-up activities following flooding	Electrocution; injuries; lacerations; puncture wounds
Destruction of primary food products	Food shortages; malnutrition
Damage to health services; disruption of health care and services	Decrease in "normal" health care services; insufficient access to medical care; increase in defaulter rates for HIV/AIDS, TB and other chronic medication

**Table 1: Impact of floods on human health**

Source: Menne B et al, 2000

Region	Caprivi	Kavango	Oshana	Oshikoto	Total		
Population (2009)*	87 058	257 347	261 323	243 657	176 586	181 304	1 207 275
People affected	26 263 (30.2%)	9000 (3.5%)	133 703 (51.2%)	228 842 (93.9%)	161 916 (91.7%)	117 818 (65%)	677 542 (56.1%)**
People displaced	26 263	9000	12 056	401	8549	276	56 545
People in relocation camps	19 738	4718	1296	564	2478	138	28 932
Deaths	3	0	22	32	48	0	105

**Table 2: Number of people affected -**

\* Population projection 2009 in Namibia Population Projection, 2001.

\*\* People affected as a percentage of total population in the affected regions.

Source: OPM DDM, Report on the 2009 Flood Disaster Response.



## Impact of Floods

Nearly 700 000 people (over 30% of the 2.1 million people in Namibia), were affected; more than 56 000 people were displaced, 28 932 of whom were accommodated in 100 relocation camps (Table 2). Approximately 105 lives were lost due to drowning and attack by wildlife, including crocodiles. Oshana and Omusati regions reported 48 and 32 deaths, respectively, accounting for 76.2% of all deaths reported in the six flood affected regions. In Caprivi, some lives were lost when boats were overloaded and could not cope with the turbulent waters. Notably, the lack of a standard definition of affected posed major challenges in determining the number of people in need, and ultimately the emergency response plans.

## Government Response

On 17 March 2009, the Government of the Republic of Namibia declared an emergency for the north-central and north-eastern parts of Namibia. The Government allocated 109 million Namibian dollars (US\$ 10.9 million) for the response, established relocation camps to host the displaced, and distributed non-food items (NFIs) in the affected regions. The disaster response was coordinated nationally by the Directorate of Disaster Risk Management (DDRM) within the Office of the Prime Minister (OPM), and in the various regions by the Regional Councils through the Regional Emergency Management Units (REMUs). The Government also relocated the Flood Emergency Management Coordination

Office (FEMCO) to Oshakati to improve coordination and relief assistance. The National Planning Commission (NPC) worked to ensure effective coordination with the international community, civil society and the private sector.

In particular, the Ministry of Health and Social Services (MoHSS) received support from the WHO and partners for the provision of medical supplies and technical assistance, coordination of health emergency response of partners, including UN agencies, and strengthening disease surveillance and response to any threat of a disease outbreak.

Supported the Ministry of Health and Social Services (MoHSS) with the provision of medical supplies and technical assistance, coordination of health emergency response partners, including UN agencies, and strengthening disease surveillance and response to any threat of a disease outbreak.



*In Lisikili constituency, Maboko Juliet Monde, a single mother lost all her possessions and was relocated to Mpyuu Camp where she was able to access health services from the temporary health clinic set-up.*

# WHO response to floods

Following the President's Declaration of Emergency on 17 March 2009 and the appeal for local and international support, the MoHSS requested support from WHO in the following areas:

- Provide technical assistance to rapid health assessments;
- Strengthen health coordination mechanisms;
- Identify and fill critical gaps in health response to the floods;
- Provision of medical supplies, and
- Increase the capacity of MoHSS staff to prepare and respond to emergencies.

WHO swiftly deployed technical experts to assist the Government. Eleven WHO experts from epidemiology, disease prevention and control, nutrition, public health and emergency health fields supported the Government during the emergency and early recovery phases; they provided assistance with rapid health assessments, disease surveillance and management, emergency response and recovery plans, and other interventions. The following sections provide an account of the WHO response and challenges which later inform recommendations for improving the health sector's response to emergencies.





## Support to Assessment Missions

WHO provided technical support and guidance by developing the health component of the assessment tool. The health component of the assessment tool focused on the following:

- Extent of damage to health facilities infrastructure;
- Accessibility to health facilities and services;
- Health emergency response capacity;
- Availability and quantity of emergency medical supplies;
- Capacity of health coordination mechanisms.

Support was provided to various assessment missions including the United Nations Disaster Assessment and Coordination Team (UNDAC) mission from 26 March to 8 April 2009 in conducting the rapid needs assessment as well as to the Post Disaster Needs Assessment (PDNA) conducted in July 2009 which was organized by the



*WHO in the field, supported various assessment missions.*

Government of Namibia, the World Bank and UNDP. Based on the findings of these various assessments, WHO provided overall coordination for the drafting of the health sector response plan and mobilized funds through the Flash Appeal and the UN Central Emergency Response Fund (CERF) to complement government efforts.

