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TITLE: FROM FRAMEWORK TO ACTION: OPERATIONALIZING THE HYOGO FRAMEWORK OF ACTION (HFA) 2005 TO 2015 IN THE HEALTH SECTOR; PROGRESS, IMPORTANT LESSONS AND WAY FORWARD FOR POST-2015 HFA PUBLIC HEALTH AGENDA IN AFRICA

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Abstract

The World Bank estimates that one in every three African is directly or indirectly affected by disasters which may delay the attainment of international development goals. These disasters almost always impact the health of affected populations, health systems in affected areas and social determinants of health negatively.

Drawing from its recent experiences and lessons learnt from responding to disasters such as the Indian Ocean Tsunami, Pakistan and Haiti earthquakes, the Horn of Africa (HOA) and Sahel drought crisis, WHO recognizes the importance of having a holistic approach to the management of disasters in the health sector and thus places strong emphasis on supporting its Member States to build institutional capacity for health sector DRM. In this regard, the organization promotes strong health systems, based on sound primary health care services as the cornerstone for addressing the vulnerabilities, health inequalities and limited access to health care which are associated with disasters.

In cognizance of WHO's commitment to health sector disaster risk management (which is articulated in World Health Assembly Resolutions 64.10 and 65.20 (WHA 64.10 and 65.20)) and in line with the Hyogo Framework of Action (HFA) 2005 - 2015 and the Africa Union's Regional Strategy for Disaster Risk Reduction (DRR) 2005-2015, in November 2012, the Sixty- second session of the WHO Regional Committee (RC) for Africa (RC 62) adopted and is currently implementing a 10-year regional strategy for health sector DRM. The strategy has six broad interventions and aims to build institutional capacity and individual competencies for health DRM among African Member States so as to strengthen community and health sector resilience.

This article highlights the progress and lessons learnt from the implementation of strategy so far and use these to make recommendations for the post-2015 HFA emergency public health agenda in Africa

Background

Natural and man-made disasters are important phenomena which continue to retard socio-economic development in the African region. In 2012, 57 natural disasters affecting about 38 million persons with economic damage to the tune of US\$900 million were reported on the continent (Guha-Sapir, Hoyois and Below, 2012). The continent is equally affected by human-made disasters such as conflicts. According to the internal displacement monitoring centre (iDMC), there were over 10.4 million Internally Displaced Persons (IDPs) linked to worsening conflict and violence in sub-Saharan countries in 2012, a sharp increase of 7.5% from 9.7 million IDPs at the end of 2011¹. The World Bank estimates that one in every three African is directly or indirectly affected by disasters which may delay the attainment of international development goals (Michailof, Kostner and Devictor, 3). These disasters usually have severe impact on the public health of affected populations; Djafri D et al demonstrated the adverse effects of disasters on public health as evident in the slowing down of previous rate of improvement in maternal and child mortality following an earthquake (Djafri, Chongsuvivatwong and Geater, 2013), while Taye A et al highlighted the long lasting adverse health impacts of famine (Taye, Mariam and Murray, 2010).

The foregoing highlights the importance of having a comprehensive approach to disaster risk management in the health sector; this has resulted in an increasing call for better policies and guidance for health interventions before and during disasters as well as in the reconstruction phase. It has been demonstrated that pre-emergency status of existing health infrastructure, health-seeking behaviours and access affect interventions such as immunization coverage during emergencies (Davila-Payan, Swann and Wortley, 2013). A study in Iran showed that an educational intervention covering elements of hazard awareness and preparedness, with a focus on earthquakes and floods administered through the Primary Health Care (PHC) system effectively improved disaster awareness and readiness at a community level (Ardalan et al, 2013). This study recommended that community disaster reduction programmes should be integrated into routine public health service delivery.

Lessons learnt from the 2011 Horn of Africa crisis showed that the scale of death and suffering and the financial cost could have been reduced with risk management and recommended that all actors need to manage the risks, not the crisis². Drawing from its recent experiences and lessons learnt from responding to disasters such as the Indian Ocean Tsunami, Pakistan and Haiti earthquakes, the Horn of Africa (HOA) and Sahel drought crisis, WHO recognizes the importance of using a holistic approach for effective management of disasters in the health sector. Such an approach focuses not only on responding to emergencies and disasters, and the mitigation of their consequences, but also on preventing them through strengthening risk management within the health sector and ensuring effective

¹ <http://www.internal-displacement.org/publications/global-overview-2012-africa.pdf>, (accessed on December 2nd, 2013)

