Natural Disasters and Early Warning in Developing and Least Developed Countries (LDCs)

Living with Climate Variability and Change: Understanding the Uncertainties and Managing the Risk

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Outline

1. Disaster occurence in Developing and LDCs

2. EWS

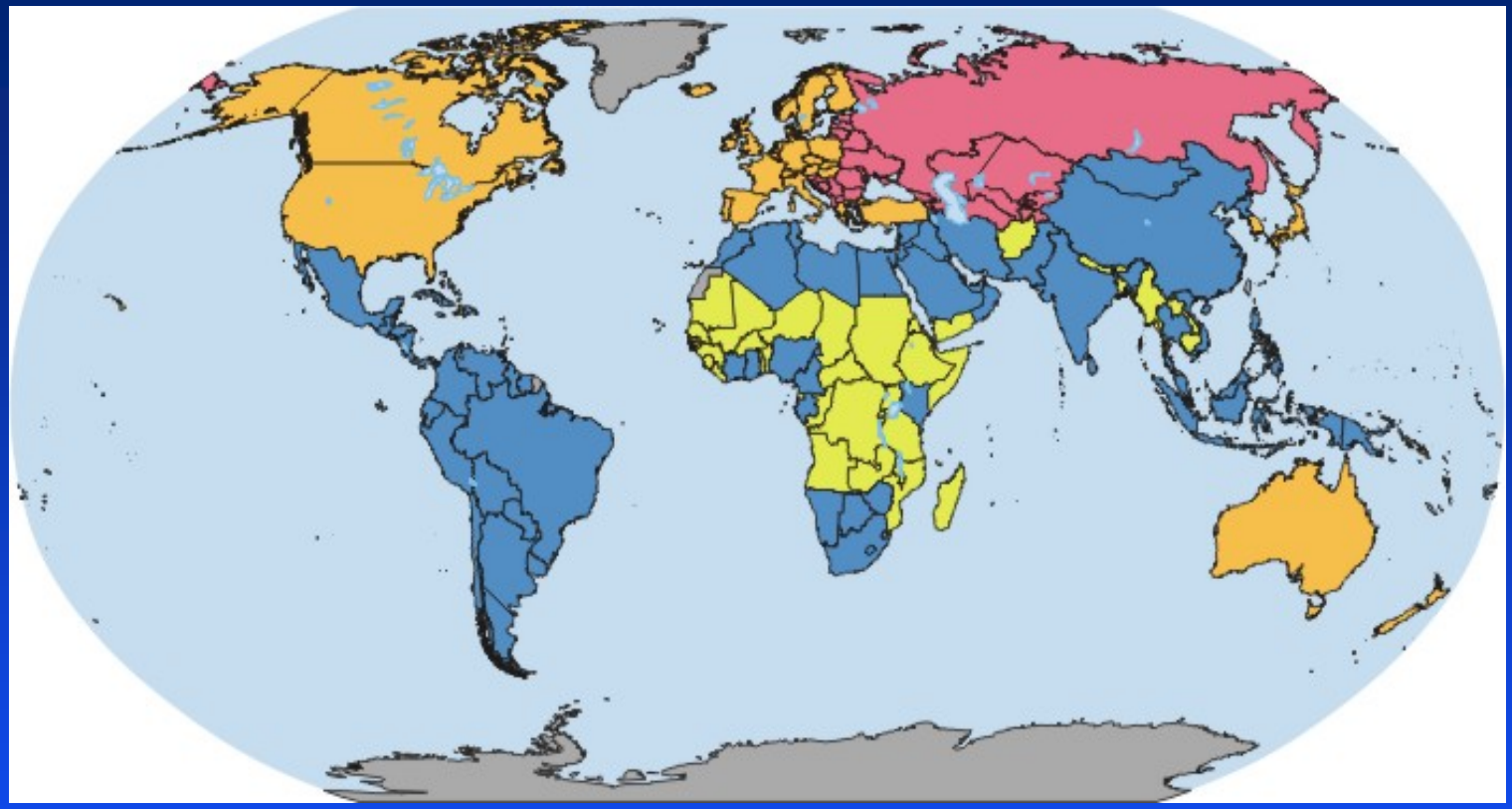
   Major chanlanges

   - Risk identification and knowledge;
   - Integration of risk information and EW in emergency preparedness, planning and response;
   - Technical and operational capabilities for observing, detecting, monitoring, forecasting and warnings of hazards;
   - Communication and dissemination ;
   - Governance and organizational issues.