## Provision of Health Care Services

The floods affected 35 health facilities and 86 outreach points. In addition, six health facilities were submerged and hence were completely closed (Table 3). Consequently, many flood-affected people had limited to no access to health care. WHO provided technical support and guidance to strengthen the health response system to ensure that the affected populations had access to medical supplies and health services in areas cut off by floods.



*WHO support to PDNA Team meeting the Regional Council in Caprivi Region*



## Provision of Medical Supplies

WHO procured and donated medical basic and supplementary inter-agency emergency health kits, malaria rapid diagnostic testing kits, mosquito nets and inter-agency diarrhoeal kits to the MoHSS that could potentially benefit nearly 200 000 people. The consignment of medical supplies is detailed in Table 4.

The MoHSS distributed these items to Regional Medical Stores in Oshakati, Rundu and Katima Mulilo from where it was disbursed to district health facilities. These items were distributed as needed to district health facilities. Some of these items procured for the 2009 emergency are being stock-piled in the respective flood-prone regions for the next emergency.

There is a need to implement a system to track where supplies are distributed to and the exact number of people per



*Personnel at the Regional Medical Store in Katima Mulilo review the medical supplies donated by WHO.*

relocation camp that benefits from these supplies. Additionally, there were insufficient bednets. WHO procured 25 000 Long Lasting Insecticide Treated

Nets (LLTNs) for malaria prevention. However, the majority of camps did not receive bednets due to a global short supply.

Region	Caprivi	Kavango	Ohangwena	Omusati	Oshana	Oshikoto	TOTAL
Population	87 058	257 347	261 323	243 657	176 586	181 304	1 207 275
Health facilities closed	1	0	0	0	4	1	6
Health facilities inaccessible	7*	2	10	10	5	1	35
People with limited and/or no access	26 263 (30.2%)	9000 (3.5%)	133 703 (51.2%)	228 842 (93.9%)	161 916 (91.7%)	117 818 (65%)	677 542 (56.1%)**

**Table 3: Number of health facilities affected**

\* Updated data from Katima Mulilo Regional Health Team.

\*\* People affected as a percentage of total population in the affected regions.

Sources: OPM DDM, Report on the 2009 Flood Response; Namibia Post Disaster Needs Assessment Report, 2009.

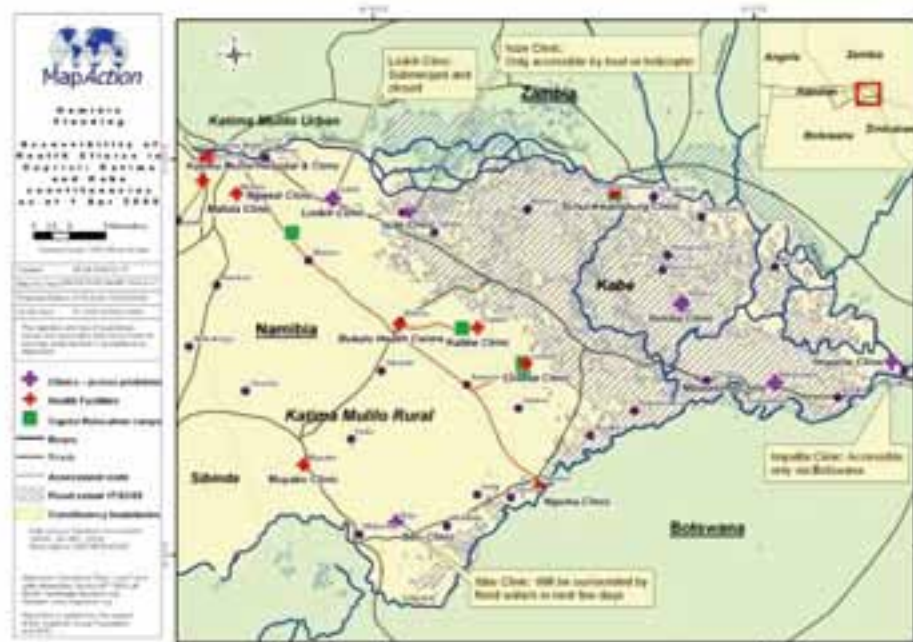


## Provision of Emergency Health Services

Due to the floods, infrastructure damage and submerged roads resulted in numerous communities having limited or no access to medical facilities. In addition, health workers were overburdened due to double the number of clients.

