Disaster risk management: A strategy for the health sector in the African Region

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In 2011 35 countries in the African Region reported emergencies, defined as “threatening conditions that require urgent action”. An emergency often escalates into a disaster, which is “serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses exceeding the ability of the affected community or society to cope using its own resources”. Recent disasters in the Region include the 2007/2008 post-election violence in Kenya which displaced over 300 000 people; the large cholera outbreak in Zimbabwe in 2008 with more than 11 000 cases and high mortality; the 2009 Horn of Africa drought that affected about 13 million people; the November 2010 post-election violence in Côte d’Ivoire that displaced over 900 000 persons; the 2010/2011 floods in nine countries of southern Africa that affected around 150 000 people and destroyed farmlands, housing and social infrastructure including health facilities; the recent crisis in the Sahel subregion affecting over 15 million persons in nine countries; and recently in 2012 and early 2013 a total of 17 significant events were reported from 33 countries including drought, floods, disease outbreaks, armed conflicts and an armoury blast that affected over 60 million people. Some of the most significant events included the Sahel food crisis (involving nine countries in West Africa), floods in Nigeria, Cameroon, Comoros, Mozambique and Congo, cholera outbreaks in Uganda, Congo, Sierra Leone and the Democratic Republic of Congo (totalling 95 000 cases), Ebola haemorrhagic fever in the Democratic Republic of Congo and Uganda, the Marburg haemorrhagic fever in Uganda and dengue fever (Seychelles). Armed conflicts affected Mali and the Central African Republic and have remained protracted in the Democratic Republic of Congo. These events can be classified as mainly related to climate change (60%), disease outbreaks (30%), armed conflicts (9%) and accidents (1%) and have a huge potential in disrupting the socioeconomic development in the region beside the losses in human lives.

Recognizing the importance of emergencies, the Forty-seventh session of the WHO Regional Committee for Africa, in 1997, adopted resolution AFR/RC47/R1, on the Regional Strategy for Emergency and Humanitarian Action. The five-year strategy focused mainly on emergency preparedness and response. However, recent major disasters, including the tsunami in the Indian Ocean in 2004 and the Pakistan and Haiti earthquakes have increasingly emphasized the importance of addressing disaster risk, as defined in the Hyogo Framework for Action 2005–2015. Lessons learnt from the 2011 Horn of Africa crisis show that the scale of deaths and suffering, and the financial costs, could have been reduced had a risk management approach been applied. It was recommended, therefore, that all actors “manage the risks, not the crises”. This approach was reinforced in 2011 by the Sixty-fourth World Health Assembly in its resolution WHA64.10 urging Member States to strengthen health emergency and disaster risk management programmes.

Disaster risk management encompasses prevention, “the outright avoidance of...
adverse impacts of hazards and related disasters”; mitigation, “the lessening or limitation of the adverse impacts of hazards and related disasters”; preparedness, “the knowledge and capacities developed by health system and communities to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard event or conditions”; and response, “the provision of emergency services and public health assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected”. Preparedness and response are covered by the 1997 strategy. In addition to these however, DRM encompasses an element of prevention by enhancing the ability of the health system, community or society exposed to hazard to resist or absorb the effects of a hazard through interventions based on risk analysis.

Disaster risk management is defined as the systematic process of using administrative and organizational directives, operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impact of hazards (phenomena or substances that have the potential to cause disruption or damage to humans and their environment) and the possibility of disaster.\(^6\) In order to implement DRM, countries will require an enabling environment (policy and legislation; information and communication; training; research and funding). Certain capacities also need to be built, namely capacities for: coordination in the health and other sectors; risk assessment; making health facilities safer; minimizing the event impact (preparedness and response); post-disaster rebuilding of the health system (recovery); and strengthening local resilience (community support). This underscores the need to develop a regional strategy that comprehensively addresses DRM.

**Situation analysis and justification**

The African Region is struck, year after year, by natural and man-made disasters, with direct and indirect impact on mortality, the disease burden and health care delivery, needless to mention the adverse implications for economic growth and attainment of most national development goals. In 2010 the African continent experienced 69 disasters affecting 9.9 million people.\(^7\) In 2011, the Horn of Africa experienced a disaster that affected more than 13 million people and claimed an estimated 50 000–100 000 lives.\(^8\) In 2012 and early 2013 a total of 17 significant events were reported including drought, floods, disease outbreaks, armed conflicts in 33 countries in Africa that affected over 60 million people.

