

2nd Global Summit Disaster Risk Reduction
Kyoto, 20 March 2015



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UNU-EHS: Ways to bring disaster risk research into practice

*Jakob Rhyner,
Director UNU-EHS and Vice Rector in Europe*

United Nations University

The „Global Campus“



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* UNU Centre

1 UNU-INWEH (Water)

2 Office at the UN (Liason)

2 UNU-FNP (Food & Nutrition)

3 UNU-BIOLAC (Biotechnology)

4 UNU-FTP, UNU-GTP, UNU-LRT
(Fisheries, Geothermal Research,
Land Restauration)

5 UNU-MERIT (Innovation & Technology)

6 UNU-WIDER (Development Economics)

7 UNU-CRIS (Regional Integration)

8 UNU-ViE (Vice Rectorate in Europe)

8 UNU-EHS (Human Security)

8 UNU-FLORES (Integrated Material Fluxes)

9 Office at UNESCO (Liason)

10 UNU-INRA (Natural Resources)

11 UNU-IIGH (Health)

12 UNU-IIST (Software)

13 UNU-IAS (Advanced Studies)

13 UNU-ISP (Sustainability & Peace)

Environmentally induced migration

WHERE THE RAIN FALLS (funded by CARE / AXA / MacArthur Foundation)

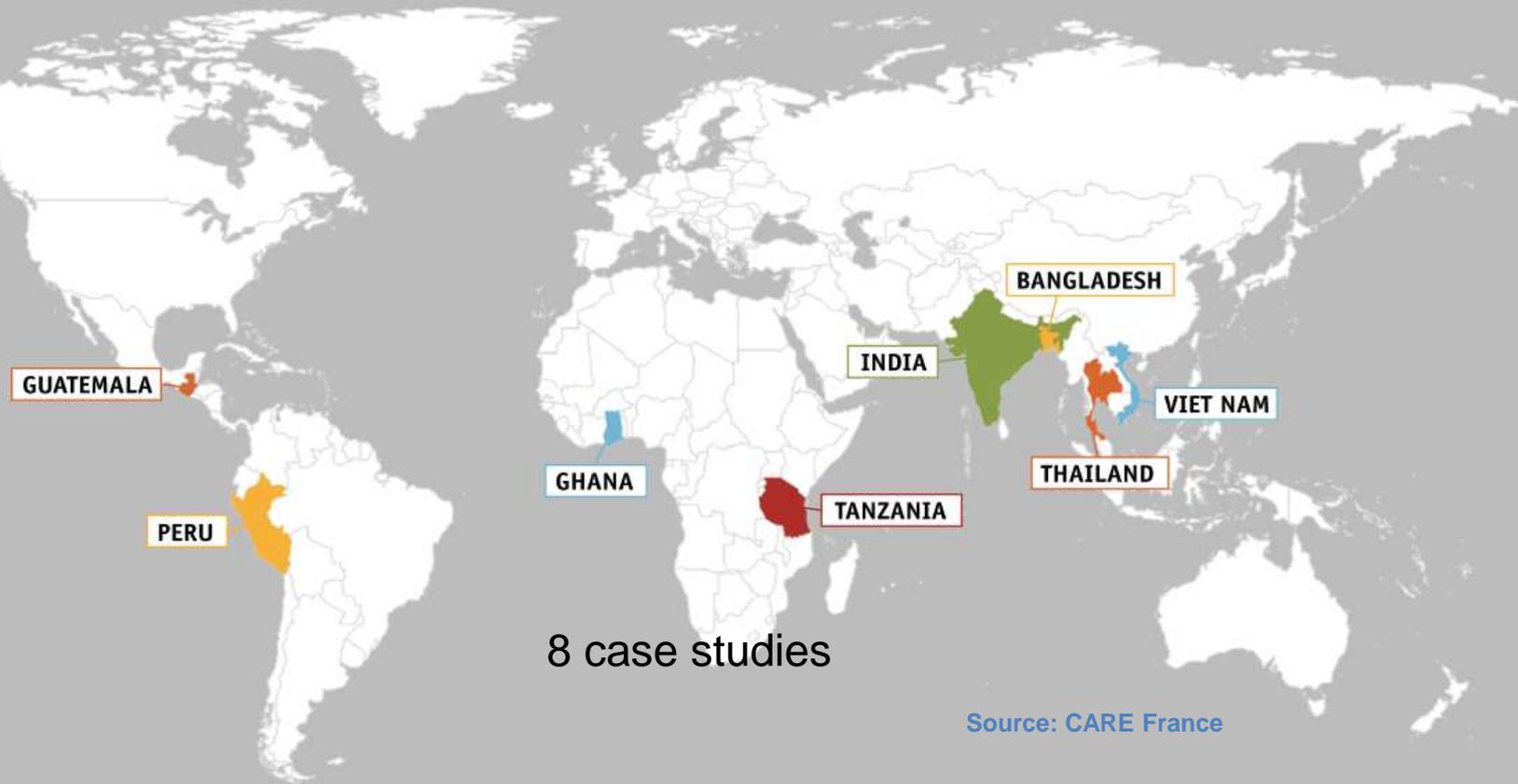
OBJECTIVES and SCOPE

1. To understand how rainfall variability, food security and migration interact today
2. To understand how these factors might interact in coming decades as the impact of climate change begins to be felt more strongly
3. 3. To work with communities to identify ways to manage rainfall variability, food and livelihood insecurity, and migration.