² <http://www.oxfam.org/sites/www.oxfam.org/files/bp-dangerous-delay-horn-africa-drought-180112-en.pdf> (accessed on December 16th, 2013)

post-conflict/disaster health system rebuilding as defined in the Hyogo Framework of Action (HFA) 2005-2015³. In this regard, WHO promotes strong health systems, based on sound primary health care services as the cornerstone for addressing the vulnerabilities, health inequalities and limited access to health care which are associated with disasters⁴. Thus, the organization's approach to Disaster Risk Management (DRM) rests on strengthening the resilience of the six building blocks of the health system namely governance and regulation, health financing, health workforce, information, medicines, health technologies and vaccines and health services delivery.

The 10 year regional strategy for health disaster risk management⁵, adopted during the 62nd Regional Committee for Africa (RC62) in November, 2012 is intended to boost these efforts by consolidating the gains made since 2005 with disaster/emergency preparedness and response and by aligning the various global and regional initiatives, declarations and resolutions that have impact on resilience building, readiness and response. These global initiatives include among others the Hyogo Framework of Action (HFA) 2005 to 2015, WHO's core commitments to health DRM which are articulated in World Health Assembly Resolution 64.10 (WHA 64.10)⁶ which requests the organization to *"provide the necessary technical guidance and support to Member States and partners for developing health emergency and disaster risk-management programmes at national, subnational and local levels"* and WHA 65.20 which mandates WHO to *"provide a faster, more effective and more predictable humanitarian response by operationalizing the Emergency Response Framework"*⁷. Other initiatives considered in developing the regional strategy included the International Health Regulations (2005)⁸; the UN General Assembly resolution A/RES/60/124 on Strengthening of the coordination of emergency humanitarian assistance of the United Nations⁹; the declarations on Health and Environment¹⁰ and Small Islands Developing States¹¹.

³ <http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf> (accessed on December 16th, 2013)

⁴ <http://www.who.int/en/ahm/issue/12/reports/ouagadougou-declaration-primary-health-care-and-health-systems-africa-achieving> (accessed on December 16th, 2013)

⁵ Disaster risk management : A strategy for the health sector in the African region ; available at <http://apps.who.int/iris/handle/10665/80238>(accessed on December 16th, 2013)

⁶ World Health Assembly Resolution 64.10; available at <http://apps.who.int/iris/handle/10665/3566> (accessed on December 16th, 2013)

⁷ World Health Assembly Resolution 65.20; available at <http://apps.who.int/iris/handle/10665/80494> (accessed on December 16th, 2013)

⁸ International Health Regulations (2005); available at <http://www.who.int/ihr/publications/9789241596664/en/index.html> (accessed on 16th December 2013)

⁹ UN General Assembly Resolution 60/124 available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N05/495/04/PDF/N0549504.pdf?OpenElement> (accessed on 16th December 2013)

¹⁰ Libreville Declaration on Health and Environment in Africa; Libreville, 29 August 2008; available at <http://www.afro.who.int/en/regional-declarations.html> (accessed on 16th December 2013)

¹¹ Cape Verde Declaration by Ministers of Health of Small Island Developing States of the African Region; Praia, 19 March 2009; available at <http://www.afro.who.int/en/regional-declarations.html> (accessed on 16th December 2013)

In this article, we review the progress and lessons learnt from the implementation of the health DRM strategy so far including the development of implementation tools and use these to propose recommendations for the post-2015 HFA public health emergency agenda in Africa.

Methodology

This is a review article which uses descriptive qualitative case study method (Baxter and Jack, 2008) to review the key issues in the development and implementation of the health DRM strategy. In this situation the case is the "implementation of the regional strategy for disaster risk management in the health sector of Africa and lessons learnt". The main methodology used is retrospective review of implementation of the strategy. The lessons learnt from the retrospective review are used to chart the way forward and define the prospective agenda for health sector disaster risk management. Information was obtained through desk review of available literature on DRM and DRR in general and as these relates to the health sector in particular as well as key informant interview. A list of documents, declarations, resolutions, guidelines and reports associated with implementation of the HFA and the regional strategy were obtained via online searches (using PubMed and other search methods), compiled and systematically reviewed. These documents include among others, the HFA document, the regional strategy itself, reports of implementation of key interventions in the strategy and existing literature on health DRM and health. To validate information or gain further insights into grey areas, key informant interview of selected actors involved in the implementation of the strategy was also done using semi-structured questionnaire where necessary.

