



*International conference on*

**SECURE AND SUSTAINABLE LIVING: Social and Economic  
Benefits of Weather, Climate and Water Services**

*by*

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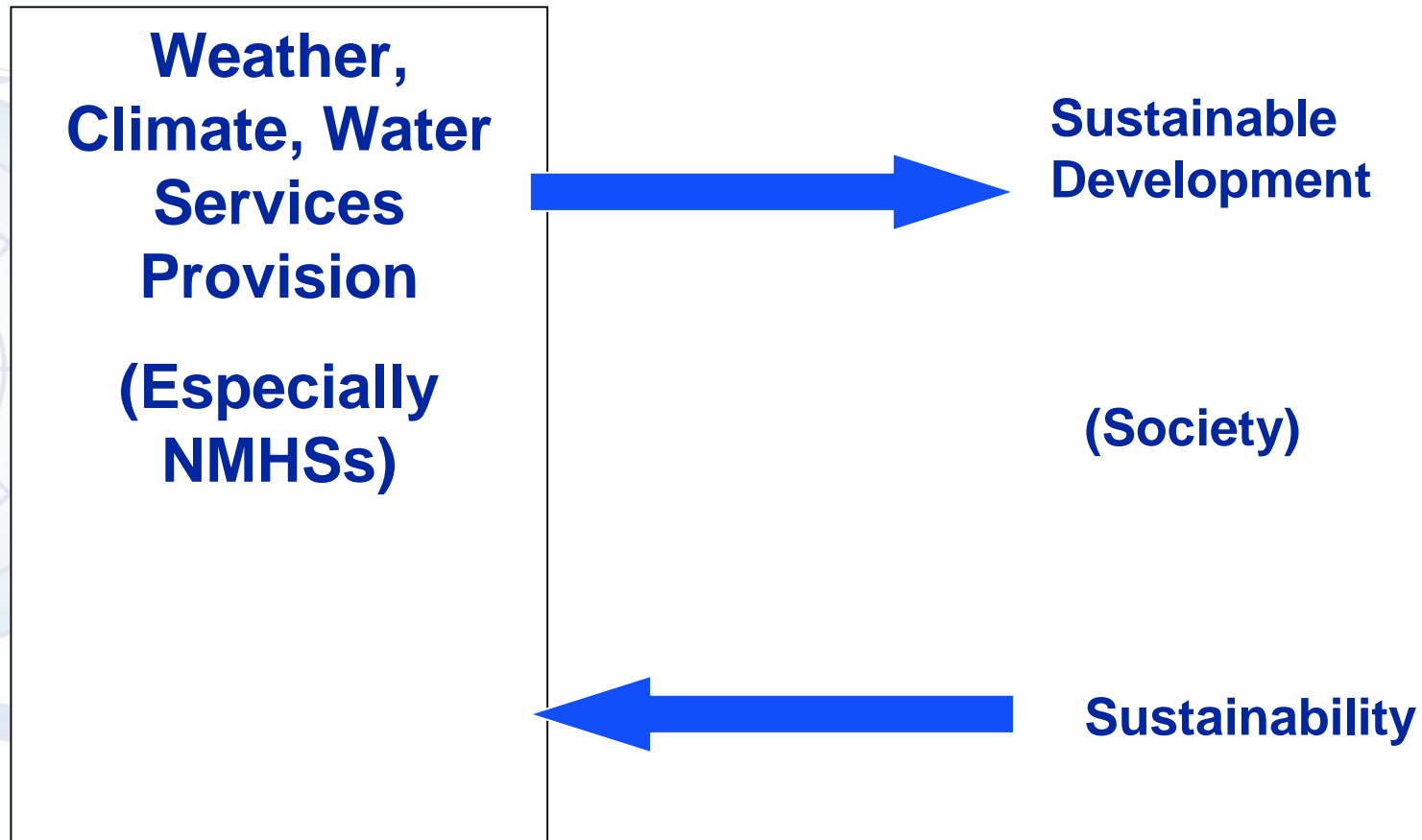
*World meteorological organization*