In Kavango Region, Mabushe and Biro clinics were flooded and relocated to nearby higher ground. In Caprivi Region, Lisikili clinic was submerged and relocated to Mpyuu relocation camp. Health facilities at Mbalasinte, Isize, Schuckmansburg and Impalila were completely surrounded by water and could only be accessed by boat or air or through Zambia and Botswana (Figure 1).

Figure 1: Accessibility of Health Clinics in Caprivi Region



Source: Map Action

Item	Description	Potential recipients
3 Basic inter-agency emergency health kits	Essential medicines and medical devices; can be administered by PHC workers with limited training; oral and topical medicines, none injectable	30 000
3 Supplementary inter-agency emergency health kits	Medicines and medical supplies; for use only by professional health workers or physicians	30 000
3 Basic inter-agency diarrhoeal kits	ORS; Ringer lactate; doxycycline for cholera; erythromycin zinc tablets; ciprofloxacin disinfectant; renewable supplies, including culture swabs; equipment and documents on diarrhoeal disease management in emergencies	Treats up to 400 patients
3 Malaria rapid diagnostic testing kits	Antimalarial diagnostic kits and medicines for treatment of uncomplicated malaria	53 000
25 000 LLTNs	Mosquito nets	75 000 (3 people share on average)
<b>TOTAL</b>		<b>188 400</b>

Table 4: Donations of medical supplies to MoHSS



Provided technical guidance to establish linkages between relocation camps and hospitals to facilitate appropriate referrals of cases as necessary.

The inaccessibility of health facilities contributed to the disruption of tuberculosis (TB), malaria and HIV/AIDS control programmes. In Oshikoto, Omusati, Ohangwena and Oshana regions, approximately 30 TB patients experienced a disruption in treatment.

In disruption of HIV/AIDS treatment, 23% of people living with HIV/AIDS could not access antiretroviral medicines or related therapy. Services such as prevention of



*WHO advised for providing an integrated package of health care to include treatment of common ailments, maternal and child health services, health education and sufficient supply of medicines for chronic diseases and conditions.*

mother-to-child transmission, home-based care, orphans and vulnerable children support, and other community psychosocial support were also disrupted. The highest number of defaulters was

found in the Caprivi Region.<sup>1</sup>

To ensure that displaced populations had

<sup>1</sup> UNAIDS/Namibia: The impact of floods on HIV and AIDS, 2009, p. 7.

Constituency	Health facility	Catchment area	Relocation camp	Camp population	Total population
Lusese	Lusese Clinic	1447	Lusese A & B	2460	3907
Kabbe	Kabbe Clinic	1015	Kabbe	800	1815
Lisikili	Lisikili Clinic (relocated to Mpuu)	1920	Mpyuu	1265	3185
Schuckmansburg	Schuckmansburg	2950	Schuckmansburg	2950	5900
Impalila	Impalila	300	Impalila	330	600
Kasika	Mbalisinte Clinic	450	Kasika	450	900
<b>TOTAL</b>		<b>8082</b>		<b>8225</b>	<b>16 307</b>

**Table 5: Number of people accessing health facilities in Caprivi Region**

Source: Katima Mulilo Regional Health Directors Team





*Dr Amos Tarus from Lisikile Clinic which was submerged established a temporary health clinic in Mpyuu Relocation Camp. Dr Amos informs WHO how he delivered a baby at the back of a tent, with no water and electricity.*

Advised for providing an integrated package of health care to include treatment of common ailments, maternal and child health services, health education and sufficient supply of medicines for chronic diseases and conditions.

access to medical care, the Government of Namibia established relocation camps and organized outreach health services. However, the frequency, quality and packaging of health outreach services varied from one camp to another. For example, camps in Ohangwena, Omusati Oshana and Oshikoto regions received outreach health services three times a

week, whereas camps in other regions received services only once a week. Consequently, health workers not only addressed the needs of their existing community (catchment population) but also served the displaced population, a considerable workload. In some places, health facilities catered to almost twice the number of regular

patients; often, there was only one health worker in these facilities. In Caprivi Region, Schuckmansburg Clinic provided medical care to an additional 2950 displaced people; one health worker attended to more than 4500 people (Table 5). Health workers, on average, worked very long hours for five-month periods. Furthermore, disrupted





telecommunications posed challenges for health workers.

In order to strengthen the health care delivery system, technical guidance was provided to develop a strategy for improving access to health outreach services. Working with MapAction and REMU, WHO used geographical information systems to develop maps to indicate the positions of camps in relation to health facilities and to plan health outreach service routes. A 5km distance was used to determine the accessibility of camps to health facilities. Those outside the 5km radius were prioritized to receive health outreach services more frequently. In Caprivi and Oshana regions, 26 outreach services were established during the floods. Health services were functioning daily in the camps in the first two weeks; services were reduced to fortnightly in the following weeks.