Between 2007 and 2011, the African Region required an average of over US$ 3.2 billion annually to respond to disasters and, of that amount, an average of US$ 288 million was for health sector response.\(^9\)

Emergencies and disasters exert negative economic impact on countries. According to the World Bank, natural disasters resulted in damages constituting between 2–15% of an exposed country’s annual GDP; and that the cost of natural disasters could have been reduced by US$ 280 billion if US$ 40 billion had been invested in preventive measures.\(^10\) The discounted total economic loss resulting from disaster-related deaths in the region in 2007 was US$ 117.2 million.\(^11\)

Despite the prevalence of emergencies and disasters, and their negative health and economic impact, baseline assessment of an enabling environment and the capacity for DRM, conducted in 32 countries in the Region in 2011 showed that the health sector in the assessed countries lacks relevant policies and capacities for DRM. The health sector roles outlined in multisectoral national disaster acts and policies have not been adequately translated into health-specific policies and practice. National health acts and policies cover DRM issues in only seven\(^12\) and ten\(^13\) of the assessed countries respectively. Clear gaps in the health sector’s capacity to perform intrasectoral and intersectoral coordination have also been identified. Only 14 of the 32 surveyed countries have a unit in the ministry of health (MoH) with responsibilities for DRM. There is a national multisectoral disaster management committee in 25 countries, but the health sector subcommittee exists in only 13 of them.\(^14\)

All countries have yet to establish health facility resilience building programmes based on assessment results, using the hospital safety index.\(^15\) Community-based activities related to DRM, often implemented through NGOs, are not coordinated and structured according to community-specific risk assessment.
Health sector disaster response plans do not consider all potential hazards in the countries, and are based on risk assessments in only four countries. In only six countries do these response plans undergo the recommended processes of table-top exercises, simulations and periodic review based on lessons learnt. None of the surveyed countries has established all the four key elements of optimal emergency and disaster response and operations readiness (business continuity plan, standard operating procedures, triage system and evacuation procedures).

The interventions of DRM for the health sector are targeted at the components of the health system including leadership and governance, building resilience of health facilities as well as preparedness in line with the six components. A strengthened health system will not only be able to provide an adequate health sector response during emergencies, but will also have beneficial effects outside emergency periods.

The regional strategy

Aim, objectives and targets
The aim of the current ten-year DRM strategy is to contribute to human security and development through improving the health sector’s management of disaster risks, including providing a comprehensive health response to emergencies and disasters.

The specific objectives are to:
- Ensure the availability of relevant policies, strategies and capacities to guide health sector interventions in DRM;
- Reduce the number of emergencies turning into disasters by managing risks and improving preparedness and response; and
- Strengthen the use of evidence for emergency and disaster early warning, preparedness and response.

Targets
By the end of 2014 all Member States in the African Region would have:

a) Identified, assigned responsibility to and equipped a unit in the MoH to coordinate the implementation of DRM interventions for the health sector;

b) Established functional health sector subcommittees in national multisectoral coordination committees on DRM; and

c) Incorporated DRM into their national health legislation, national health policies and health sector strategic plans.

By the end of 2017, at least 90% of Member States in the African Region would have:

a) Conducted health disaster risk analysis and mapping in a multisectoral approach;

b) Instituted a preparedness planning and management process that includes plan development, pre-positioning of essential supplies, resource allocation, simulations, evaluations and annual updating based on all risks prevalent in the country;

c) Incorporated emergency and disaster early warning, preparedness, response and recovery indicators into the national surveillance and health information systems;

d) Instituted health facility and community resilience building, and preventive interventions based on disaster risk analysis and mapping; and

e) Established emergency and disaster response and recovery operations, based on national standard operating procedures.

By the end of 2022 all Member States in the African Region will be fully implementing all the interventions of the regional strategy.

Guiding principles
The guiding principles of this strategy are:

Gender and human rights principles that ensure incorporation of gender equity and human rights perspectives into policies and programmes as well as neutrality and impartiality in humanitarian response.

Equity in access to services, with special focus on highly vulnerable population groups including migrant populations and people living in Small Islands and Developing States.