*Geneva Switzerland*

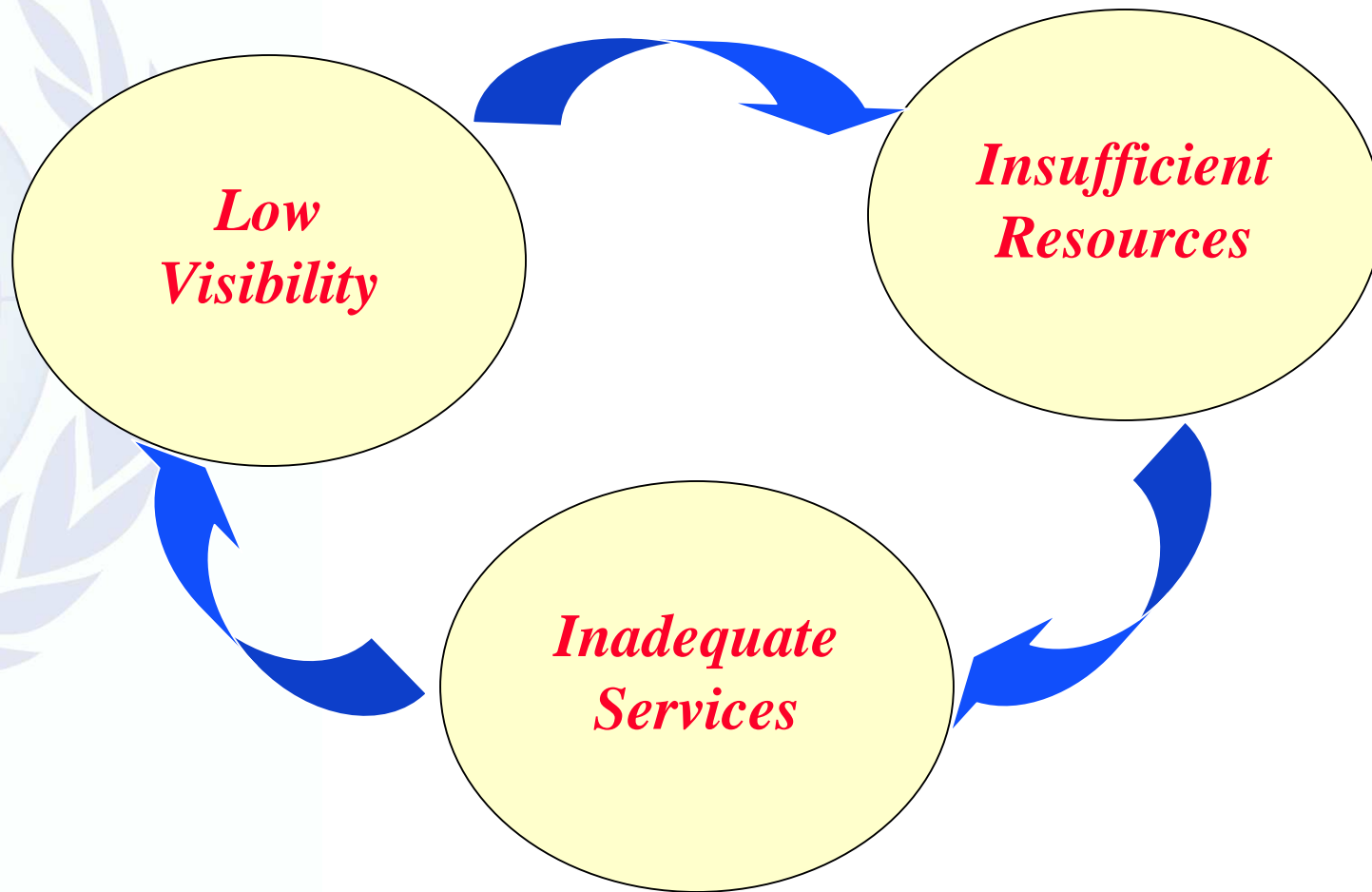
# *Why the Conference?*

- 1. Weather-, climate- and water-sensitive decisions are made by millions of people each day*
- 2. A number of extreme weather- and climate-related events in recent years have led to disasters of devastating consequences to many societies, thus arousing even keener interest of the general public and policy makers*
- 3. Concerns over the need to deal with the anticipated impacts of climate change to socio-economic activities have become an essential part of decision-making process at various levels*

# *Weather, Climate and Water Services and Society*



# *Weather, Climate, Water Services Provision*



# *Role and Operation of NMHSs*

***WMO Executive Council, adopted “Statement on the Role and Operation of National Meteorological and Hydrological Services for Decision Makers”***

**The statement highlights the strategic role and contributions of National Meteorological and Hydrological Services in decision making, by identifying what they do and how these contribute in meeting societal needs and national strategic plans.**

# **Weather, Climate and Water Services Provided by NMHSs will help in Meeting the Following Challenges**

1. Nations` aim towards reducing and mitigating natural disasters, improving and sustaining health, adapting to climate change, improving management of energy and water resources, managing and protecting ecosystems, developing sustainable agriculture
2. The need to reduce the risks that affect finance, recreation and tourism, transportation and other sectors of the society
3. The need by governments to respond to population growth, reduce poverty, increase water and food security, improve health and ensure safety.