Regional situation regarding health DRM and justification for DRM strategy

Coordinated efforts are required from all sectors (including health) to implement effective disaster risk management. Meaningful contribution of the health sector to the multi-sectoral DRM objectives is subject to an enabling environment which include emergency legal and policy framework, appropriate planning and decision making processes, effective coordination, health information management, and adequate human and financial resources for risk governance and management. In order to better understand health sector related disaster vulnerabilities and capacities in the African region, the African Regional Office of WHO (WHO/AFRO) conducted a capacity assessment among 32 out of its then 46 Member States in 2011 (unpublished).

This assessment showed major gaps in the emergency policy environment and capacities in the health sector to effectively perform disaster risk management functions. The assessment showed that only 7 (22%) and 10 (31%) out of the 32 countries had DRM provisions in their National Health Acts and National Health Policies respectively. The health sector disaster response plans did not consider all potential hazards in the countries and were based on risk assessments in only four countries. The available health response plans undergo recommended processes of table top exercises, simulations and periodic plan review based on lessons learnt in only six countries. None of the surveyed countries had established all the four key elements of optimal emergency and disaster response operations readiness namely

Business Continuity Plan, Standard Operating Procedures, Triage System and Evacuation Procedure)¹². National standards for emergency and disaster response remained inadequate or not enforced in almost all countries. Clear gaps in the health sector's capacity to perform intra and inter sectoral coordination were also identified as critical problems. Only about half (14 of the 32) surveyed countries have a unit in the MOH with responsibilities for DRM. Although there was national multi-sectoral disaster management committee in 25 countries, but health sector subcommittee existed in only 13 of them.

Furthermore, the regional health sector disaster management strategy (adopted in 1997) which was operational at the time was only geared towards disaster preparedness and response with no provision for disaster reduction and post-conflict/disaster health system recovery. All countries were yet to introduce the health facility resilience building programmes based on assessment results using the hospital safety index¹³. Community based activities related to DRM, mostly through NGOs, are not coordinated and structured according to community specific risk assessment. The Region required an annual average cost of US\$288 million for the health sector response to emergencies and disasters, however resource allocation for emergencies by Member States remains inadequate with most countries depending mainly on donor funding.

To address the gaps highlighted above, ensure an all-encompassing approach to health sector disaster risk management and in congruence with the overall goal of the HFA, WHO/AFRO developed and is currently supporting Member States to implement a 10-year health sector DRM strategy for the African region. The goal of the strategy is to contribute to human security and development by improving the health sector's management of disaster risks, including prevention, mitigation, preparedness, and a comprehensive health response to emergencies and disasters.

Components of the regional strategy

The Regional Strategy is based on the knowledge that Disaster Risk (R) is a function of Hazards (H), Vulnerabilities of the affected populations (V) and their Capacities to cope (C) as represented in the formula below:

Risk (R) = Hazards (H) X Vulnerability (V)/Capacity (C).

¹² Health Sector Self-Assessment Tool for Disaster Risk Reduction, Barbados, Pan American Health Organization; 2010. Available at <http://www.disasterpublications.info/english> (accessed on December 16th, 2013)

¹³Hospital safety index

http://www.paho.org/disasters/newsletter/index.php?option=com_content&view=article&id=123%3Athe-hospital-safety-index-a-new-and-long-awaited-tool-to-assess-whether-hospitals-are-safe-from-disasters&catid=61%3A110-issue-october-2008-safe-hospitals&Itemid=111&lang=en

The Strategy represents a significant shift from limited action to crisis management through humanitarian response and relief efforts. It aims to reduce disaster risk by building resilience

through a multidisciplinary approach. Disaster Risk Management (DRM) is defined as the systematic process of using administrative directives, organizations, 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 disaster¹⁴. Disaster risk management encompasses both 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 events 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”.

In the health sector, the focus is thus on building resilience through measures that reduce vulnerability such as building safe health facilities that can resist or avoid the hazards, and through building capacity of the health system to cope with the effects of the hazards. In reducing vulnerabilities and building capacities, the strategy takes into account all hazards that exist in a particular community (All Hazards Approach) as well as all threats to health and health system (Whole-Health approach). It (the strategy) focusses mainly on two strategic areas namely: strengthening institutional capacity and building individual competencies as part of the overall goal of strengthening health system and community resilience. It mandates Member States to strengthen disaster risk management capacity 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 that will be able to provide an adequate health sector response, and reduce the likelihood of emergencies becoming disasters.