Helicopter outreach services were established for isolated relocation camps in Ohangwena, Omusati, Oshana and Oshikoto regions. A three-staff team of doctor, nurse and assistant pharmacist provided treatment for minor illnesses, chronic diseases such as TB, HIV/AIDS, and hypertension as well as immunizations.

Health outreach services were limited to the treatment of common ailments and the provision of a one-month supply of medication for patients with TB, HIV/AIDS, hypertension, etc. To improve the quality of health services, WHO recommended for an integrated package of health services for displaced

and relocated patients. The integrated package included the treatment of common ailments, maternal and child health services, health education and sufficient supply of medicines for chronic diseases and conditions.

Additionally, technical guidance was provided to the MoHSS regional teams to establish linkages between relocation camps and hospitals to facilitate appropriate referrals of cases as necessary.

A major gap in response was the lack of adequate psychosocial support and counselling services due to the expanded workload of health workers. There is a need to train health workers and possibly Red Cross volunteers to provide psychosocial counselling and support.

### **Disease Surveillance and Management**

The aim of strengthening disease surveillance was to monitor disease trends and detect epidemics as early as possible to contain and prevent further spread of diseases. WHO worked with national, regional and district MoHSS health information system (HIS) staff to standardize and implement weekly disease

surveillance monitoring and reporting. Support was also provided to ensure that completeness and timeliness of reporting for weekly Integrated Disease Surveillance and Response (IDSR) was at least 80% in all flood-affected Regions in order to detect any disease outbreak and respond within the first 48 hours.

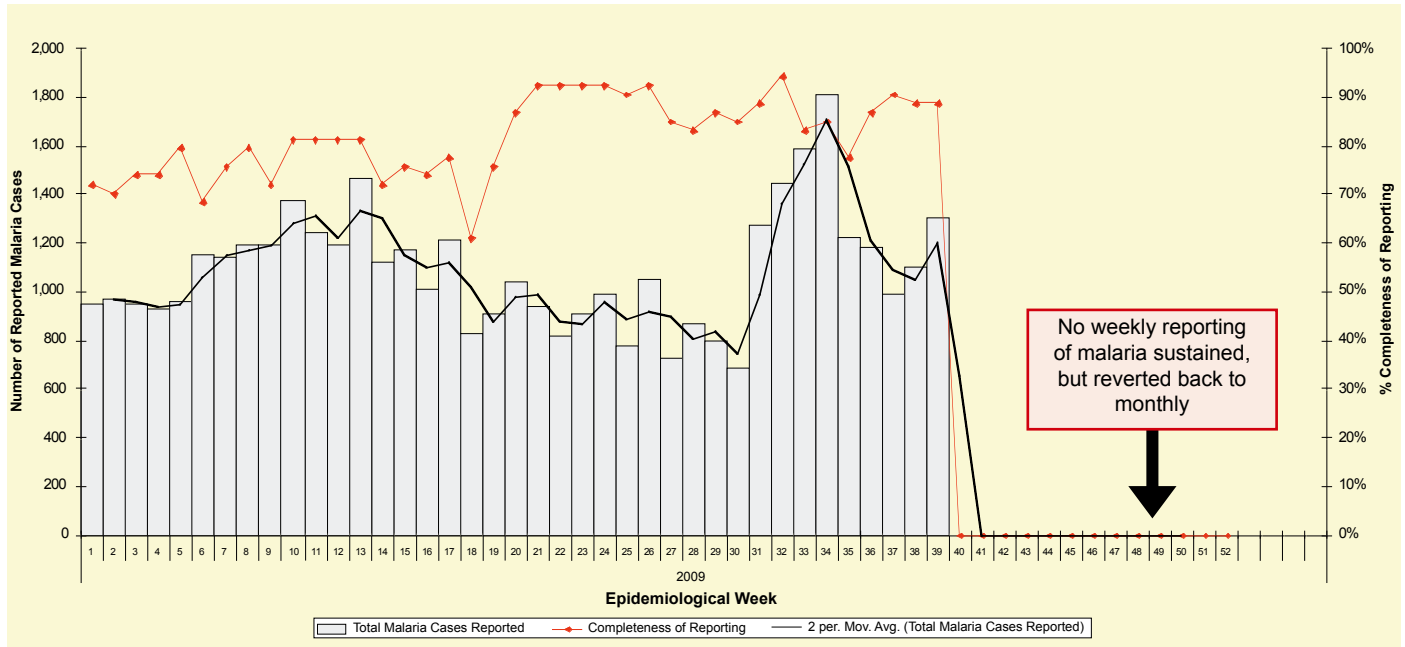
Prior to the floods, the health information system provided weekly malaria reports. During the floods, the completeness of weekly malaria reporting was sustained at 90% (Figure 2).



