

Theme B

Water Related Disaster Management



Meeting Climate Risks through Science Based Decision Making

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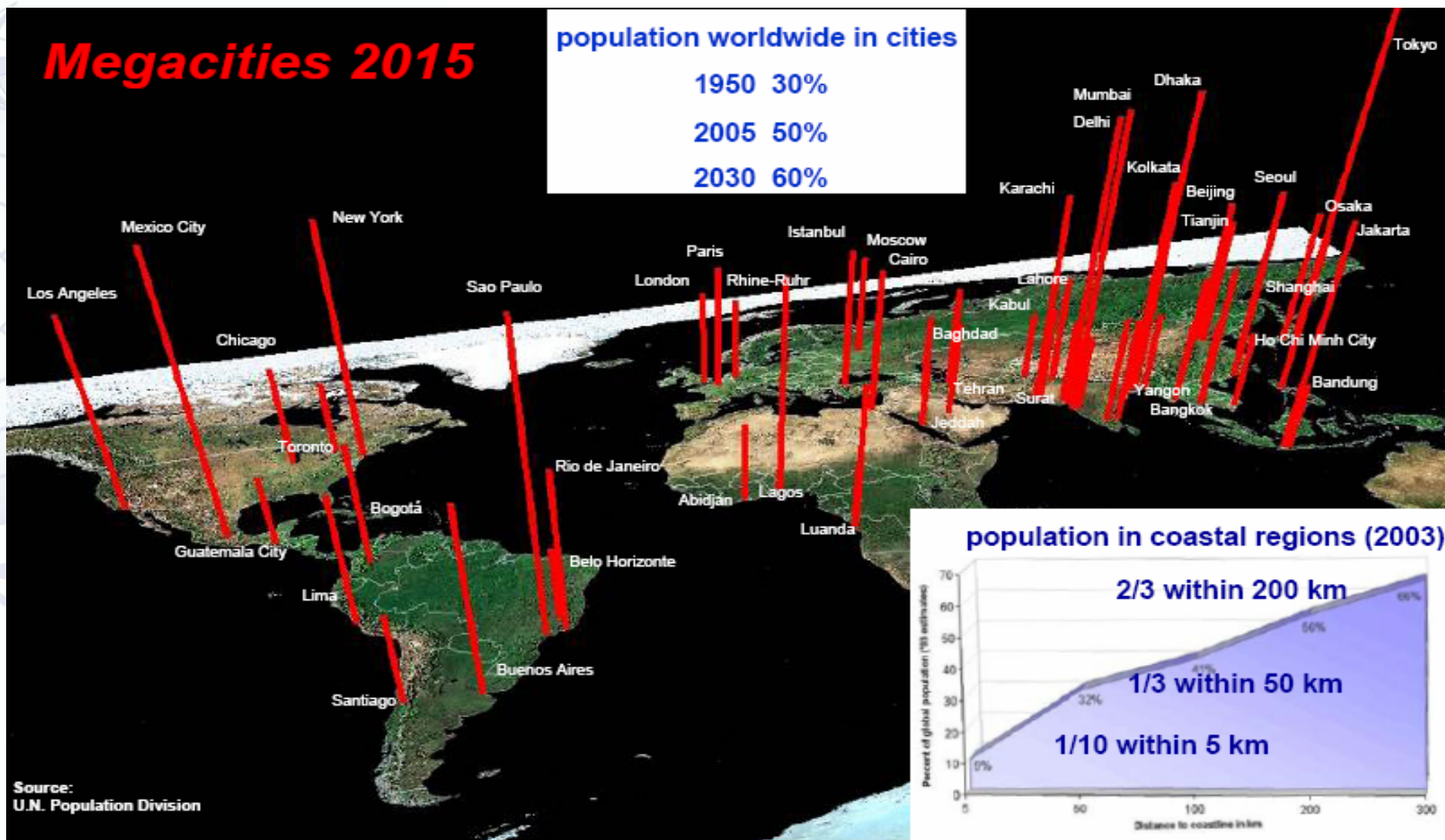
Asia Pacific Water Summit 2007, 4th December 2007, Beppu, JAPAN

Combined with growth of population and economy....

