Module: Public Health Disaster Planning for Districts

Organization: East Africa HEALTH Alliance, 2009-2012

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Resource Title: Floods and Landslides

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Floods and Landslides

Background & Nature of Floods

- **FLASH FLOODS**
  - **Rapid** onset
    - Rain
    - Structural failure
  - **Brief** duration
  - **Steep** terrains, canyons
  - Little or **no warning**

 The Advocacy Project, flickr

 hakimu, flickr

Background & Nature of Floods

- RIVER FLOODS
  - **SLOW** onset
  - **LONG** duration
  - **Concave** terrains
  - **Some** warning

Scope & Relative Importance of Floods

- Floods account for 40% of all world disasters
- Floods cause the most damage worldwide
- During 160 floods worldwide between 1980-1985:
  - 120 thousand were killed
  - 20 million left homeless

Most Lethal Floods

- **Most lethal floods in modern history**
  - 1887: 2 million dead
  - 1931: 4 million dead
  - 1938: 1 million dead

In Uganda

- Floods are an emerging public health problem in the region
- Every year, floods affect more and more people in different localities
- Closely associated with heavy rains (natural) and human settlement patterns (technological)

Uganda

- Bududa (2010)
- Butalejja (2010)
- Kisoro (2010)
- Soroti (2007)
- Kumi (2007)
- Kampala (Every Year)

- Landslides can be predicted and risk reduction and mitigation activities can be initiated

Factors that Contribute to Floods

- **Topographical makeup**
  - (e.g. Kyoga, Aswa floodplains)
- **May accompany other disasters**
  - Heavy rains and river surges
  - Breakdown of river embankments
  - Hurricane sea surges
  - Earthquake-related tsunamis
  - Landslides or volcanic eruptions

Factors that Affect Flood Occurrence & Severity

- **Natural factors**
  - **Geological**
    - Soil character
    - Eruptions
  - **Seasonal variation**
    - *I.E.... Monsoon, Prevailing winds*
  - **Climatic factors**
    - *I.E... El nino*
  - **Topographical factors**
    - Incline
    - Basins & canyons

- **Human factors**
  - Urbanization
  - Deforestation
  - Over-grazing
  - Improper construction
  - Inadequate safeguards

Flood-Related Mortality

- Most deaths occur in flash floods
- Most deaths are due to drowning
- Death rates vary according to country, rate of onset and community resilience

Public Health Impact of Floods

- Medical & public health needs can persist for many months after river floods.
- Normal health care delivery is disrupted
- Chronic illness is worsened long term
- Serious infectious diseases rarely increase
- Food & water shortages often develop

Key Health & Safety Response Issues After Floods

- Water quality
- Food safety
- Cleanup activity safety
- Sanitation & hygiene
- Disease vectors: insects, rodents, wild animals
- Chemical hazards
- Mental health for responders & victims
- Temporary settlement
- Early warning for subsequent floods

 Aust Defence Force, flickr

Outreach support After Floods

- Not all victims can seek help
  - Geographical limits
  - Monetary limits
  - Disability
- Prevent convergence on limited resources
- Set up search and rescue efforts
- Set up immediate relief efforts
- Enhance surveillance & situational awareness

Prevention & Control Measures for Floods

- Mitigation
- Surveillance and early warning (Measurements that predict)
- Rapid Needs Assessment
- Mechanisms for Search and Rescue
- Mechanisms for immediate control of water surges
- Public information
- Floodplain management
- Responsible management of human settlements

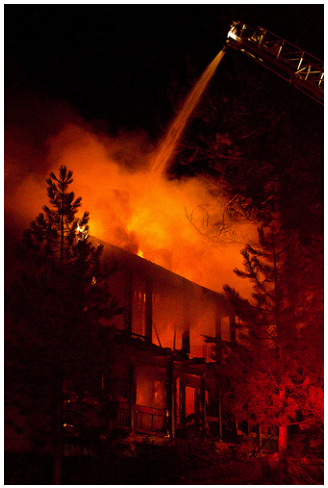
Landslides

Introduction

- In Uganda, landslides are a focal problem in areas that are have topographic risk
- Due to population pressures and land-use implications, people are moving higher and higher into high risk areas
- Landslides can be predicted and risk reduction and mitigation activities can be initiated

Secondary Disasters Caused by Landslides

- Fires & explosions
- Building collapse
- Dam failures & floods
- Release of toxic materials



Contributing Natural Factors

- Geophysical factors
- Topographic factors
- Meteorological factors

Contributing Human-Made Factors

- **Structural Factors**
  - Types of houses
  - Land-use patterns, demography, and population pressures

Health Impact

- **Immediate**
  - Minor injuries, lacerations
  - Crush injuries to head & chest
  - Hemorrhage & hypovolemia
  - Asphyxia, drowning
  - Burns

- **Delayed**
  - Dehydration
  - Environmental exposure
  - Crush syndrome
  - Wound infection & sepsis
  - Smoke & dust inhalation

 The U.S. Army, flickr

Health Impact

- Landslides **do not often** create significant outbreaks of new infectious diseases

Prevention & Control Measures

- Avoid construction in areas of high geological risk
- Safer construction
- Drills, Scenarios & Planning
- Planning for displaced populations (SPHERE)
- Planning for emergency services
- Search & Rescue

Source: AP Photo

Saving Lives

- Landslides have potential to cause MCIs
- Rapid assessment of impact
- Timely & appropriate disaster response
- Surveillance for injuries & diseases
- Dissemination of public health information
- Environmental health & control measures
- Follow up epidemiology

 All Hands Volunteer Photobank, flickr

Source: AP Photo

Additional Source Information

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