## Need to demonstrate benefits through more rigorous methodologies

- Bayesian value of information models;
  - “Market prices”;
  - Normative or prescriptive decision-making models;
  - Descriptive behavioural response studies
  - Contingent valuation and other stated choice models; and
  - General equilibrium or economy-wide models.
- (See October 2003 issue of the WMO Bulletin)

# Representative Industries and Applications

*(Williamson et al, 2002)*

Major Industry	Examples of Specific Applications
Agriculture	<ul style="list-style-type: none"><li>◆ Crop management</li><li>◆ Irrigation decisions</li><li>◆ Prevention of weather-related diseases</li></ul>
Energy	<ul style="list-style-type: none"><li>◆ Planning purchases of gas and electric power</li><li>◆ Managing responses in emergency situations</li><li>◆ Managing capacity &amp; resources</li></ul>
Aviation/Transportation	<ul style="list-style-type: none"><li>◆ Optimizing flight patterns</li><li>◆ Reducing wait times on runways</li><li>◆ Avoidance of sudden volcanic plumes</li></ul>
Tourism/Recreation	<ul style="list-style-type: none"><li>◆ Improving ski slope demand/production of artificial snow</li><li>◆ Marine forecasts/warnings</li></ul>



## ***Benefits of ENSO Forecasts for Agriculture and Fisheries***

- U.S. Agriculture: \$200 - \$300 million/year
- Mexican agriculture: \$10 - \$25 million/year
- World agriculture: \$450 to \$550 million/year (minimum)
- U.S. corn storage: \$200 million/year
- World rice stocks: \$23 billion/year (prelim.)
- NW U.S. salmon fishery: \$1 million/year


*Source: Rodney F. Weiher, Thomas J. Teisberg,  
Richard M. Adams (2003)*

# Economic Benefits of Predicting Malaria Epidemics

The average cost of treating a child with complicated malaria, which means hospital admission for 5-7 days, is about US\$30.00. This is about 9% of the average income of a Kenyan whose per capita income is US\$330.00.

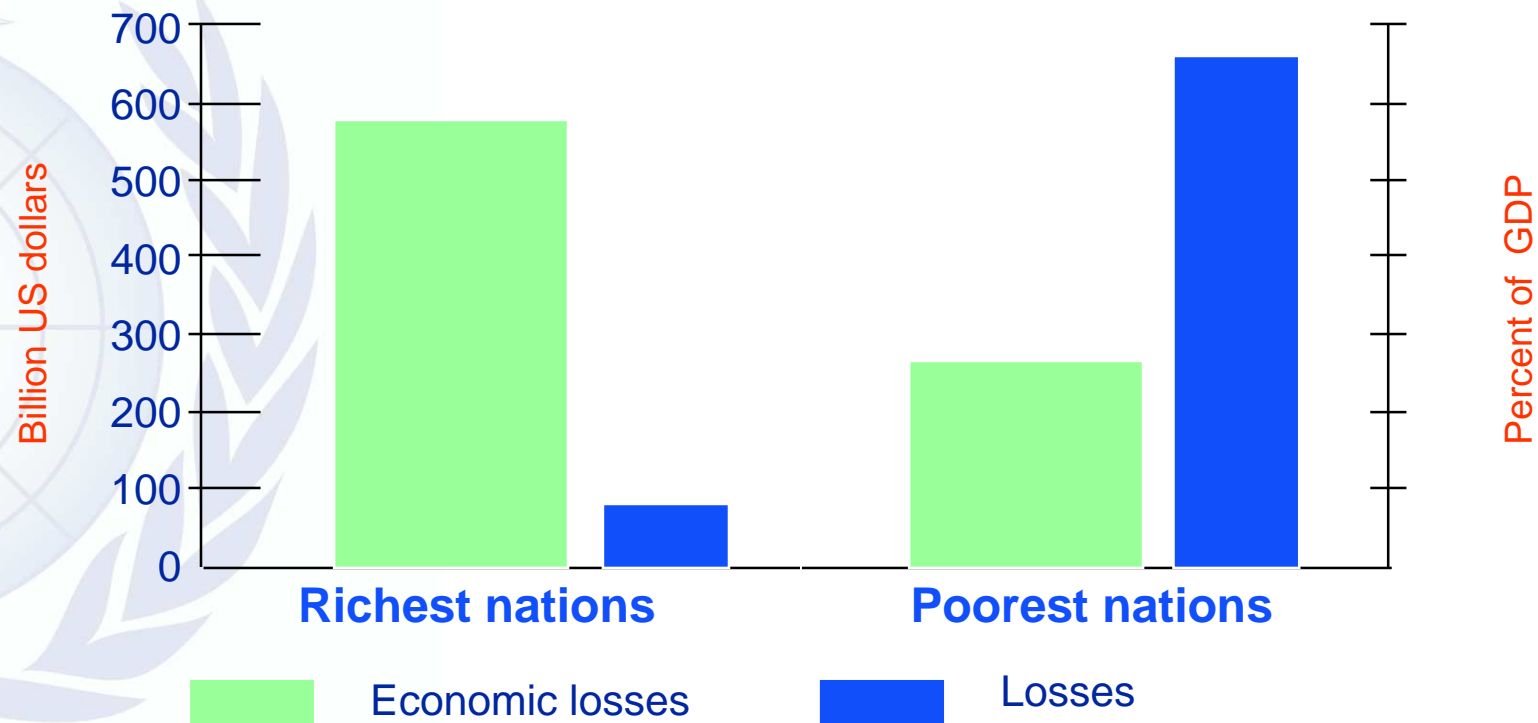
If an epidemic was forecasted and the children were treated early it would cost US\$2.50 per child. The savings here would be US\$27.50. So for a million children the savings would be US\$27. Million.