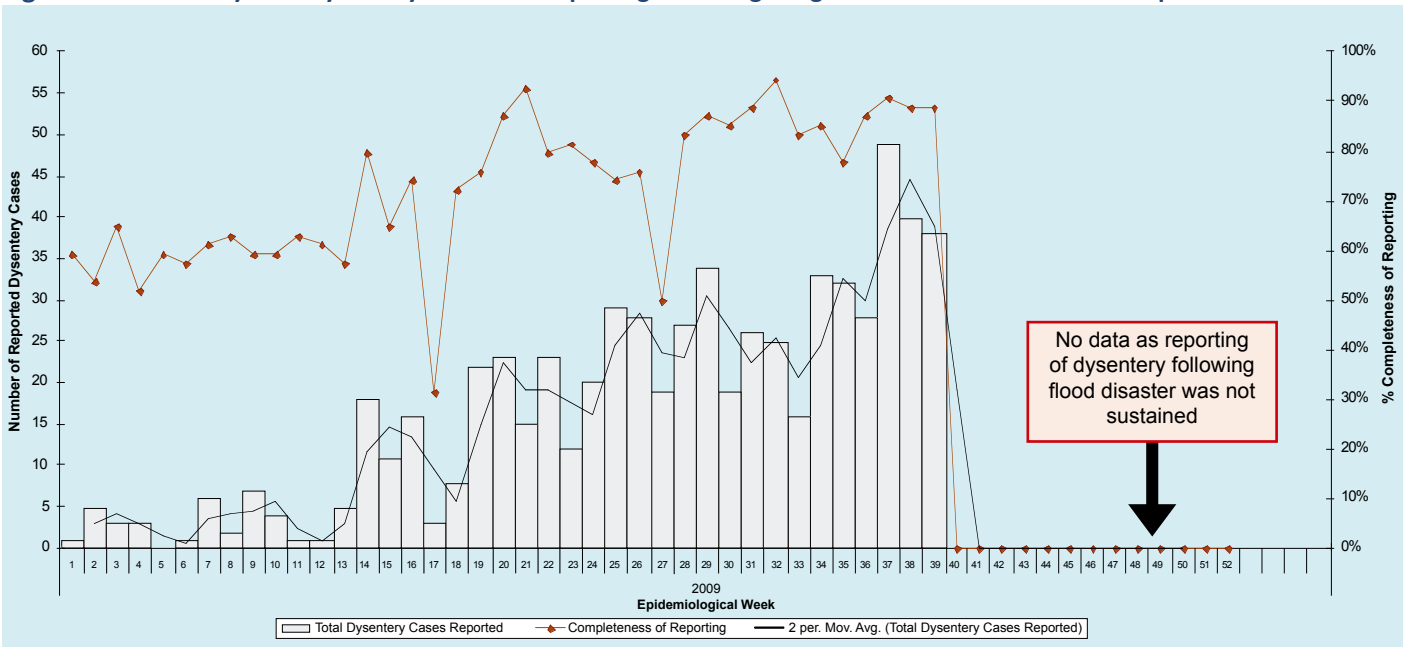
*WHO provided technical guidance to establish linkages between relocation camps and hospitals to facilitate appropriate referrals of cases as necessary, or health services within the camps.*



**Figure 2: Malaria Reporting Trends in Kavango Region: 29 December 2008 - 27 September 2009**



**Figure 3: Trend Analysis of Dysentery Cases and Reporting in Kavango Region: 29 December 2008 - 27 September 2009.**





WHO advised that health facilities broaden the scope of disease surveillance to monitor all outbreak-prone diseases such as dysentery, acute watery diarrhoea and malaria in the flood-affected areas. Following WHO interventions, dysentery cases and other diseases were reported from May to September 2009. Reporting was above 80% completeness (Figure 3). There is a need to develop a system to sustain reporting for dysentery throughout the year in order to make comparisons of disease trends both during and after flood emergencies.

Due to improved disease surveillance, there was a notable increase in the number of cases of diseases reported. Improved surveillance resulted in timely information on the spread and severity of cases to determine trends. For instance,

in the north-central areas of Ohangwena, Omusati, Oshana and Oshikoto there was a major increase in malaria cases compared to the same period in 2008. There were 21 854 cases and 35 deaths compared to 8481 suspected malaria cases in the same period of 2008, representing an increase of 147%. This sharp rise in malaria cases is possibly due to improved disease surveillance and reporting. Similarly, in Kavango Region, cases of dysentery increased by 75% during the period March to July 2009 (Figure 3). The spike in diarrhoeal diseases could be due to improved surveillance and reporting or also attributable to poor sanitation, lack of potable water, unhygienic practices and lack of knowledge on disease prevention among the affected communities.

