



World Meteorological Organization

Working together in weather, climate and water

**Training Workshop on Multi-Hazard Early Warning Systems
with focus on Institutional Partnership
and Coordination**

Combined Working Group Results

22-25 March 2010

**Radisson Europa Hotel and Conference Center
San José, Costa Rica**



Governance and Institutional Arrangements

- Need for application /enhancement/development of a legal framework including budget supporting EWS (such as NMHS, DRM and other relevant agencies)
 - Recommendation: **Regional/sub-regional institutions** should advocate and support the revision of EWS legal framework (law templates)
 - GDP / EWS Budget
 - Need to reinforce the political will in some countries
 - Recommendation: Awareness campaigns for the decision-makers **on minor and major multi-hazard events impacts**
 - Some island do not have autonomous DRM agency or NMHS
 - Institutionalization of the relationship between DRM agencies and NMHS from national to local level: Documented protocols and plans are needed
 - Regional coordination between countries and existing regional institutions
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Utilization of Risk Information in Emergency Planning and Warnings

- Cooperation between and capacity development of NMHS and other technical agencies need to be strengthened for the development of risk information and mapping
- Need to develop and share hazard, vulnerability and risk data and information
- Capacity development of institutions to utilize risk information for decision making
- Add risk information –including potential impacts - in warnings in a way that is understandable to all (engaging social science)

Recommendation: Development of relevant programmes for the development and dissemination of risk assessment, modeling and mapping capacities (in Caribbean and in Americas regions)

- through regional / bi lateral projects
- development of a regional methodology for risk assessment mapping capacity development including for each hazards, the data needs, the technical tools, (Check list)
- regional database of hazard events, regional GIS...



Hazard Monitoring, Forecasting and Mandates for Warning Development

- Strengthening and maintaining observation and monitoring networks
- Improve regional coordination and capacity for data collection, monitoring and storage
- Technology challenge (e.g., satellite, real-time, Internet, modeling...)
- Need for the development of products based on the user needs (DRM agencies, ...) – social science

Recommendations :

- **Capacity enhancement should include trainings, but also equipment (hardware) and tools : software like forecast and hazards models at national level (Caribbean)**
 - **Leverage centres of expertise to increase the availability of data and warning information (in sub regions of RA IV)**
 - **Implementation and delivery of relevant products and services based on specific user requirements**
 - **Implementation of a quality management system centred on users**
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Warning Dissemination Mechanisms

- Weaknesses of most current EWS are public awareness and feedback mechanisms.
- Requirement for dissemination of public information and warning down to the last mile through multi channels (modern and traditional systems: SMS and Fog Horn)
- Need for communication of hazard information to specific vulnerable population with adapted dissemination systems (e.g. Tourists, disable, indigenous, child care)
- Weaknesses of Public-Private partnerships (e.g. media and telecommunication sector)
- **Recommendations:**
 - **Development of public awareness campaign to train the population / the media on meaning of and appropriate reactions to warning messages.**
 - **Indicators and quality management monitoring mechanism should be developed to evaluate EWS efficiency -in particular reception of warnings, and facilitate its continuous improvement over time**
 - **Dissemination systems to be adapted to hazard type, lead time and specific vulnerable population**
 - **Develop joint training targeted at media, emergency managers and NMHS**



Emergency Preparedness and Response Activities

- Need for capacity development including training, drills, materials, data and information,
 - Need for enhanced collaboration between NMHS and DRM agencies for delivery of more effective public awareness and educational programmes
 - Review color coding for warnings building on systems in the region (TT, Martinique- Caribbean) for dissemination of warning information and possibility of establishing a regional system.
 - **To strengthen / create an EWS office and as required support the EOCs in the response phase – inclusion of hydro-met support**
 - Drills should not only be demonstrative but for systematic and for evaluation purposes as well.
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Regional Partnership Recommendations

Noting the need to determine in detail sub-regional specificities, and institutional capacities, consider the following:

- Creation of a working group on information exchanges and protocols for the lesser or greater Antilles
- To develop a list of expertise of the countries of the region, in a view of experience sharing.
- To develop (if needed) and review, evaluate and improve existing regional contingency plans for EWS, such as back-up systems for NMHS
- Use of the existing regional cooperation mechanisms to design and implement regional programmes for the benefit of the Members in the following areas:
 - A program for the development of risk assessment and mapping capacities
 - Develop/harmonize clear color coding for warnings building on systems in sub-regions
 - Improve regional coordination for data collection, monitoring and archiving
 - Regional coordination and development programmes that would facilitate implementation of monitoring, forecasting, communication, capacities and tools based on latest technical developments as relevant to countries in the region
- Establishment/utilisation of Centres of Excellence or regional resource entities to support EWS implementation or advancements at the regional and national level.
- Bilateral projects with neighbouring countries (e.g., on shared river basins)
- Coordinate between Tsunami and hurricanes programmes where there are overlapping areas⁷



Next Steps

- Based on the recommendations from this workshop, as the next step:
 - Building on the institutional coordination mechanisms in sub-regions in RAIV develop and implement:
 - Concrete cooperation programmes and related national development projects tailored to the specific needs of the sub-region/country groupings.
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