Implementation of the regional strategy

The implementation of the strategy commenced in earnest with development, through a consultative approach, of keys tools and guidelines to support countries in its implementation; three technical guidelines to support countries in building national capacity on risk management with focus on proactive measures to manage risk have been developed according to the three phases of the DRM cycle (pre, intra and post disaster). The guidelines which cater for the pre-disaster phase emphasize on country capacity assessment including

¹⁴ 2009 UNISDR terminology on disaster risk reduction – UNISDR ; available at www.unisdr.org (accessed on December 2nd, 2013)

early warning, vulnerability risks assessment and mapping, and hospital and health facility safety index. The guidelines which address the response phase focuses on Standards Operating Procedures (SOPs) to enhance the readiness of national health authorities as well as international humanitarian actors to better respond to the crisis. The guidelines for the post-crisis phase describe actions to be taken in order to bridge transitions from humanitarian assistance through recovery and reconstruction towards development.

A Country Capacity Assessment (CCA) tool has also been developed, pilot tested and subsequently used to conduct CCAs in Sierra Leone, Tanzania, Uganda, Ethiopia and the Democratic Republic of Congo (DRC); similar assessments are planned in other countries in the near future. The assessment consist of an in-depth analysis of nine key components of health DRM framework, namely the legal and institutional framework, coordination mechanisms, information management, planning process, response and recovery operations, community support and participation mechanisms, hospital and health facilities safety, risk communication and community education, and human resources for DRM. The primary outputs of the CCA include a comprehensive description of the ability of health sector to manage the risks disasters in the country, a thorough understanding of the strengths and gaps in existing capacity as well as the challenges and opportunities for improving disaster risk management and a detailed road map for enhancing existing capacity for managing disaster health risks using an all-hazards approach.

In addition to CCA, the health sector VRAM (including hospital safety assessment) has been conducted in Tanzania. The Vulnerability and Risk Assessment and Mapping (VRAM) exercise essentially comprises three main elements namely hazard analysis, vulnerability and capacity assessment, and risk analysis. It aims first at identifying and defining potential hazards to which the health system and communities may be exposed to. Second, it identifies and describes health related vulnerabilities and coping capacity of both the communities and the health system. Lastly, from above analyses, VRAM help health DRM planners and decision makers to formulate key actions aiming to lower vulnerabilities or increase coping capacity, thus improving the overall resilience of the health system as well as of the communities.

The need to create a critical mass of trained personnel in the countries to adequately and comprehensively address field human resources needs in terms of health DRM is also being addressed through development of standard core competencies and health DRM training packages for health professional in the region. This activity which began in 2009, is being done in collaboration with selected African public health institutions*, emergency public health experts and donors in the region. So far 14 core competencies have been identified (see table 1), training curriculum and modules developed for basic, intermediate and advanced health DRM courses and course delivery, certification and monitoring and evaluation mechanisms have been developed through a series of regional consultation

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meetings. The training modules will be pilot tested in selected Africa Schools of Public Health in mid-2014.

Table 1: DRM core competencies for public health workers in Africa

	Core competencies	Training units
1	Demonstrate knowledge of public health principles and practices for Disaster Risk Management	Disaster risk management concepts
		Public health consequences of disasters
		Context: political, social and economic environment
2	Demonstrate knowledge of basic epidemiological methods and data management	Basic epidemiology
		Data analysis and management
3	Demonstrate the ability to communicate effectively in DRM	Key principles
		Risk communication
		Operational communication (any communication that is not with the media and public)
4	Demonstrate the knowledge of principles of legal, human rights and ethics in dealing with DRM	Ethics
		Human rights
		International humanitarian law
		International health regulations
5	Demonstrate ability to identify, mobilise and manage resources	Resource mobilization
6	Demonstrate the ability apply logistics management	Logistics management
7	Demonstrate the ability to apply measures of safety and security	Basic security in the field
		Protection and family safety
8	Demonstrate effective Leadership, teamwork and management skills required for DRM	Principles of leadership and management
		Leadership
		Management
		Coordination
9	Demonstration ability to effectively perform monitoring and evaluation.	Key principles
		Monitoring
		Evaluation
10	Demonstrate the ability to conduct capacity assessments	Key principles
		Risk assessments
		Needs assessments
11	Demonstrate the ability to plan and implement preventive and mitigation activities	Key principles
		Risk reduction
		Mitigation
12	Demonstrates the ability to plan and implement emergency preparedness at	Key principles
		Planning