*Githeko AK, Munga SO, Afrane YA, Guiyun Yan (2006)  
Climate and Human Health Research Unit  
Kenya Medical Research Unit (KEMRI)*



It has been shown that a dollar spent on disaster preparedness can prevent seven dollars in disaster-related economic losses – a very considerable return on investment

# Disaster Losses, Total and Shared of GDP, in the Richest and Poorest Nations, 1985-1999




Source: Adapted from MunichRe, 1999

## ECONOMIC VALUE OF CURRENT AND IMPROVED WEATHER FORECASTS IN THE HOUSEHOLD SECTOR OF THE USA (Lazo and Chestnut, 2002)

### KEY FINDINGS

- Analysis of the responses to “stated choice” questions indicated that participants valued the accuracy of one-day forecasts most, followed by improvements to the accuracy of multi-day forecasts.
- It is estimated that the value of a programme which would increase all attributes of weather forecasts to their maximum level, is between US\$ 12 and US\$ 17 a year to a household.
- It is estimated that the average household would be willing to pay about US\$ 16 a year to have forecast quality improved to the maximum technically feasible level.
- The aggregate national benefit for improving day-to-day forecasts to the maximum feasible level is estimated to be US\$ 1.73 billion a year.



Resources for meteorological services should be considered as investments rather than expenditures.

**Given the need to respond to these issues, an international conference is being planned**

***It is entitled:***

**SECURE AND SUSTAINABLE LIVING: Social and Economic Benefits of Weather, Climate and Water Services**

***Venue:***

**Madrid, Spain, 19 to 23 March 2007**

***Under the Gracious Patronage of***

***Her Majesty Queen Sofia***



Flyer:



**SECURE AND SUSTAINABLE LIVING:  
SOCIAL AND ECONOMIC BENEFITS OF WEATHER,  
CLIMATE AND WATER SERVICES**

**INTERNATIONAL CONFERENCE: Madrid, Spain, 19 to 23 March 2007**

**How weather, climate and water information can help in decision making**

**EXPECTED OUTCOMES:**

- Societal impacts of weather, climate and water information
- What matters to decision makers
- Best practices and knowledge transfer

FURTHER INFORMATION CAN BE OBTAINED FROM:  
Strategic Planning Office  
World Meteorological Organization  
7 Bldg, avenue de la Paix  
Case postale No. 2300  
1211 Geneva 2  
Switzerland  
Tel. No.: + 41 22 730 81 11  
Fax No.: + 41 22 730 81 81  
Email: Madrid07@wmo.int

[www.wmo.int/Madrid07](http://www.wmo.int/Madrid07)



World  
Meteorological  
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ORGANIZATION: WMO,  
in collaboration with the Spanish  
Government and under the patronage  
of Her Majesty Queen Sofia





# **WMO Madrid 2007 Website**

**[www.wmo.int/Madrid07](http://www.wmo.int/Madrid07)**  
(Direct access through WMO Main Page)

International Conference on:

## SECURE AND SUSTAINABLE LIVING:

SOCIAL AND ECONOMIC BENEFITS OF WEATHER, CLIMATE AND WATER SERVICES



[Flyer]