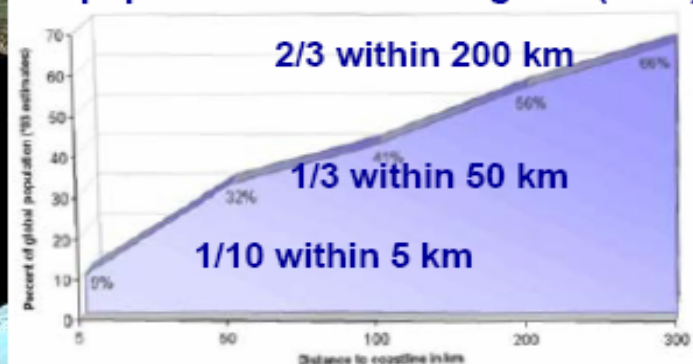
Megacities 2015

population worldwide in cities

1950	30%
2005	50%
2030	60%

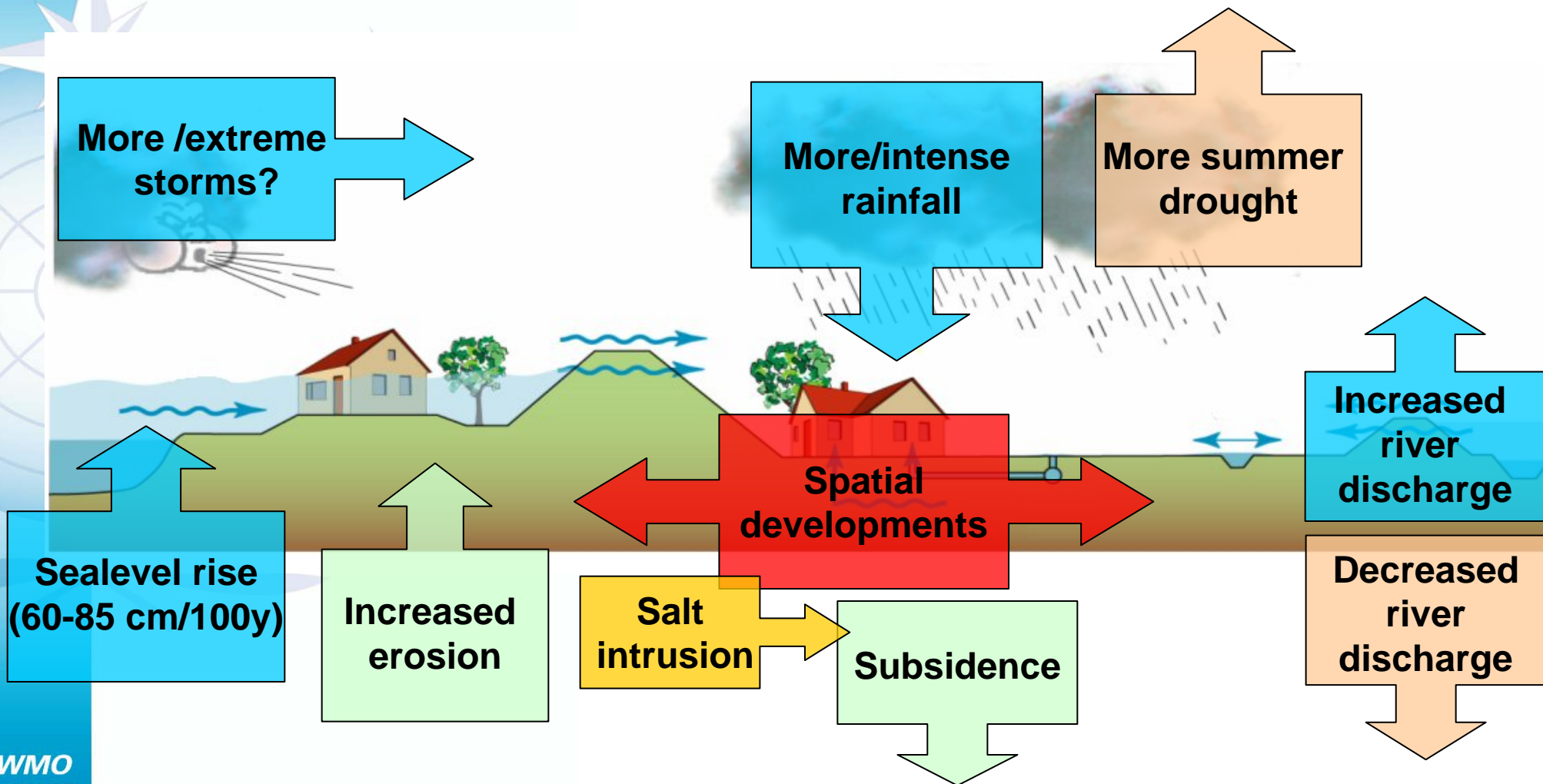


population in coastal regions (2003)



Source:
U.N. Population Division

.. and climate change...



New challenges!

Increasing Flood Risks

**Increasing Climate variability and
Potential change**

Absolute safety against floods is a myth

Growing environmental concerns



Integrated Flood Management



What is Integrated Flood Management?

- A resilient development policy concept
- Flood management in the context of Integrated Water Resources Management (IWRM)
- Aims at **maximizing the net-benefits** derived from flood plains and **minimizing losses of life** from flooding



Why Integrated Flood Management?

- **Need for a sustainable development and livelihoods perspective in flood management**
- **Need for policy options with a focus wider than only economic loss reduction**
- **Need for a multi-disciplinary and multi-sectoral approach in flood management**
- **Need for a river basin approach in flood management**
- **Need to incorporate multi-hazard risks duly considering various phases of risk management and mechanisms for managing residual risks**