The surveillance data assisted MoHSS and WHO, the Namibian Red Cross (NRC) and other health partners to swiftly respond with the distribution of mosquito nets and water purification tablets in the affected areas. A total of 23 257 mosquito nets and 514 754 water purification tablets were distributed in Caprivi and Kavango Regions. Safe water was provided by NamWater and Rural Water Supply.

From 11 June to 5 July 2009, WHO provided training in emergency

*Recommended for Health Information System workers to broaden the scope of disease surveillance during the emergency to include all flood prone diseases, such as dysentery, acute watery diarrhoea and malaria.*

preparedness and response to 144 Red Cross staff and volunteers in the six affected regions; the focus was on health education and hygiene promotion.

As a result of the improved surveillance and health education, no major disease outbreaks were reported.

WHO advocated and advised for more frequent health promotion sessions and activities. Health education on personal hygiene and safe sanitation practices was not conducted regularly in the camps.

Health partners ensured that beneficiaries received ITNs and condoms. However, it was found that there was a need for health education to complement the supplies provided to ensure correct utilization. For instance, it was found that some beneficiaries were using ITNs for fishing and that there was incorrect disposal of condoms.



*WHO recommended for Health Information System workers to broaden the scope of disease surveillance during the emergency to include all flood prone diseases, such as dysentery, acute watery diarrhoea and malaria.*



## Strengthening Health Coordination

The disaster response was coordinated nationally by the Directorate of Disaster Risk Management (DDRM) within the Office of the Prime Minister (OPM), and regionally by the Regional Councils through the Regional Emergency Management Units (REMUs) comprised of various line ministries in all six affected regions. Additionally, the government reactivated the Flood Emergency Management Coordination Office (FEMCO) to coordinate relief assistance. The National Planning Commission (NPC) worked to ensure effective coordination and assistance from the international community, civil society and the private sector.

At the national level, WHO provided technical support in three coordination groups, namely FEMCO, REMU and Health Emergency Management Committees, which met twice weekly. Additionally, WHO deployed a health expert to Caprivi and Kavango regions to complement government efforts and provide technical support to emergency response plans.

Additionally, from 30 March to 1 April 2009, WHO trained 28 MoHSS staff, which included regional health directors, environmental health officers and disease surveillance officers. The training focused on developing a flood response plan, analysing the health impacts associated with floods, scenario-planning based on most-likely to worst-case scenarios,

information management, disease surveillance and international guidelines to ensure minimum international health standards. The flood response plan also provided guidance on how to strengthen coordination mechanisms within the health sector.

Overall, flood preparedness levels varied by region. Regional Councils were inadequately prepared for the magnitude of the flood disaster. Furthermore, some REMUs were inactive before the flood occurred, a situation that compromised their capacity to respond effectively during the disaster.

Notably, the MoHSS and health partners were simultaneously responding to the pandemic influenza (H1N1) 2009 that affected 72 people between June and November 2009.

## UN Coordination

UN agencies rallied together to work according to various clusters: health, education, water and sanitation. Humanitarian Reform relating to the Cluster System has not been formally established in Namibia. UN agencies established working groups according to the Cluster System and developed sectoral response plans in the drafting of the Flash Appeal.

The health sector established a Health Emergency Committee in Oshana region and met on a weekly basis. The Committee consolidated health information from all

Conducted health education and promotion training of 144 Red Cross volunteers to prevent and contain the spread of diarrhoeal diseases and malaria.

the regions and assessed health service delivery to improve response. The Committee regularly shared information with REMU, which was then presented to FEMCO. Using the Health Cluster, WHO procured mosquito nets through UNICEF, in recognition of its greater logistical capacity thereby accelerating and improving response.

Given that the Cluster system is not fully operational in the country, for the most part, agencies implemented activities separately. For instance, the lack of adequate camp management skills and weak coordination efforts affected the registration of displaced people. As a result, health partners faced challenges with regards to ensuring the provision of sufficient medical supplies for each camp. In addition, figures released from the registration of affected people, conflicted causing confusion.



*WHO conducted health education and promotion training of 144 Red Cross volunteers to prevent and contain the spread of diarrhoeal diseases and malaria.*

This could be attributed to different clusters conducting their own specific assessments at different times within camps to plan their response. There is a need to develop a multi-sectoral and standardised registration form based on consultation from all clusters with coordinated monitoring.

### **Strengthening Emergency Preparedness and Response Capacity**

In order to build the capacity of health workers, the MoHSS requested WHO to facilitate a health emergency preparedness and response workshop

for key regional and district health care managers and workers from all regions of the country. WHO conducted a needs assessment of the existing capacity, skills and knowledge of health managers and workers in the region.