Country ownership, with governments coordinating and ensuring that all interventions by partners are in line with relevant national guidelines.

Participation, with the involvement of communities and civil society.

Strengthening partnerships within the health sector, using the humanitarian reform principles.

Fostering sustainable intersectoral collaboration at local and regional levels.

Priority interventions
The interventions proposed below are the minimum required by each country.
in order to establish the necessary enabling environment and capacities to manage disaster risks. The strategic approach is to consider all potential hazards and all potential contributing factors that may affect health including: health determinants, climate change adaptation interventions, and action involving all MoH departments. The strategy may not require the development of new documents and structures, but an updating and strengthening of what exists. The following are the proposed interventions, the prioritization of which would depend on country context and specificities.

**Develop appropriate policies, strategies and regulations to facilitate risk management.** This would involve updating the existing health legislation, national health policies and health sector strategic plans to incorporate provisions on prevention, preparedness and readiness, as well as response to the health impact of all potential hazards in the country. The revisions should be congruent with national multisectoral legislation, policies and plans on DRM.

**Provide adequate capacity for risk management in the health sector.** The MoH should be given responsibility and adequate authority, capacity and resources to coordinate all health actions before, during and after emergencies and disasters. The health sector should participate in all decisions and actions of the national multisectoral committee on DRM, through a functional health sector subcommittee. Resources should be allocated “from the national budget to fund DRM activities in the health sector”. Education and training programmes at undergraduate and graduate levels as well as continuing professional education and research on DRM should be developed and funded. The training should be aligned with the regional standard package on emergency training. Development of networks and communities of practice on DRM should be encouraged.

**Conduct assessments and map risks.** Vulnerabilities and capacities of the health sector should be assessed in conjunction with other sectors in order to measure and map the risks to health and health care delivery. The structural and functional capacity of existing health facilities to withstand and respond to the impact of hazards should be assessed, using the health facility safety index. Risk assessment and mapping should be updated regularly, based on changes in hazard and vulnerability profiles.

**Implement resilience-building interventions in health facilities and at community level.** This will imply designing the structural, non-structural and functional requirements of new health facilities to enable them to withstand the impact of hazards, and be functional in emergencies. Existing health facilities should be retro-fitted to increase their resilience, based on the results of risk assessments. Health facility disaster plans should be developed and tested. Community leaders and health workers at the community level should be engaged in risk assessment, planning and preparedness to build on local knowledge, experience and capacity. Community members should also play decisive roles in the execution, monitoring and evaluation of DRM intervention at community level.

**Prepare and provide timely and adequate response to emergencies.** Preparedness should be strengthened by developing, evaluating and revising response plans based on comprehensive risk analysis taking into account all prevalent hazards. The plans should involve identifying rapid response teams at local and national levels including sources of surge support; pre-positioning medical supplies and other logistics; designating isolation units and safe areas; and organizing mass casualty management services. Procedures should be regularly tested through desktop exercises and simulations. Standard operating procedures (SOPs) for health response and recovery operations should be developed to determine what needs to be done, by whom and how, before, during and after emergencies and disasters, in order to minimize related casualties.

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**Figure 1. Disaster risk management cycle, as adopted by WHO/AFRO**
Figure 2. Disaster risk management tools

Post-disaster needs assessment should be conducted to foster continuity of service, and rebuild public health services, as part of updated national health strategic plans.

Generate and disseminate evidence. Information on the projected and actual health consequences of natural and man-made disasters including event-based surveillance should be generated and monitored, using appropriate indicators, through the national surveillance system. This will provide early warning and guide preparedness and health response. Information management including use of feedback should be strengthened. Operational research should be conducted on changing risk patterns for various communities, including highly vulnerable groups such as migrant populations and persons living in Small Island Developing States. Operational aspects of response and recovery, e.g. the quality and impact of response, should be assessed through regular monitoring and research to inform adaptation of strategies and actions.

Initial steps in implementing the strategy

A number of interventions have already been initiated to implement the strategy. As highlighted in the strategy document, the major shift involves addressing the root causes of a disaster. It is therefore imperative to look into the whole disaster management cycle and develop appropriate tools to facilitate and inform countries in their efforts to design or develop policies, strategies and standards for effective disaster management. The following diagram depicts the whole cycle and the various components of disaster management.