Requirements of IFM

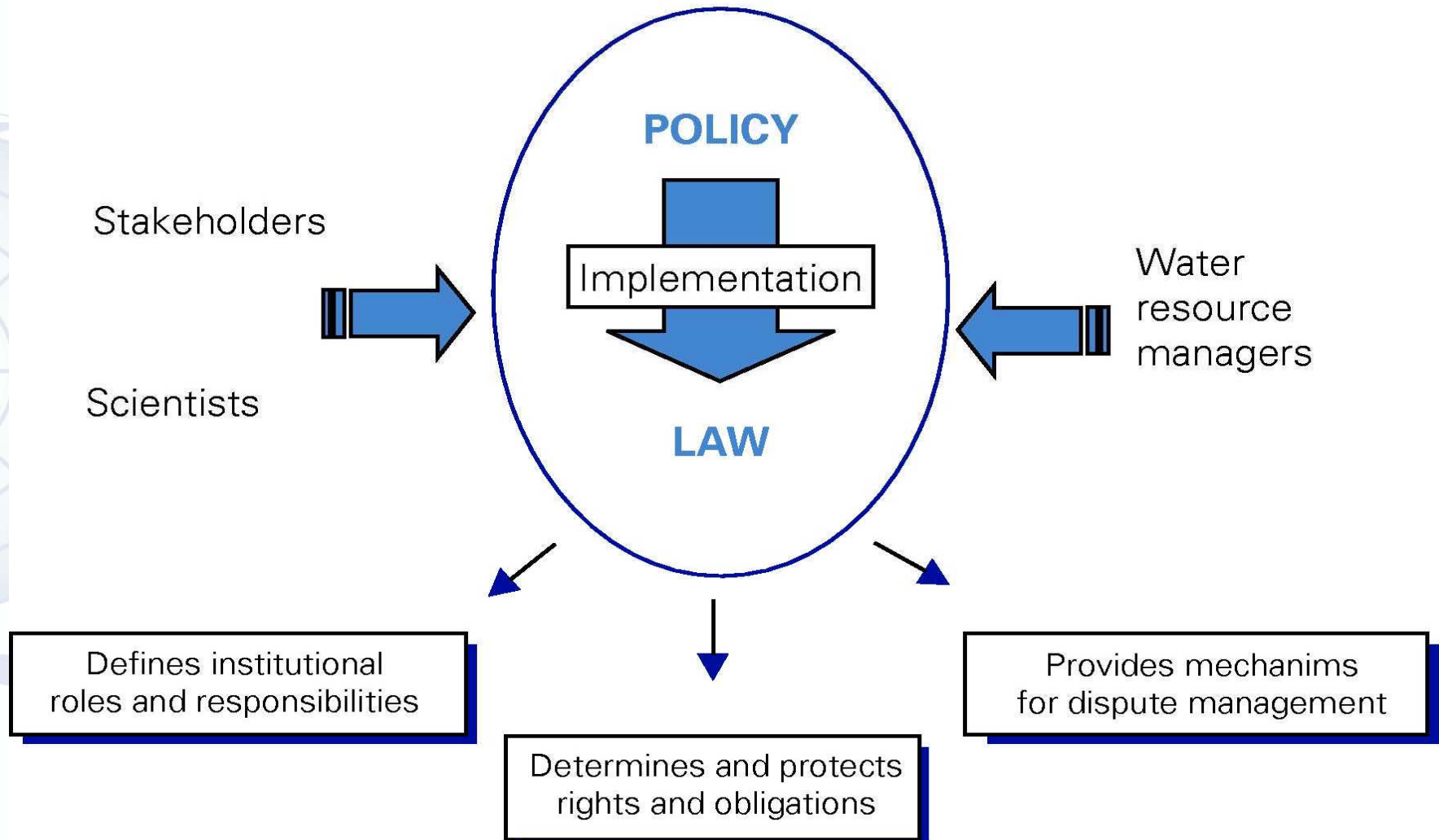
Clear and objective policies

- **Comprehensive assessment and understanding of flood risks;**
- **Multi-sectoral approach to reach the objectives;**
- **Appropriate legislation and regulations; and**
- **Innovative economic instruments.**

with a multidisciplinary approach

- **Appropriate Institutional structures for proper coordination and linkages;**
- **Enabling participatory processes; and**
- **Information management and exchange mechanisms.**

