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Situation Report: Heavy Rainfall & Floods, Gezira state, Sudan, August, 2013

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Abstract:

Heavy rainfall & floods are the most common hazards to cause disasters and have led to extensive morbidity and mortality throughout the world. The impact of floods on the human community is related directly to the location and topography of the area, as well as human demographics and characteristics of the built environment. In Sudan heavy rains have fallen since the beginning of August, 2013. Although rains at this time of the year are common, this year they have been heavier than average and had a particularly serious impact. Weeks of heavy rains across Sudan have triggered flash floods, affecting as many as 530,000 people since the beginning of August. Gezira state is also one of the affected areas by this natural disaster. Um-Elgora Locality of Gezira state, which lies east to the Blue Nile, is one of the highly affected areas by of the heavy rainfall disaster. Responses coordinated by University of Gezira were paramount. Faculty of Medicine University of Gezira is pioneered for its innovative community based medical education and community oriented medical practice, which readily participates in responses to emergency health problems of the community. Moreover it cordially collaborates and works closely with MOH and the community of localities. We present here a situational report of heavy rainfall & flash flood in villages of Um- Elgora locality of Gezira state and the responses mainly coordinated by Gezira University.

Key words: Heavy rain, Flood, University of Gezira, Um-Elgora , Gezira state.

Introduction:

Heavy rainfall & floods are the most common hazards to cause disasters and have led to extensive morbidity and mortality throughout the world. The impact of floods on the human community is related directly to the location and topography of the area, as well as human demographics and characteristics of the built environment.⁽¹⁾

Floods presently impact an estimated 520+ million people per year worldwide, resulting in estimates of up to 25,000 annual deaths, extensive homelessness, disaster-induced disease, crop and livestock damage and other serious harm. United Nations says unsustainable land use and other human actions aggravate the situation.⁽²⁾

Flooding accounts for about 40% of all natural disasters worldwide and causes about half of all deaths. The greatest potential flood hazard is in Asia. Every year for the past two decades more than 400 million people on average have been directly exposed to floods.⁽³⁾

In Sudan heavy rains have fallen since the beginning of August, 2013. Although rains at this time of the year are common, this year they have been heavier than average and had a particularly serious impact. Weeks of heavy rains across Sudan have triggered flash floods, affecting as many as 530,000 people since the beginning of August, according to Government estimates. At least 74,000 houses have been damaged or destroyed by the rapidly rising waters.⁽⁴⁾

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The states affected were Khartoum, Northern, River Nile, Gezira, Red Sea, Sennar, North Kordofan, Gedaref, North Darfur, Blue Nile, White Nile and South Darfur, Kassala, and South Kordofan, according to the Ministry of Health. The Humanitarian Aid Commission further reports affected populations in Abyei and West Kordofan.⁽⁵⁾

Um -Elgora Locality of Gezira state is one of the most affected areas by the heavy rain natural disaster. It lies east to the Blue Nile with total population approximates around 243,000. Many villages were used to be exposed yearly to flooding and heavy rains but for the very first time, mainly village (38) was hugely affected by heavy rainfall on 6th of august, which rained from (11) am to (6) pm, 2013. The level of rainfall was measured to a scale of 170 mm.⁽⁶⁾

There were different parties who had participated in helping the victims of the heavy rainfall and flooding. Gezira University had played a pivotal role in alleviating the disaster situation. The mission of Faculty of Medicine University of Gezira (FMUG) complements that of Gezira University. Its main mission is to participate in the development of an innovative health profession education and practice, scientific research and community health services at an individual and social level. FMUG is pioneered for its innovative community based medical education (CBE) and community oriented medical practice in which part of the curriculum is learnt in the community. Thus the school participates in responses to emergency health problems of the community. FMUG aims to provide solutions to health related needs, in particular those addressing priority community problems and high risk populations, through sharing its experience regarding education, scientific research and health polices with local, regional and international bodies.⁽⁷⁾

Situation report:

The heavy rainfall disaster affected thirty-four (34) villages out of the fifty (50) villages of the Um-Elgora locality. Out of all, village (38) was the most seriously affected/damaged. Almost 60% of homes in all the villages of the locality were built with mud and estimated to be 1,434 homes. These homes were vulnerable & seriously affected and destroyed by the heavy rain disaster. A total of 3,709 latrine pits of the villages were completely destructed and up to (18) different institutions (including health facilities, schools, business firms, etc...) were damaged by the disaster and 1,474 hectares of agricultural land with different types of farms were lost/ damaged.

Responses coordinated to help heavy rainfall& flooding victims:

a) The role of locality of Um-Elgora and/ Gezira ministry of health (MOH)

-Needs assessment

- An assessment team from locality and ministry of health were deployed to the affected areas to assess the situation and identify the needs of people affected by heavy rain disaster which suffered from lack of food as their food storages have been spoiled by floods water, source of clean drinking water and lack of shelter.

Response

- At the level of the locality, an Emergency team was established to control the disaster situation.
- A temporary camp was built with tents, 4 km away from the village (38).

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Pictorial presentation of the disaster event



Figure1: Heavy rainfall flooded village.



Figure 2: Damaged house, pit latrine & school.

- Total of (672) families have been moved to the camp initially however, (3400) families refused to move to the new site. The camp has been divided in to nine sections. Each section has one representative selected by the group to co-ordinate and communicate issues with locality leaders.
- Safe drinking water was being supplied to the families' everyday to the camp site through trucks which then store the water in tankers located within the camp.
- There were (10) groups of latrine pits built, each unit contained eight (8) latrines, making an overall of eighty (80) latrines in total.

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- A clinic was established at the camp which provided basic medical services. The number of patients per/day approximated (40-50).The commonest presentation were fever (malaria), diarrhea (bloody) & respiratory infections.
- Distribution / establishment of basic items like shelter, clothing, foods, shoes, and mosquito nets were undertaken to the victims.