3. Way forward

4. Concluding remarks

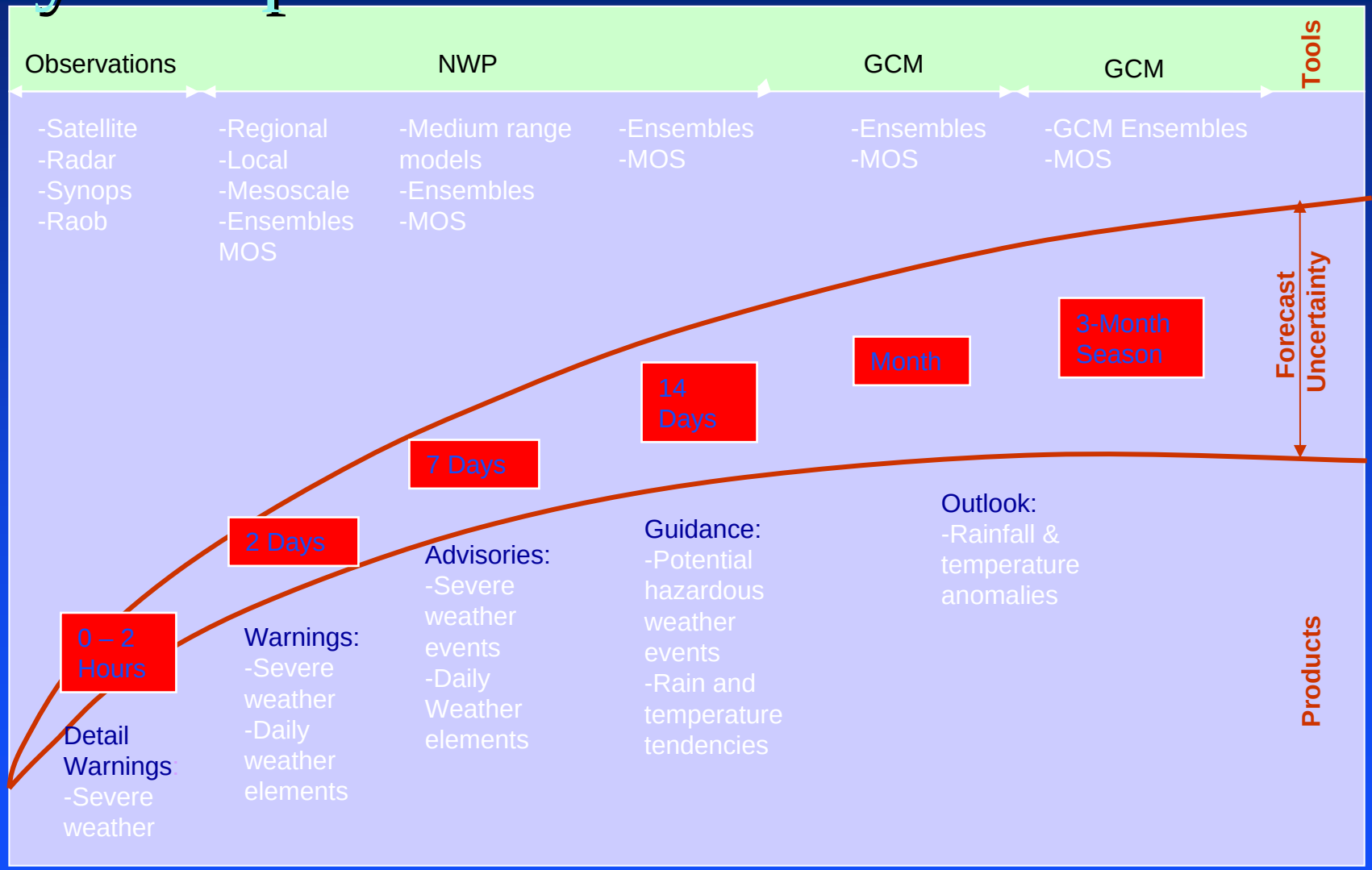
Countries in the major world aggregates



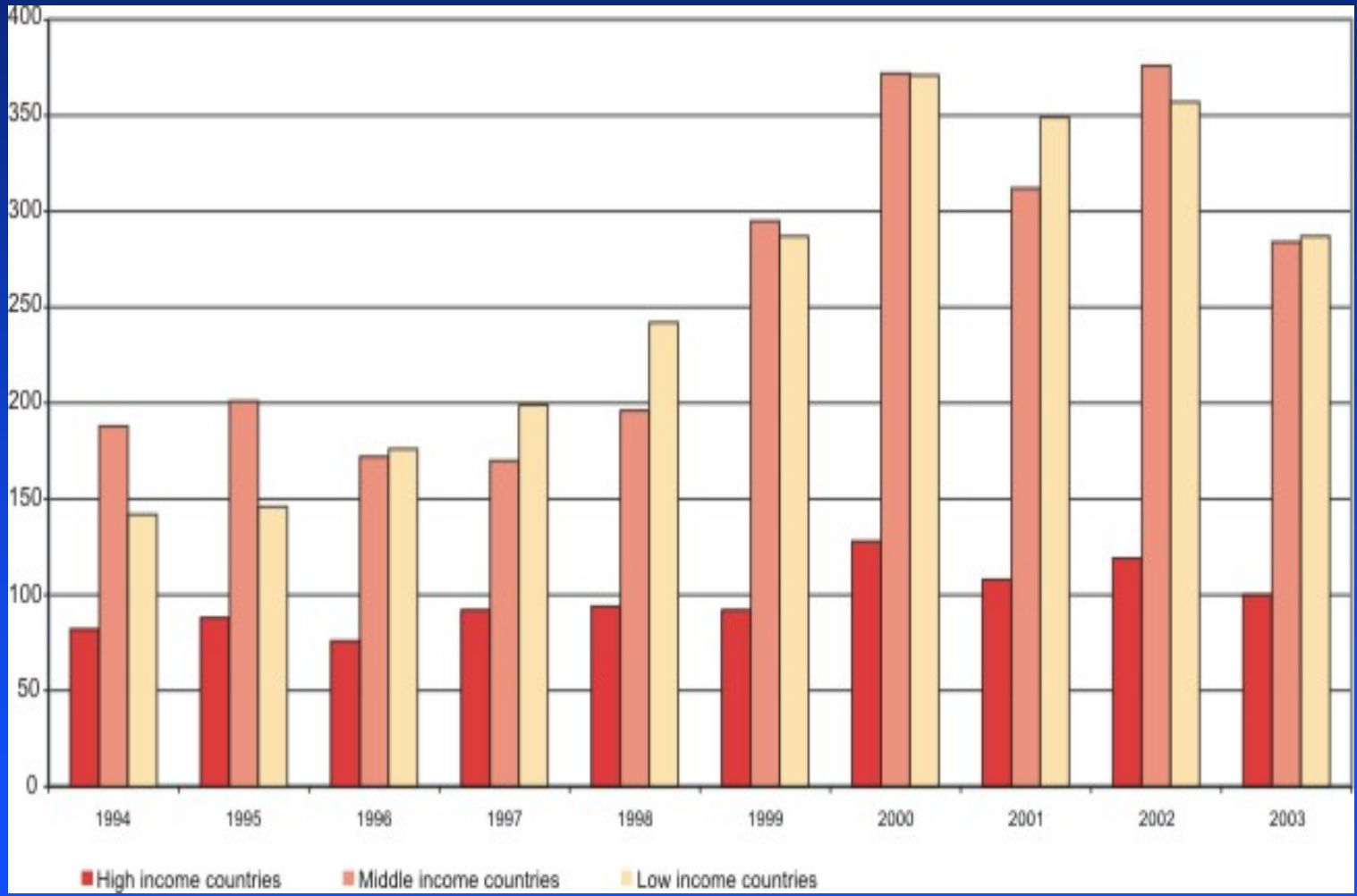
- OECD member countries (Organization for Economic Cooperation and Development)
- CEE+CIS (Central and Eastern European countries + Commonwealth of Independent States)
- Developing countries
- Least developed countries