Roles of Law in Flood Management

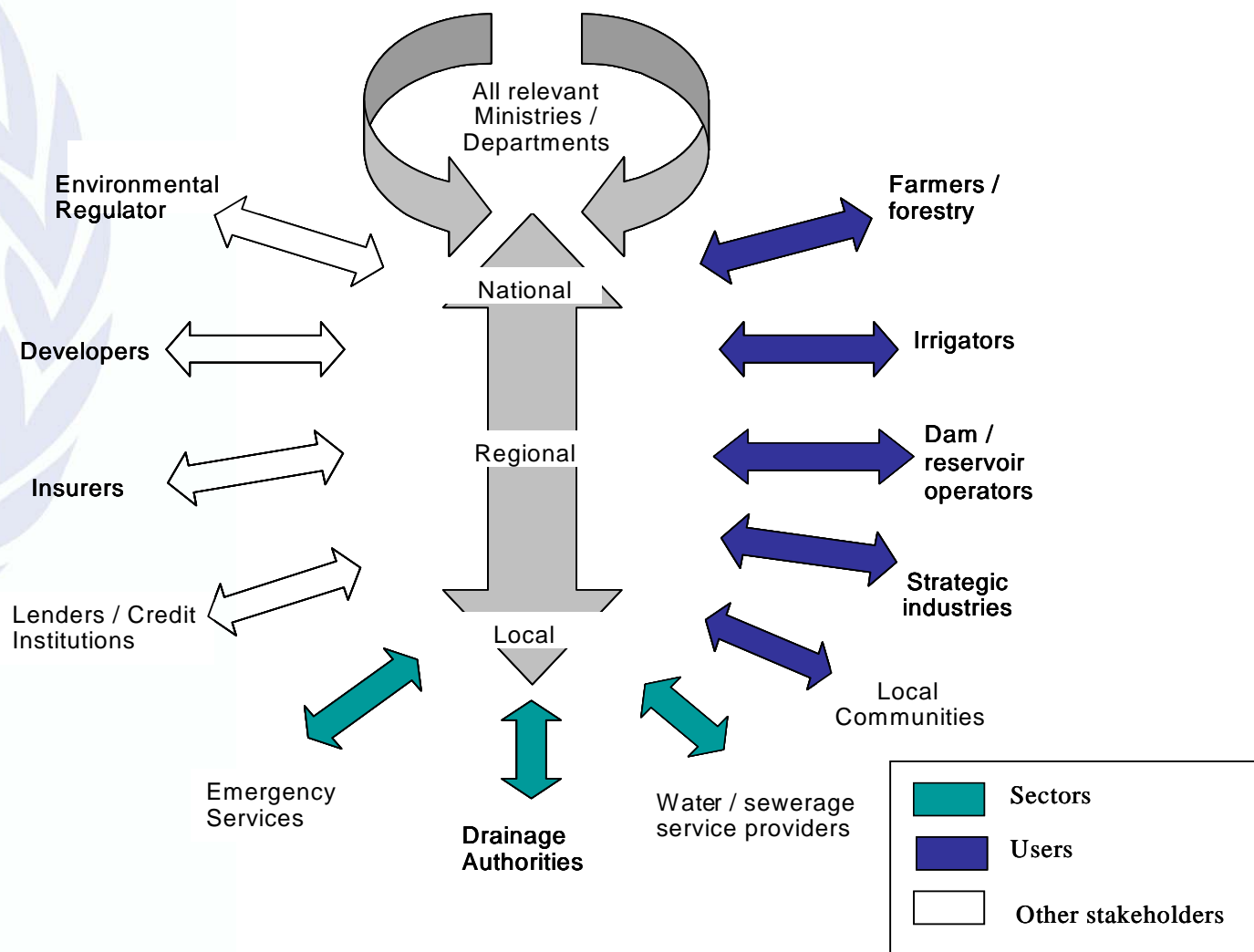


Central Legal Themes in IFM

- Ensuring coordination and integration across institutional boundaries
- Information generation and sharing
- Enabling stakeholder participation