### Organizers:

- [About WMO: Overview](#)
- [- WMO Departments](#)
- [- Events](#)

### Host Country, Spain

### Conference:

- [Conference Venue](#)
- [Programme](#)
- [Poster Session](#)
- [Exhibition](#)
- [Expected Outcome](#)

### Events:

- [Pilot National Workshop Philippines](#)
- [Regional Initiatives](#)

## Welcome to 'WMO Madrid 07 Event' - March 19,23

### Road to the Socio-Economic Benefits International Conference

Weather-, climate- and water-sensitive decisions are made by millions of people worldwide each day. As part of the ongoing effort to improve security and sustainable living, the [World Meteorological Organization](#) (WMO) is holding an international conference in Madrid, Spain, on the social and economic benefits to society of the products and services provided by the meteorological and hydrological

With the support of



MINISTERIO DE MEDIO AMBIENTE

This website will regularly be updated and enriched, based on developments relevant to the conference. [\[Announcement\]](#)

#### Latest News

WMO is pleased to announce the launch of the official website of the WMO International

# Strategic Issues

- ◆ *Concept paper*
- ◆ *Communications strategy*

# The Conference Will Provide an Important Occasion For:

- ✓ *representatives of various sectors of society to describe how the environment impacts them;*
- ✓ *how weather, climate and water information helps them make decisions and reduce risks; and*
- ✓ *to outline what changes would be needed to improve decision-making.*

# It is an opportunity for dialogue

- ✓ for the services providers to have a better knowledge about how their products and services are used, and where improvements are needed to increase their value to civil society and the economy; and
- ✓ for users and decision makers to appreciate better the current capabilities, responsibilities and limitations of the various service providers.

# *Elements of the Conference*

Technical Part – Presentations, Panel Discussions  
High-level Part – Statements (Eminent persons)  
Posters session

# Process Leading to the Conference

- Seek information on existing national experiences;
  - Support national studies in selected countries;
  - Support regional projects and workshops in all WMO regions;
  - Work on regional reports which would build on various national studies as well as on regional projects for specific regions;
  - Put together an aggregate global framework.
- 
- Key element - **partnership**

## Various Committees

- ◆ *Secretariat Coordination Committee*
- ◆ *Local Organizing Committee*
- ◆ *An International Programme Steering Committee (IPSC)*
- ◆ *Honorary Committee (Chaired by Queen of Spain)*
- ◆ *Partnership and Resource Mobilization Committee*



## Some Concrete Steps

- ◆ *First announcement*
- ◆ *Poster*
- ◆ *Website [www.wmo.int/madrid07](http://www.wmo.int/madrid07)*
  - Selected articles*
  - Case Studies*
  - Bibliography*

# Linkage with other Events

- ◆ *Global Environmental Change: Regional Challenges – An ESSP Global Environmental Change Open Science Conference **November 2006, Beijing, China***
- ◆ *Conference Living with Climate Variability and Change: Understanding the Uncertainties and Managing the Risks **17 to 21 July 2006, Espoo, Finland***
- ◆ *The First Meeting of the THORPEX Social and Economic Application Working Group **11-12 January 2006 Geneva, WMO Secretariat***
- ◆ *Expert Group Meeting on Guidelines for the Valuation of Hydrological Services **29 to 30 September of 2005, Geneva***

# Preparation at the Regional level

- Asia and SW Pacific (The Philippines, pilot workshop)
- African sub-regional Workshops:
  - *Mali*: Workshop for North, Central and Western Africa scheduled for end of May 2006.
  - *Kenya (Eastern Africa) and Tanzania (Southern Africa)* sub-regional Workshops: Will take place later in the year.
- America and the Caribbean (Brazil, July 2006)
- Eastern European Workshop (Croatia, December 2006)
- Regional Workshop for the Arab Region is envisaged

## Expected Outputs of the Conference

1. A review and synthesis of the way everyday social and economic decisions are influenced by weather, climate and water information and the benefit of this information to society;
2. An examination of the decision-making process and how information providers need to adapt to decision-makers' needs;
3. A comprehensive publication on the global social and economic benefits of meteorological and related information, including case studies, best practices and recommendations.




## Expected Outputs of the Conference

Conference Statement

Conference Declaration

# Policy Implications of Outcome

By bringing together decision-makers, users and service providers, WMO aims to increase further the utility of weather, climate and water knowledge for social and economic benefit , in view of their growing value and impact.



In conclusion, the 2007 conference will assist providers, users and policy makers in maximizing the social and economic benefits of meteorological and hydrological information, products and services. It will also highlight the role and contribution of WMO and NMHSs.



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Thank you