Table 1: Summary of the impact of heavy rainfall disaster

Number of Villages affected	34
Complete Destruction of home	1418
Partial destruction of home	2298
families affected(#)	3713
Institutions damaged	18
Latrines damaged	758
Roads & bridges damaged	20
Animal losses	210
Agricultural farms Damage (Hectares)	11042
Individual deaths	2

b) University of Gezira initiative to help victims of heavy rain & flooding.

- **University of Gezira Students and staff mobilization and participation:**

Both under and post graduate students of faculty of medicine visited the villages most affected by heavy rainfall, flooding and temporary camp site in order to assess the basic needs of communities.

- **Training of students of University of Gezira**

A one day training session was given to the medical students of Gezira, at Blue Nile research institute about disaster management, focusing on heavy rain disaster and flooding. The trainers were staff from faculty of medicine, department of community & family medicine, Gezira MOH experts (Disaster management experts, nutritionist, environmental & water sanitation experts).

- **Fund raising activities & item collection**

Medical students of Gezira assessed the needs of the affected community on their initial visit, then were organized for fund raising activities and material collection which were useful and basic for the community. They had fund raised and collected items from the University of Gezira administration & staff, Student union of Gezira University, Schools, local communities of Wad-Medani and different private firms in Medani city. They purchased different materials, such as drugs, mosquito nets, clothing, shoes, food and other items which are of basic needs to the affected community.

- **Re-visit of the sites.**

The students of Gezira along with staff and faculty of Gezira University re-visited the temporary camp and villages with all the collected items on 26th of August, 2013. There after several visits were made to both the villages and camp site. The following activities were undertaken.

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- **Setting mobile Clinic at the village:**

A mobile clinic was set with effort of different human resources which were mobilized to help the affected community, which included among others the following, graduated medical doctors from university of Gezira, medical students, laboratory technicians, pharmacists, community medicine physicians and pathologists.

Through community leaders of the village, those individuals with different illnesses were visited the clinic site for treatment purposes. Medical doctors were responsible to treat patients; the most common complaints were malaria, diarrheal diseases and respiratory diseases respectively.



Figure 3: Mayor of Um-Elgora locality at the flooded village



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Figure 4: University of Gezira academic staff & students ready to help the victims.

- **Health education activities**

Basic health education activities regarding personal hygiene, environmental sanitation, methods of protection from mosquito bite and other related issues were given to the communities in the village and temporary camp site by the medical students.

- **Distribution of Drugs & items**

Medical Students & staff members were actively engaged in distributing the drugs & items collected to the communities.



Figure 5: Mobile clinic set-up to treat the victims at the village



Figure 6: Drugs & item being supplied to the victims

Discussion:

The health consequences of floods may be described in relation to time (e.g. as intermediate, mid-term, and long-term). The recognized immediate health effects of flooding include drowning, injury, acute asthma, skin rashes and clusters, outbreaks of gastroenteritis, and respiratory infections. The mid-term effects of flooding are infected wounds, complications of injury, poisoning, poor mental health, communicable diseases, and starvation. In the long-term chronic disease, disability, poor mental health, and poverty-related diseases including malnutrition are the potential legacy. ⁽³⁾

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In Sudan as of 22 August 2013, the World Health Organization (WHO) reported that 320,000 people, or families, were affected. On 19 August, the WHO had estimated that about 250,000 people have been forced from their homes, with the Ministry of Health reporting 45 deaths and 70 injuries⁽²⁾. Property damage was reported in 14 of the 18 Sudanese states and the WHO stated concern about the effects on public health of the collapse of an estimate 53,000 pit latrines⁽¹⁾. Flash floods continued to pose a danger in late August 2013⁽⁸⁾. The following were comparable death tolls as of August 2013 from heavy rain disaster. In Pakistan the death toll from heavy rains that caused flash floods and collapsed houses has risen to 53 in August 2013⁽⁹⁾. In similar event, China's heavy weekend rains and related disasters have left at least 39 dead and another 13 missing in early July, 2013.⁽¹⁰⁾

In Em-elgora locality of Gezira state, two (2) individuals died of drowning & electric shock while several had sustained major and minor physical injuries. The most common illnesses presented in the post disaster event were malaria, gastroenteritis and respiratory infections respectively. Several hundreds of children experienced hysteric symptoms. Around 1418 homes were completely destructed, eighteen (18) institutions mostly schools were damaged and 11042 agricultural farms were lost. There was not any disease outbreaks reported to date⁽⁶⁾. FMUG which is founded in principles of community based medical practice had played a major role in providing humanitarian aid and professional assistance to the victims of the heavy rainfall and flash flooding both at the villages as well as in the temporary camp.

Conclusions:

- There was strong commitment from MOH of Gezira state, University of Gezira administration, faculty members and staffs, locality administrators, The Red crescent, medical students & community/religious leaders in supporting the victims of heavy rainfall& flooding in the villages and temporary camp site.
- The disaster posed a big social/psychological impact on the local communities which might have a negative health effects on families.
- There is was no any disease outbreak so far recorded within the temporary camp/villages.
- The response co-ordination of the Gezira university initiative was appropriate and timely; hence it needs to be continued according to the needs.

Recommendations

- Latrines need to be urgently disinfected and dumped with soil, to avoid breeding of flies and other insects which are disease carriers.
- Vector control activities should be mounted and search and monitoring for mosquito breeding sites should be highly emphasized.
- Active vigilance in the camp / villages for any possible future outbreak of disease.
- Need to convince the remaining families with in the villages to move to the camp site, which were still shelter less & vulnerable.
- Strengthening and early preparation of disaster management response team/unit of Gezira state in the future for similar events.

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