- Rights, powers and obligations

Ensuring coordination and integration

The challenge of integrating national public planning processes



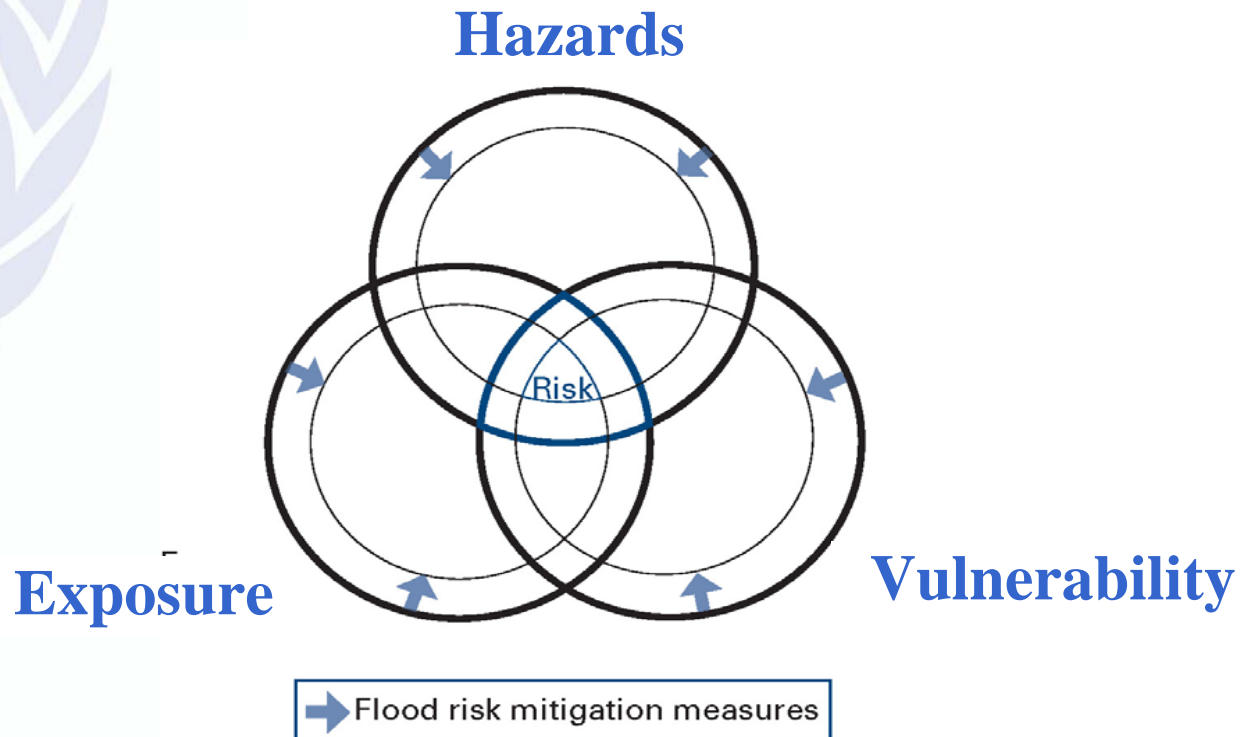
Adaptations to climate change requires..