To address skills gaps, WHO facilitated two training workshops in July (27-31) and August (3-7) 2009. A total of 54 health managers and workers attended from all the regions; attendees included regional directors of health, chief medical officers, district principal medical officers, HIS officers, IDSR officers, nurses and PHC focal persons. As part of the workshop, participants learned scenario planning of the most likely health hazards (floods, cholera, malaria, pandemic influenza (H1N1) 2009 that could occur in the respective regions. They also developed contingency (preparedness and response) plans that integrated nutrition, health and HIV/AIDS to reduce the impact of health disasters and excess morbidity and mortality. The workshop also provided an opportunity for participants to share best practices.

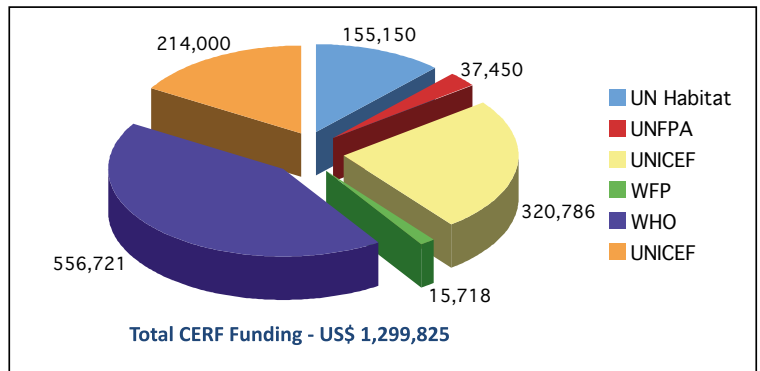


*Emergency Preparedness and Response Training facilitated by Dr Innocent Mwesigye, WHO consultant.*



# Resource Mobilisation

The Government of Namibia requested international assistance and identified urgent needs in various sectors such as health, shelter, education, food and agriculture. In response, on 2 April 2009, the United Nations and international humanitarian partners launched an appeal seeking US\$ 2 724 360 to respond to the needs of 350 000 flood-affected people. To help jump-start the humanitarian response, the Central Emergency Response Fund (CERF) disbursed US\$ 1.2 million to the humanitarian community of which WHO received US\$ 556 721 (Figure 4).

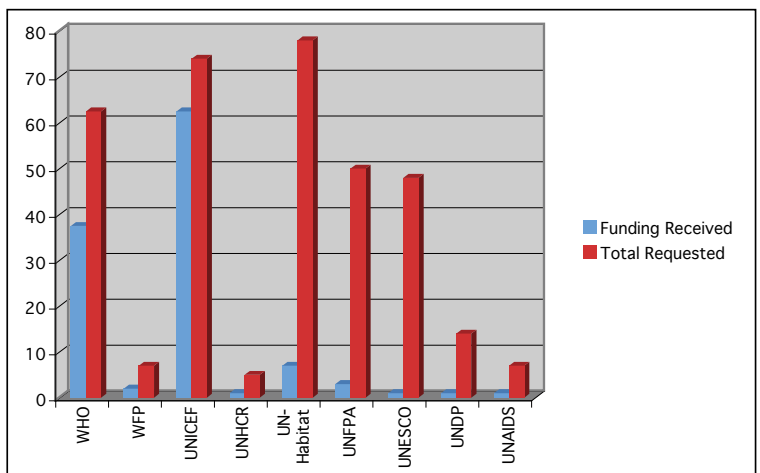


**Figure 4: CERF funds disbursed to UN agencies (US\$)**

Source: OCHA: Financial Tracking Services

As floods continued to ravage the country, the government along with the international humanitarian community conducted further assessments. Findings of these assessments showed that the numbers of people affected had more than doubled to 700 000 people. Consequently, in July 2009, the international humanitarian community launched a revised appeal seeking US\$ 7 071 951 to assist the government to address residual humanitarian needs as identified by further assessments, including the Post Disaster Needs Assessment (PDNA), as well as support to medium-term preparedness and disaster risk reduction activities before the commencement of the November 2009 rainy season.

From the revised appeal, the health sector increased its initial funding requirements from US\$ 872 395 to US\$ 1 843 116. WHO received US\$ 872 395 comprised of US\$ 556 721 from CERF and US\$ 263 505 from the Finnish Government. From the entire appeal, the health sector was 64% funded (Figure 5).