	Core competencies	Training units
	community and health facility levels	Early warning
		Surge capacity
		Training
		Exercise management
13	Demonstrate ability to apply DRM principles and practices for the health response to disasters and public health emergencies	Key principles
		Health assessment
		Mcm /ems
		Incident management
		Public health programmes in emergencies
		Planning
14	Demonstrate ability to plan and implement health system and population recovery.	Key principles
		Recovery needs assessments
		Recovery strategy and planning
		Programme implementation

To ensure predictable funding for emergency response, an African Public Health Emergency Fund (APHEF) which is jointly managed by WHO and the African Development Bank (ADB) on behalf of Member States has also been established¹⁵. The fund provides sustainable, rapid and predictable funding for public health emergencies in the African region; it supports investigation and response activities for disease outbreaks and public health emergencies provided there is a formal declaration of the outbreak or public health emergency by the affected Member State or the appointment of a Humanitarian Coordinator for such an emergency or outbreak or a humanitarian appeal is launched by the affected Member State. The fund is financed through an annual voluntary contribution from WHO/AFRO Member States to the tune of US\$ 50M yearly. Funding is limited to a maximum of US\$2M per emergency per country. So far, the fund has realized an estimated US\$1.8M as contribution from Member States.

WHO also continue to strengthen its internal capacity to support its Member States to implement the strategy and ensure a more timely and effective approach to emergency response (to both acute and chronic emergencies) through development and implementation of an Emergency Response Framework (ERF) and an administrative emergency Standard Operating Procedures. Health care managers and national DRR platform managers from 29 out of the current 47 Member States have also been briefed on the strategy.

¹⁵ The African Public Health Emergency Fund (APHEF) available at <http://www.afro.who.int/en/clusters-a-programmes/dpc/cluster/the-african-public-health-emergency-fund.html> (accessed on 13th December 2013)

Lessons learnt from the implementation of the regional strategy

A few lessons which will shape the post-2015 HFA public health agenda in Africa have so far been learnt in the course of implementing the regional strategy. The country capacity assessments have proven to be useful for identifying the critical gaps in DRM within the health sector of African countries. It has also provided opportunities for capacity building and awareness creation among Ministries of Health and health sector partners about the new approach to disaster risk management in the health sector. The strategic plans (roadmaps) which are the ultimate products of the country capacity assessments continue to set the pace for strengthening disaster risk reduction in the health sector of African countries. The country capacity assessments have also revealed the existence of several global, regional and national DRM initiatives such as the climate change adaptation projects which contains elements of health DRM hence the need for more effective coordination and closer collaboration in the implementation of the regional strategy.

In Sierra Leone, the support from the national platform (as a result of the introduction of the strategy) has been critical to pushing the DRM agenda at national level thus also strengthening the health DRM platform in the country. In Tanzania, one of the countries which has conducted the country capacity assessment and is currently implementing a health sector DRM strengthening roadmap, good progress is being made in strengthening the health sector DRM capacity. A national health emergency preparedness and response operational plan has been developed and health sector VRAM including hospital safety assessments have been conducted in five regions and the results are being used to guide disaster risk reduction. Furthermore, mass casualty management guidelines have been developed using the results of the VRAM and hospital safety assessments. In Ethiopia and Uganda which have also conducted the capacity assessments, its results are being used to strengthen health policy and strategy for more effective disaster risk management. In Congo DRC, high level commitment and national leadership of the CCA process was crucial to national ownership of its results which in turn has guaranteed the implementation of the roadmap.

Many pertinent lessons which are critical for improving hospital safety in particular and health disaster risk management in general in Tanzania were learnt from the VRAM and hospital safety assessments. Firstly, the assessments showed that the most important threat to safety of health facilities as they relate to disasters is their functional capacity for effective coordination, contingency and business continuity planning and the availability of medicines, supplies and equipment for use during emergencies. Secondly, hospital safety assessment provides information which are not only useful for strengthening health facility disaster preparedness and risk reduction but also for improving their general day-to-day management. Thirdly, given that this is the first time that the hospital safety assessment tool is being used in the African region, experiences from its use showed that the tool is useful and applicable for assessment of hospital safety level in Africa. Fourthly, the VRAM exercise has contributed to identification of health sector disaster risk by hazards; the result of the VRAM showed that the most important causes of health vulnerability are factors which are outside the health sector such as the pre-disaster socio-economic status of affected persons thus a multi-sectoral approach to health system and community resilience building is important.