Disaster management is a continuous process with different but complementary interventions in the different phases of the cycle. The magnitude of a given intervention may vary from one phase to the other. However, all interventions contribute to managing the effects of a disaster. The continuous monitoring and evaluation of the DRM interventions should be mandatory to improve or strengthen disaster management skills using lessons and best practices from the previous disaster.

The Regional Office for Africa of WHO has developed a set of tools and guidelines that focus on interventions at all levels of DRM in order to guide countries in tailoring strategies and plans to their individual needs. The tools developed will address different phases of the disaster management cycle.

These tools include:
1. Country capacity assessment (CCA)
2. Vulnerability risk assessment and mapping (VRAM)
3. Safe health facility index (HSI)
4. Guideline for developing standard operating procedures (SOPs)
5. Recovery framework
6. Core competencies for DRM

Country capacity assessment (CCA)

- The CCA user guide is the master document used to develop road maps for strengthening DRM capacity at the country level.
- The purpose of the user guide is to describe the steps involved in conducting DRM capacity assessments and developing capacity strengthening road maps. The document is divided into two main parts: Part 1 describes the methodology for conducting the capacity assessments including the key activities which need to be implemented during the preparatory, data collection, analysis, reporting and road map development phases. Part 2 of the document is the annexes which contains definitions of key disaster terminologies and the important tools such as indicators, benchmarks and reporting formats which are needed to analyse and document the findings of the assessments.

Vulnerability risk assessment and mapping (VRAM)

- The guideline provides practical guidance on how to conduct VRAM within the health sector of African countries. It summarizes the key steps involved in planning, implementing, coordinating, supervising, monitoring and using the outcomes of health sector VRAM to build health system and community resilience to the public health impact of disasters.
- It may be used as training material for staff of MoH who want to undertake VRAM, as a step-by-step guide for conducting VRAM within the health sector and also as an advocacy tool to sensitize policy-makers on health sector disaster risk reduction (DRR).
- The document begins by defining the key disaster and VRAM terminologies and describing the key challenges, objectives and guiding principles for health sector VRAM. It outlines the conceptual framework for VRAM in the health sector and goes on to give broad orientations on how to
conduct hazard analysis and mapping, health vulnerability and capacity assessments and health risk analysis. The guidelines conclude by describing how the outcomes of VRAM can be used to strengthen health sector and community resilience and how to manage the VRAM process.

Safe health facility index (HSI)
- This is a guide for countries to develop national health facility index assessment tools to identify aspects of the health facilities that impact on the safety of and through the application of standards to hospitals and other health facilities: strengthening preparedness; developing national standards for response; and strengthening evidence and knowledge management.

Emergency standard operating procedures (SOPs)
- Standard operating procedures are practical field-oriented procedures based on minimal essential standards and best practices to manage response to emergencies and disasters.
- This document provides guidance for the preparation of national SOPs for health response to emergencies and disasters, and not the SOPs themselves. The document is designed for use by staff at all levels of the MoH and partners in the health sector. It is divided into eight chapters. Chapters one to four give a brief introduction to the document and key considerations in developing SOPs; sections five to seven provide useful guidance on how to develop SOPs for health coordination, response and recovery before, during and after emergencies; and section eight addresses monitoring and evaluation of SOPs and emergency response.

Recovery framework
- The framework provides practical guidance on post-disaster/conflict health system recovery to health care managers, decision-makers, health systems specialists and emergency public health practitioners in MoH and health partners who are involved in health services planning and delivery during transition periods. It summarizes the key principles and processes involved in planning, implementing, coordinating, supervising, monitoring and evaluating transition and recovery activities within the health sector.
- It may be used for capacity building purposes (training of health workers on health system recovery), as a reference material during the post-disaster phase, as background information for DRM planning and implementation, and as an advocacy tool to sensitize policy-makers. Most of the activities and challenges described in this document are based on lessons learned from practical field experience in African countries in transition from emergency to development.

Core competencies for public health DRM HR staff
- Core competencies guide is a multidisciplinary tool that can be used by the national health authorities to develop in-service, pre-service and specialized training courses in in public health DRM. Further, the core competencies can be used to develop interview guides and job descriptions for professionals enrolling in DRM careers.