- **Science based knowledge**
- **Resilient Development Policies**
- **Appropriate Institutions and regulatory mechanisms**
- **Adequate Economic Resources and Instruments**
- **Behavioral change**
- **International collective action :**
Regional & International Cooperation

Understanding flood risks

Flood risk consists of

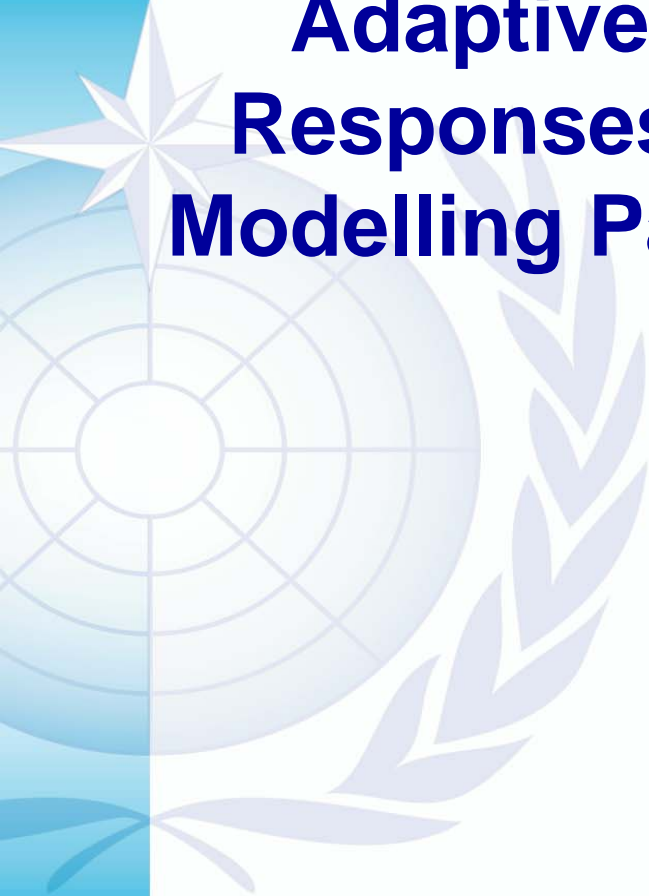
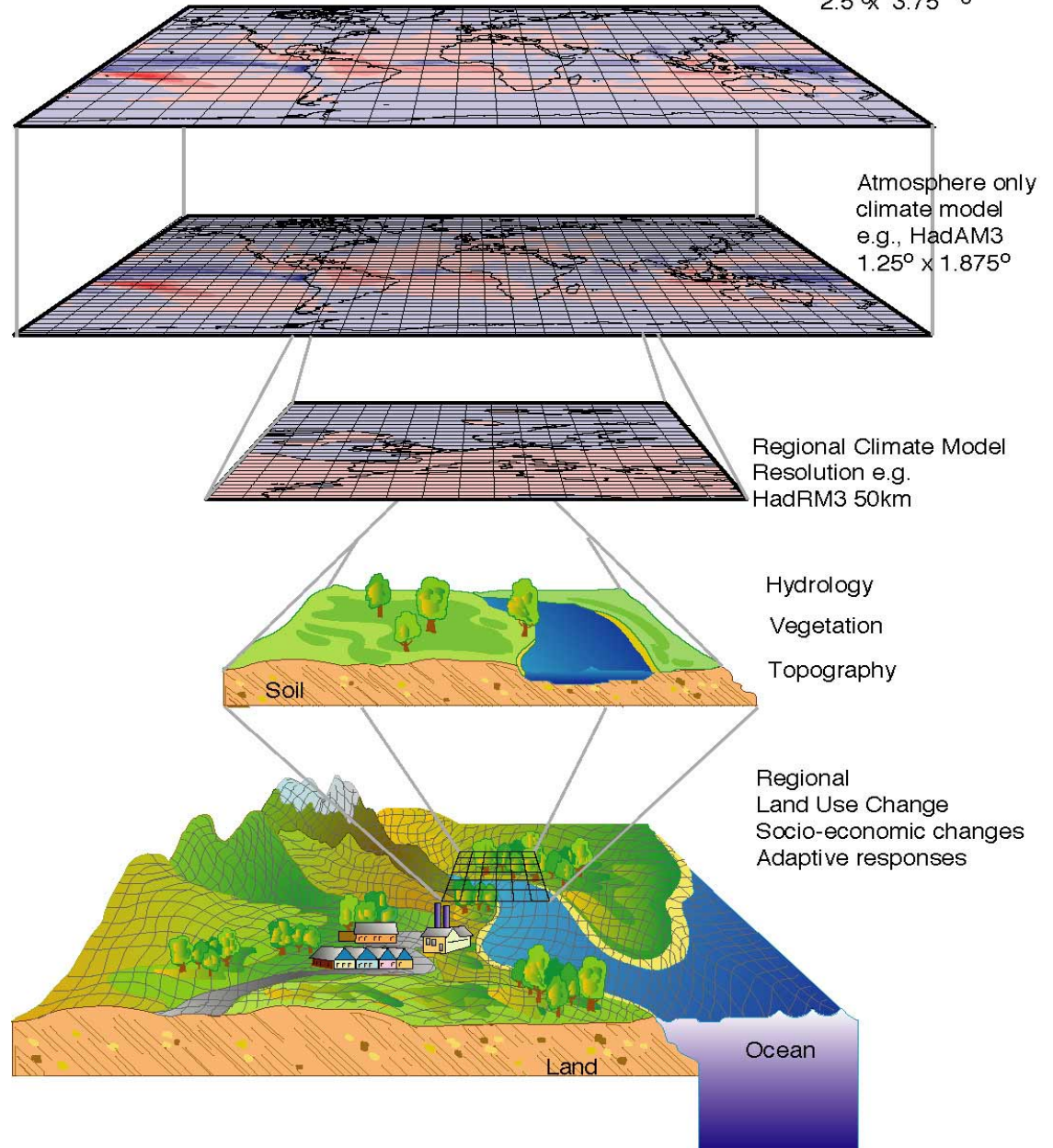
- The magnitude of the flood hazard expressed in terms of frequency and severity;
- The exposure of human activities to flooding;
- The vulnerability of the elements at risk.



GCMs to Regional Adaptive Responses: Modelling Path

Global Coupled Climate Model Resolution

e.g. HadCM3
2.5° x 3.75°



Key Questions

- **When will the science be ready to provide data with an acceptable level of confidence?**
- **Should management agencies wait for that to happen?**
OR
- **Begin today to consider climate change alternatives based on worst case assumptions?**

Conclusion

Use resilient policies such as Integrated Flood Management

Beginning today based on imperfect science is far better than no action at all.

**Use today's available science to discuss possible future scenarios that factor the possibility that the future
MAY NOT look like the past.**

**“Long-range planning does not deal with future decisions,
but with the future of present decisions.”**

Peter Drucker

Thank You



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A journey of a thousand miles begins with just a single step....