Source: UNEP/GRID Geneva
UNDPDP Human Development Report, 2004

The Seamless Weather Forecasting System post-2004

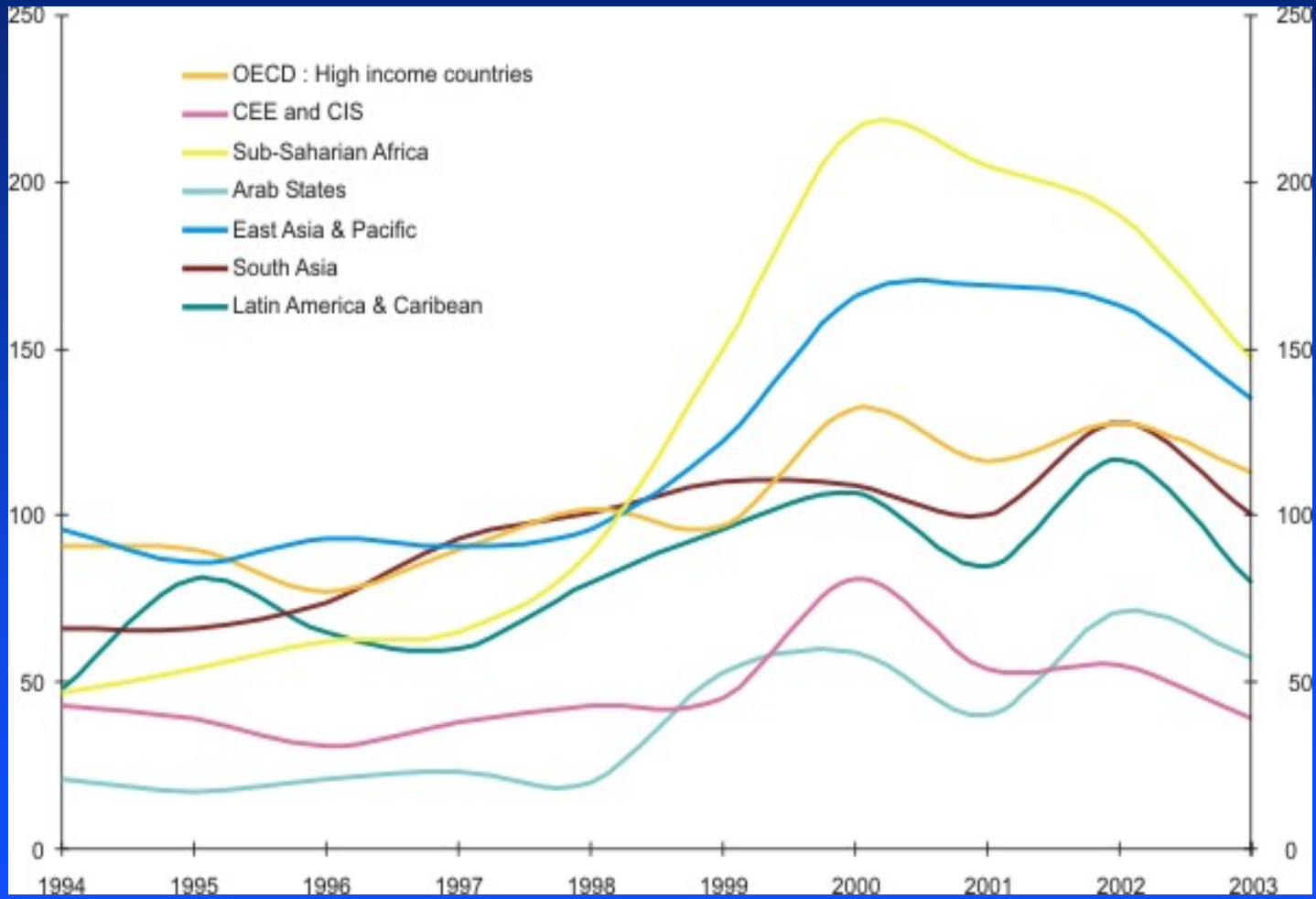


Total number of disasters by year 1994-2003 (according to income aggregates)



Source: EM-DAT : The OFDA/CRED Database.