Roles and responsibilities

Member States
Member States should:
- Develop and make available updated tools, standards and guidelines for implementation of interventions, including updating national health policies and plans;
- Provide the necessary technical guidance and support on DRM to Member States at national, subnational and local levels;
- Strengthen collaboration with, and ensure coherence and complementarity of actions among, the relevant entities including those in the public, private, nongovernmental and academic sectors as part of support to countries;
- Strengthen the evidence base for disaster risk management, through operational research and impact assessments;
- Support capacity building at national and subnational levels;
- Establish a functional emergency database and build a roster of experts in the Region;
- Advocate for resource allocation to DRM in the African Region;
- Support the creation of regional networks on DRM; and
- Develop tools for estimating the cost of the interventions.

Resource implications
- Literature and experience regarding the cost of establishing DRM are scarce, considering that the approach is relatively new. The resources required for the implementation of the new strategy will depend on the context and specificities of individual countries, in terms of size, prevalence of hazards and existing capacities to manage disaster risks.

Some of the proposed interventions in this strategy, including updating the legal, policy and strategic documents, could be covered by routine administrative costs, and may not require large capital investments. According to the Financial Tracking Service of the Office for the Coordination of Humanitarian Assistance (OCHA), the countries in the Region required an average of over US$ 3.2 billion annually from 2007 to 2011 to respond to emergencies and disasters, about 9% (US$ 288 million) of which
was for the health sector response. At least 10% of this should be used for risk management, preparedness and recovery, in line with the African position and high-level commitment to the global platform for disaster risk reduction. Introducing hazard-resistant design measures in constructing new health facilities, and retro-fitting old facilities, are some of the main resource-intensive components and should be incorporated into the health sector capital development budget. This would increase construction costs by 5–24% which, compared with the cost of reconstruction or damage repair after a disaster, is significantly lower.

Monitoring and evaluation

Progress towards the attainment of the targets set in this strategy will be evaluated in the medium term in 2017, and after ten years, in 2022. Data will be collected through surveys to monitor progress and identify constraints that hamper achievement of set targets.

Countries will be monitoring key indicators for DRM interventions at national and district levels, by using data from health information and surveillance systems, satellite forecasts, rapid health assessments and surveys. Disaggregation of data to capture age, sex, social status and geographical differences will be emphasized. Pre-disaster monitoring will include general risk trends, health risks trends and event early warning. The monitoring before disaster will capture details on the accessibility, quality, readiness and safety of health services. During response and recovery there is a need to monitor health outcomes focusing on the coverage of essential health services and interventions to mitigate diseases and behaviours that lead to poor health, such as antenatal care coverage. Other indicators to be monitored are severity of disaster, epidemic onset and evolution, and nutrition indicators.

Conclusion

Countries in the African Region continue to be affected by emergencies, resulting in disasters with avoidable loss of life and significant socioeconomic costs. The African Strategy on Emergency Preparedness and Response, adopted in 1997, focused on emergency preparedness and response. However, the World Health Assembly resolution WHA64.10, adopted in 2011, re-affirmed the current global focus on strengthening disaster risk management.

This regional strategy therefore proposes that Member States strengthen disaster risk management by developing appropriate laws and policies; building adequate capacities in the MOH; assessing and mapping risks from a health sector perspective; assessing safety and applying standards to building of hospitals and other health facilities; building community resilience; strengthening preparedness; developing national standards for response; and strengthening evidence and knowledge management. This would ensure a prepared health system capable of providing adequate health sector response, and decrease the likelihood of emergencies turning into disasters.

The strategy was reviewed and adopted at the Sixty-second session of the WHO Regional Committee for Africa. The Regional Committee recommended that the Regional Director:

a) Provide the necessary technical guidance and support, including tools, to Member States and partners for the implementation of the DRM strategy;
b) Support national capacity building on DRM including strengthening the evidence base for disaster risk management;
c) Lead the creation of regional networks on DRM;
d) Communicate to Member States on best practices on DRM implementation in the Region;
e) Advocate for resource allocation to DRM in the African Region; and

References

3. Ibid.
11. Ibid.
19. In addition to WHO guidelines, there are several others developed or under development by the UN Inter-Agency Standing Committee (IASC), International Committee of the Red Cross and Red Crescent (ICRC), Médecins Sans Frontières (MSF), etc.
20. These include nomads, economic migrants, seasonal farmers that migrate to water sources and migrant fishermen.