Introduction to Health Vulnerability and Risk Analysis and Mapping (VRAM)

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Outline of the presentation

- Background and opportunities
- The WHO e-atlas of Disaster Risk for the Eastern Mediterranean Region
- The Vulnerability and Risk Analysis & Mapping platform (VRAM)
Several resolutions such as the one accepted during the 2005 World Health Assembly (WHA 58.1)

“(4) to formulate, on the basis of risk mapping, national emergency-preparedness plans that give due attention to public health, including health infrastructure, and to the roles of the health sector in crises, in order to improve the effectiveness of responses to crises and of contributions to the recovery of health systems;”
Opportunity for geography and GIS

... to be used as a neutral platform for the integration of data coming from different sources to:

- assess, analyze and map vulnerabilities and risks
- contribute to ensuring the continuity of the decision making process during the different phases of the emergency cycle
Opportunity for WHO

... to work with countries and capable research institutions to:

- Identify the vulnerable populations and their respective locations of risk in countries of the region.
- Generate awareness and advocacy for disaster reduction and risk management programs to be established/strengthened in countries.
- Support decision-makers in allocating the appropriate resources for preparedness and response.
- Promote tools which facilitate coordination and collaboration of potential partners working on disaster reduction in the region.
The WHO e-atlas of Disaster Risk for the Eastern Mediterranean Region

Distribution of the risks for five hazards (floods, heat, earthquakes, wind speed and landslides) with the objective of better understanding the health impact and vulnerabilities to such events.

Looking at 3 components:

– The distribution of each hazard (volume 1)
– The distribution of population's and infrastructure (the element at risk) vulnerability
– The distribution of health risks
The first volume of the WHO e-atlas of Disaster Risk

... use data collected from different sources including:

- GPS

... combine them in a GIS using specific models...

... to obtain the spatial distribution of the 5 hazards at the Regional ...and country level
The first volume of the WHO e-atlas of Disaster Risk

Soon posted at: http://www.emro.who.int/eha/e-atlas.htm
The first volume of the WHO e-atlas of Disaster Risk

Vulnerability and Risk Analysis & Mapping platform (VRAM)

Only natural hazards for the moment

Need to add disease outbreaks, communicable diseases,...
Objectives

The primary objective of the VRAM is to support Member States and partners to strengthen their capacity to assess, visualize and analyse health risks and incorporate the results of this analysis in disaster risk reduction, emergency preparedness and response plans.

At the same time, the application of the VRAM process allows for the compilation and homogenisation of baseline data, information and maps to help health authorities and partners to take informed decisions in times of crises.
Activities
To achieve its objectives, VRAM is building long-term collaborative relationships with government authorities and technically capable research institutions and universities both internationally and within targeted countries in order to:

- **Evaluate countries’ capacity** to assess and analyse hazards, vulnerabilities and risks;
- **Support the development** of national and local capacity within ministries of health and other partners to enable countries to implement the VRAM process;
- **Partner with local institutions to conduct and facilitate detailed assessments** of potential hazards, associated health vulnerabilities (infrastructures, services, population) and emergency preparedness in countries most at risk;
- **Develop, document and share methods, protocols and tools** for the collection, analysis and mapping of health hazards, vulnerability and risk information taking climate changes into account;
The Vulnerability and Risk Analysis & Mapping platform (VRAM)

Activities
- Develop and make available tools to support evidence-based decision-making;
- Create and maintain a network of institutions working in health hazard, vulnerability, capacity and risk assessment and analysis.

- Primary data collection reduced to the minimum.
- Emphasis on review and use of secondary information
- Partnership with the other institutions involved in primary data collection (WFP for example).

Long term in countries capacity building
The Vulnerability and Risk Analysis & Mapping platform (VRAM)

In country process

The VRAM process is to answer the following questions:

1. What and where are the hazards to which populations are exposed to?
2. Where are the most vulnerable populations, health facilities and services exposed to these hazards?
3. What and where are the existing local capacities for emergency preparedness and response

Geography as the integrating platform
The VRAM process

1. Country Capacity evaluation
   - Institutional
   - Data
   - Standards, protocols
   - Simulations, recommendations
   - e-atlas

2. Hazard analysis
   - Recorded events
   - Risk mapping
   - Mitigation strategy

3. Vulnerability/Capacity analysis
   - Health infrastructures and services
   - Population
   - Secondary data collection
   - Analysis for health care

4. Risk analysis
   - Risk
   - Vulnerability/Capacity
   - Hazard

5. Planning, baseline, capacity building
   - Emergency preparedness
   - Risk plan
   - Cases + Scenarios
   - Decision Support System
   - Baseline for WHO's interventions + Early warning
The VRAM process

1. Country Capacity evaluation

- Institutional
- Data
- Standards, protocols, ...
- Evaluation, recommendations

Institutional

Data

GIS Data

Statistics

Tabular Data

SALB

→ National Spatial Data Infrastructure (NSDI)
The VRAM process

2. Hazard analysis

Geospatial Databases
(secondary data)

GIS based methods

Climate Change

Hazard mapping and analysis

Digital Elevation Model

Landcover

Rivers

Roads

e-atlas

Other models to come (i.e. heat wave drought)
The VRAM process

3 Vulnerability/Capacity analysis

3.1 Health infrastructures and services

Hospital Safety Index

3.2 Population

Secondary data collection
Socio-economic + health indicators
Accessibility to health care

SALB

Climate Change

World Health Organization
The VRAM process

4 Risk analysis

Hazard

Vulnerability / Capacity

Health infrastructures

Population

Risk

The VRAM process
The VRAM process

Planning, baseline, capacity building

5.1 Emergency preparedness/RR plan
5.2 Baseline for WHO's interventions + Early warning
5.3 Capacity building

The VRAM process
Examples:

Ghana: testing of the community level questionnaire developed in collaboration with WFP

Ethiopia: Capacity evaluation visit and recommendations provided to the MOH regarding the implementation of their emergency management plan

Nigeria: Capacity evaluation visit and support to the MOH and National Emergency Management Agency (NEMA) to conduct a hazard, vulnerability and risk pilot study in one of the States and to support the development of their state level policy

Mexico: Strengthening of the technical capacity of the Centro Regional de Investigación en Salud Pública (CRISP), translation of the e-atlas methodology documents in Spanish and support to the hazards, vulnerability and risk assessment conducted over the State of Chiapas