Total number of disasters: by year and large world regions 1994-2003



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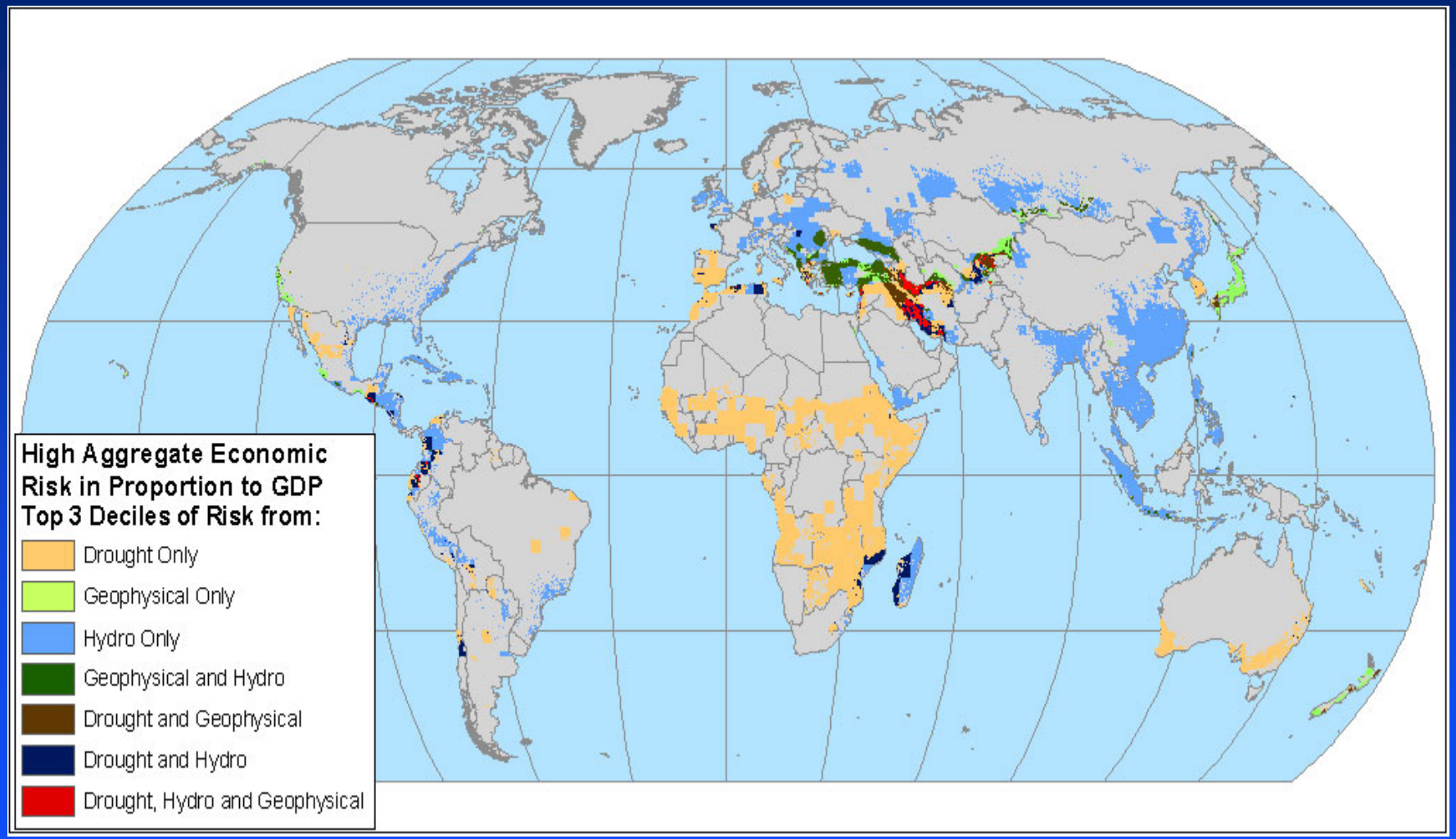