**Figure 5: Funding Received against Requirement by Organization**

Source: OCHA: Financial Tracking Services



# Conclusions and recommendations

In conclusion, the health response was vigorous, effective and well conducted with no occurrence of disease outbreaks. Excess morbidity and deaths were prevented by prompt management of cases through outreach services and preventive interventions as well as provision of medical supplies and medicines. Monitoring of disease trends provided the basis for guiding preventative activities for health, water and sanitation. WHO supported these early recovery interventions through direct participation and training of health personnel in the development of Health Emergency and Response Plans. A total of 82 health workers and 144 Red Cross volunteers were trained in EPR and health education and hygiene promotion. Based on the experience of the 2009 floods and the need to continue to build local capacity to access risks and to prepare for and respond to future disasters, the WHO has identified the following areas, which require strengthening for improved health emergency preparedness and response:

## Early Warning

- For improved early warning there is a need for a standardized, centralized and timely Information Management System for health facilities to record weekly disease surveillance data. At present disease surveillance data is done on a monthly basis such as in the case of malaria. Due to poor telecommunications and lack of computers in many health facilities, this data are often received late at the national level for timely analysis and response,
- It is suggested that a centralized on-line disease surveillance information management system be created at the minimum at the regional level. Regional Health Information System workers could telephonically contact the district health facilities and immediately input the data into the pass-word protected on-line system. This data can be accessed in real-time at the national level and other regions to enable timely data analysis and facilitate dissemination of early warning information, and

- Develop an early warning system along with public awareness, education and communication programmes.

## Risk Reduction and Emergency Preparedness

- Develop national emergency preparedness plans based on risk mapping and with a focus on public health and health infrastructure,
- Regional Health Councils to develop and regularly update their Health Sector Emergency Preparedness and Response (EPR) plans based on hazard analysis, vulnerability and risk assessments;
- Simulation exercises and audits should be held to test EPR plans, which would strengthen and address possible coordination gaps;
- Timely pre-positioning of emergency medical supplies and equipment at Regional Medical Stores to ensure efficient distribution;
- There is a need for regional decentralized emergency budgets to



ensure timely response;

- Further strengthening of Health Information System (HIS) workers' capacity for improved analysis of disease surveillance data to determine trends and guide effective response, and
- Health promotion activities related to hygiene and nutrition should be undertaken prior to the next emergency.

### Emergency Response

- There is a need to supplement health staff in flood affected areas by deploying medical staff from non flood affected areas to ensure continued access to health services,
- A need for integrated health package of common "health emergencies" should include provision of chronic medication, maternal and child health, TB, HIV/AIDS as well as health education;
- Where a relocation camp is established, there is a need for health partners to consider establishing a dedicated Emergency Health Tent to provide frequent and accessible medical care, such as Emergency Obstetric Care (EmOC) and Voluntary Counselling

and Testing (VCT). Provision should be made for a 3-month supply of ARV, TB and other chronic medication to reduce defaulters during emergencies, and

- Develop strong partnerships with private mobile companies to ensure that outlying health facilities are able to communicate at all times.

### Early Recovery

- MoHSS and partners need to establish community linkages within the health system through capacity building to ensure timely community mobilisation and reporting for health,
- Address mental health needs such as Post-Traumatic Stress Disorder (PTSD) arising from the loss of livelihoods and possibly loved ones;
- Restoring health facilities and essential services as well as ensure adequate recovery of equitable individual and public health services;
- Use information from vulnerability assessments to identify further health needs, and
- Strengthen the ingenuity and resilience of communities to safeguard their livelihoods and sustain survival.

## Key Highlights

- Deployed 11 technical health experts to the flood affected regions.
- Conducted rapid health assessments and monitored disease trends.
- Distributed Inter-agency medical supplies potentially benefiting nearly 200,000 flood affected people.
- Strengthened disease surveillance. Reporting was above 80% of completeness.
- Helped establish health outreach services in flood affected regions.
- Trained 28 health staff in analyzing health impact of floods and developing Response Plans.
- Trained 54 health personnel in the development of Health Emergency and Response Plans.
- Trained 144 Red Cross volunteers in health education and hygiene promotion.
- Led Health Sector in developing the health component of Flash Appeal, which was 64% funded.
- Mobilised US\$ 872 395 comprised of US\$ 556 721 from the CERF and US\$ 263 505 from the Finnish Government.



*Early warning information disseminated to communities via radio can save lives.*



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## Interviews:

- Caprivi Region: Katima Mulilo Regional Health Directors' Team: Regional Health
- Caprivi Region: Regional Medical Stores
- Caprivi Region Red Cross
- Caprivi Region: Lisikili Health Facility: Dr Amos
- Oshakati Regional Town Council
- Namibia Red Cross Society, National Office and Caprivi Regional Office.
- UNFPA
- UNICEF
- Ministry of Regional and Local Government, Housing and Rural Development
- Ministry of Health and Social Services (MoHSS)

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