The health DRM training curriculum has been able to define the core competencies which are required for health workers to be able to effectively perform their functions before, during and after disasters. While establishment of the APHEF is a laudable achievement, it is focussed on emergency response and does not fund disaster risk reduction interventions. In addition, inadequate contributions from Member States continue to challenge its effective implementation. Currently, only an average of 3% of the annual contribution of Member States is received yearly. This amount is grossly inadequate to fund the increasing number of public health emergencies in the region thus a more innovative approach is required to encourage Member States to contribute in full and on time. Broadening the scope of partners (both private and public) who can contribute to the fund may also be useful in this regard.

Conclusions, way forward and post 2015 public health agenda for Africa

The African regional strategy for health DRM has operationalized the HFA within the health sector of Africa. The strategy (and the HFA) has brought about a paradigm shift in the approach to health disaster management in Africa. Although its implementation is still in its infancy, anecdotal evidence shows that it (and the HFA) has so far had positive impact on health disaster risk reduction; its development and implementation has resulted in better definition and understanding of disaster risk reduction and management and better risk management policy, strategy and plan formulation. However, a lot of effort is still required to ensure that the goals and objectives of the strategy are fully achieved; this will depend on how it is adapted to suit the evolving scenario in the post 2015 HFA era. On the other hand, the lessons learnt from its implementation will provide the evidence and opportunities which are required to shape the post-2015 emergency public health discussion in the African region. In this regards, it should continually be revised and aligned to the post-2015 HFA agenda to ensure that it remains relevant and in tune with evolving situation and reality in the post-2015 HFA era.

In line with the principles of the Rio Declaration on Environment and Development, which states that *"human beings are at the centre of concerns for sustainable development; they are entitled to a healthy and productive life in harmony with nature"*,¹⁶ the need to use people-centred approaches which focus on harnessing human capital at all levels to build the resilience of disaster-prone and affected populations in the post-2015 era cannot be overemphasized. Thus more investments will be required to build stronger DRM capacities not only within the formal health sector but very importantly at the community level to foster community participation in health DRM programmes. Furthermore, integrated and multisectoral approaches will be required to strengthen health system and community resilience to disasters.

¹⁶ Rio Declaration on Environment and Development; The United Nations Conference on Environment and Development, Rio de Janeiro, Brazil; June 1992; available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> (accessed on December 16th, 2013)

Based on the foregoing lessons learnt and conclusions, we propose the following recommendations which should form the thrust of the post-2015 public health disaster risk management agenda in Africa:

1. The contribution of community involvement and participation to successful implementation of health disaster risk management programmes cannot be overemphasized. This underscores the need to involve communities in the conceptualization, planning, implementation and monitoring of health DRR and DRM projects. To this effect, community involvement and participation should be one of the corner stones of the post-2015 HFA public agenda in Africa
2. To ensure sustainability, health DRM interventions should be integrated into longer-term health development programming. In post-conflict/disaster settings, health disaster risk reduction should be included in health system recovery interventions
3. The impact of sound evidence on effective strategy and programme development and better health outcomes cannot be overemphasized, hence the need for the health sector to tap into relevant research, science and technological innovations to improve health DRM especially in the areas of early warning, safer, smarter and greener hospitals and disaster response. In this regard, strategic and technical partnerships between MOHs and academic/research institutions will go a long way to strengthen health sector DRM
4. A multisectoral approach is required to ensure that health DRM is mainstreamed into the DRM work of other sectors and vice versa. In this regards, it is important to ensure that future health sector disaster risk management programmes are linked to and synchronized with those of other relevant sectors such as water, sanitation, housing, education etc. In addition, future disaster risk management policies and strategies should address the social determinants of health which have been shown to contribute significantly to health vulnerabilities
5. To synchronize efforts, reduce duplication and ensure synergy, the post 2015 public health emergency strategies should be linked to climate change adaptation initiatives. Such strategies should be developed and implemented in a manner that is appropriate to the African context.
6. The hospital safety assessment tool is a very simple to use, inexpensive but highly effective disaster risk management tool which can assist hospitals in resource poor settings to easily assess their risks and should therefore be scaled up to improve health system resilience in the post-2015 era
7. The importance of timely, predictable and sustainable funding mechanism for public health emergencies cannot be overemphasized. To this effect, innovative approach for strengthening resource mobilization for health DRM is recommended. Specifically, predictable sources of funding are required for health sector disaster risk reduction.
8. MOHs, health partners and organizations in the African region should continuously advocate to strategically position health on the top of the post 2015 HFA agenda
9. Last but not the least, public health emergency monitoring and evaluation systems should be strengthened to ensure that the impact of the health sector DRM strategy is accurately measured

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