High Aggregate Economic Risk in Proportion to GDP
Top 3 Deciles of Risk from:
Drought Only
Geophysical Only
Hydro Only
Geophysical and Hydro
Drought and Geophysical
Drought and Hydro
Drought, Hydro and Geophysical

- Floods in Mozambique in 2000

  700 people killed
  Damages estimated at $USD 450 000 000

  Reduction of GDP from 10% to 2%

Dermining factors

- Weak economies unable to absrob shocks caused by desateres;
- Inability to implement multi-hazard EWS for integrated DRR;
- Increasing vulnerability of populations agravated by:

  poverty, illiteracy, environmental degradation, population growth and displacement, urban growth, poor national infrastructure, conflict, poor governance and weak instututional capacities.

2. EWS

Major challenges

- Risk assessment

  Ad hoc nature of risk assessment focused on the most common hazards

Critical issues

- Data gaps characterized by poor availability and inconsistencies in the historical records;
- Ability to access, share and use available data to genrate risk information;
- Methodologies for systematic and standardized risk assessments;
- Researsh to further the knowledge on natural hazards and their changing patterns;
- Involvement of those at risk in the identification of risks and their continuous update;
- Defeniton of roles and responsabilities of different actors in risk assessment;
- Training, capacity building and technology transfer for risk assessment and hazard mapping.

2. Continued

- Integration of risk information and e early warnings in emergency preparedness, planning and response

Hazard information has been the guiding element for preparedness and response.

Need to mainstream risk assessment results and early warnings in preparedness, planning and response

Critical issues

- Availability of risk asssessments for all locations (e.g. ATlas);
- Integration of risk information into early warning messages;
- Priority accorded to integrated risk reduction as part of development processes;
- Political commitment to address disaster risk reduction through the creation of enabling environments (e.g. Legal frameworks, policies, institutional structures, etc..)
- Planning and coordination)

2. Continued

- Technical and operational capabilities for observing, detecting, monitoring, forecasting and warning of hazards

  Eroding observing networks

  Monitoring and forecasting systems only for dominant hazards. They do not cover all hazards and all parts of a national territory

Critical issues

- Coverage and sustainability of observation networks;
- Availability of technical capabilities in a sustainable fashion (e.g. expertise, resources, operational capabilities);
- Improvement of the accuracy and lead times (e.g. severe storms and flash floods);
- Ability to access, share and use effectively, data, information and products from various sources;
- Use of advances methodologies and techniques (e.g. NWP and ensemble forecasting);
- Issue of site specific, objective and user driven warnings;
- Methodologies, standards and protocols;
- Sharing of expertise between neighbouring countries;
- Capabilities of regional centres for supporting technical and institutional capacities at national level;
- Training, capacity building and technology transfer

2. Continued

- Communication and dissemination

Weak link among the elements of an effective EWS

Impediments include:

Illiteracy, language barriers, socio-cultural habits/beliefs, isolation of rural communities, poor coordination between providers and media, poor use of ICT # Understanding of risks

Critical issues

- Ensuring warning messages reach all at risk;
- Ensuring redundancy of warning systems;
- Recognition of a single authoritative voice for issuing warnigs that is respected by users;
- Use of standard terminology nationwide (and accross national borders?)
- Clarity and packaging of warnings (how to convey uncertainty);
- Education and awareness raising of all stakeholders at all levels;
- Integration of traditional knowledge in risk assessments and warning messages;
- Political will to communicate warnings

2. Continued

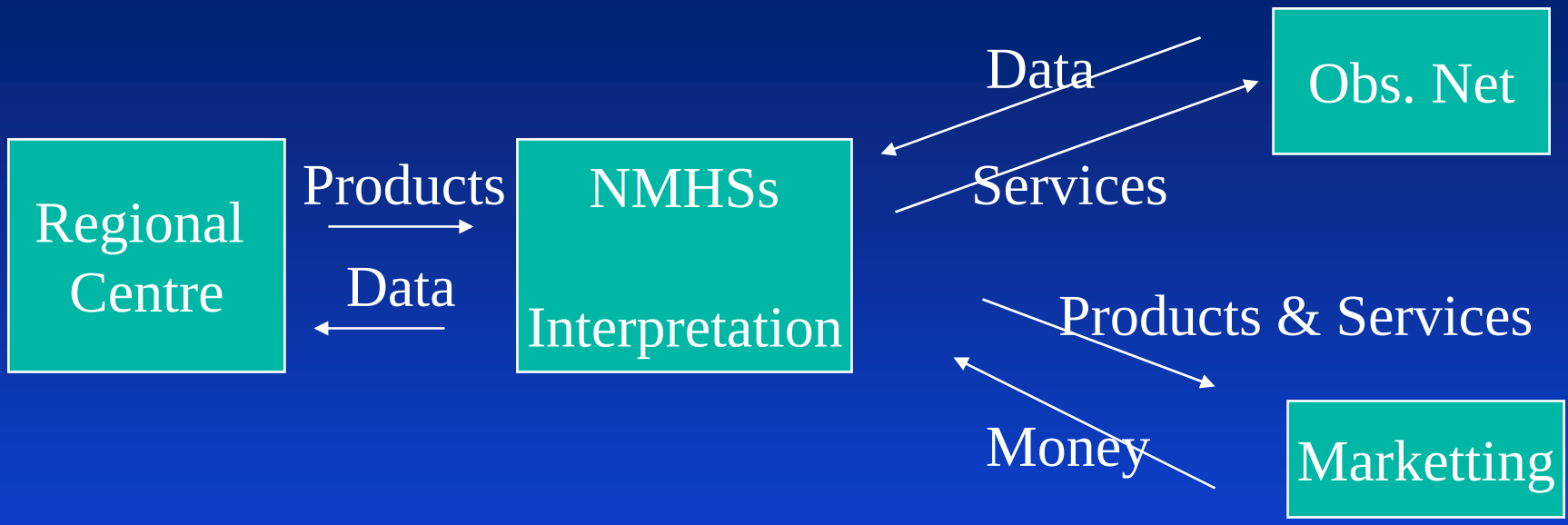
- Governance and Organizational issues

  Good governance is effected by robust and appropriate legal frameworks, policies, institutional structures, political commitment, descentralization and appropriate allocation of resurces

Critical issues

- Recognition of the links between DRR and development
- Political commitment to the implementation of integrated risk reduction strategies;
- Government support to long term strategies for integrated risk reduction;
- Defenitoion of roles and responsabilities;
- Coordination among various actors;
- Promotionn of participatory approaches
- Enhancing undersatanding on hazards, risks and how to prepare for hazards and repsond to warnings
- Promotion of alliences and partnerships.

3. Way forward



- Advantages
  - Greater cost effectiveness in the use of scarse resources
  - Continuous support in addressing common problems of NMHSs;
  - Pulling of synergies at regional and global level for the common pursuit of innitiatives and opportunities

4. Concluding remarks.

- To enhance coping and adaptation capacities, developing and least developed countries need to adopt appropriate policies, informed by science, incorporating management of risk to climate variability and change into development plans and programmes. This should be twinned with effective early warning systems that must be people-centred underpinned by effective governance and institutional arrangements, involvement of all stakeholders including local communities, consideration of people's interests, needs and values in a multi-hazard approach

- While significant progress has been made in many countries on the scientific and technical aspects for monitoring, detecting, warning and communication of information major challenges and gaps exist in developing and least developed countries. Countries often recognize the need for early warning systems for all relevant hazards but many do not posses the technical, institutional, human and financial resources to establish systems that cover all relevant hazards equally. Thus, Implementation of multi-hazard early warning systems for integrated risk reduction in these countries is far from being realized, what requires a redoubling of efforts.