WHERE THE RAIN FALLS

Geographic Diversity: 8 Countries



Motivation factors for migration



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<http://www.ehs.unu.edu/article/read/where-the-rain-falls>

- Environmental degradation...

...but also....

- *Labor market (remittances)*
- *Education for children*
- *Health system support*
- *Conflicts*
- *....*

The poorest often don't migrate, because they are lacking the necessary resources!

→ “Socially constructed” risk?

Project Caribbean

(Monitoring and Evaluation of Risk Management and Adaptation in the Caribbean)

Funded by BMU



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St. Lucia

Grenada

Guyana

Project Caribbean

(Monitoring and Evaluation of Risk Management and Adaptation in the Caribbean)



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Livelihood Resilience in the face of disasters: Livelihood shock absorber

- **Parametric product:** Trigger wind-speed & rain; product will be sold in tranches
- Beneficiaries: Individuals
- Effect: Product should provide liquidity to individuals in the aftermath of extreme weather event to protect livelihood

Financial resilience and loan default: Portfolio hedge

- Parametric product: Trigger wind-speed & rain
- Beneficiaries: Banks or other loan provider with exposure to disaster related loan default
- Effect: Product should leverage lending to vulnerable people (e.g. agricultural sector)

World Risk Index

Co-funded by Bündnis Entwicklung hilft



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Risk and Vulnerability Index

Exposure

Exposure to natural hazards

Susceptibility

Likelihood to suffer damage in an emergency

Coping Capacity

Capacity to reduce negative impacts in case of emergency

Adaptive Capacity

Capacity for long-term adaptation and change

---- Core components of vulnerability ----

NATURAL HAZARDS
SPHERE

SOCIETAL SPHERE

Global Index / Indicators with national scale resolution

Local Indicators und criteria with sub-national, local and household scale resolution

Indicators selected



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1. Exposure

EXPOSED POPULATION IN REGARD TO

- A) Earthquakes
- B) Cyclones
- C) Floods
- D) Droughts
- E) Sea level rise

2. Susceptibility

NUTRITION

- A) Percentage of undernourished population

PUBLIC INFRASTRUCTURE

- B) Population without access to improved sanitation
- C) Population without access to clean water

HOUSING CONDITIONS

Proportion of population in slums;
proportion of semi-solid and fragile houses
→ limited data availability

POVERTY AND DEPENDENCIES

- D) Dependency ratio (proportion of under 15 – and above 65-year-olds in relation to the working population)
- E) Extreme poverty (population living on less than 1.25 USD (live PPPs) per day)

ECONOMIC CAPACITY AND INCOME

- F) Gross Domestic Product per capita (Purchasing Power Parity)
- G) Gini-Index

3. Coping Capacity

GOVERNMENT AND AUTHORITIES

- A) Corruption Perception Index
- B) Failed States Index

DISASTER PREPAREDNESS AND EARLY WARNING

National disaster risk management policy according to the report of UN / ISDR

MEDICAL SERVICES

- C) Number of physicians per 10,000 population
- D) The number of hospital beds per 10,000 population

SOCIAL NETWORKS: NEIGHBORHOOD, FAMILY AND SELF-HELP

→ No data available

ECONOMIC COVERAGE

- E) Insurance (except life insurance)

4. Adaptive Capacity

EDUCATION AND RESEARCH

- A) Adult literacy rate
- B) Combined gross school enrolment (rate of school-aged children in primary, secondary and tertiary educational institutions)

GENDER EQUITY

- C) Gender parity in education (in primary, secondary and tertiary educational institutions)
- D) Percentage of female representatives in the National Parliament

ENVIRONMENTAL STATUS / ECOSYSTEM PROTECTION

- E) Water resources
- F) Protection of biodiversity and habitats
- G) Forest Management
- H) Agricultural Management

ADAPTATION STRATEGIES

Volume of National Adaptation Programmes of Action to Climate Change, Climate Change Convention (available for 45 of the least developed countries)

FINANCING

- I) Life expectancy at birth
- J) Private health expenditure
- K) Public health expenditure

Hazard Exposure (annual pop. exposed)



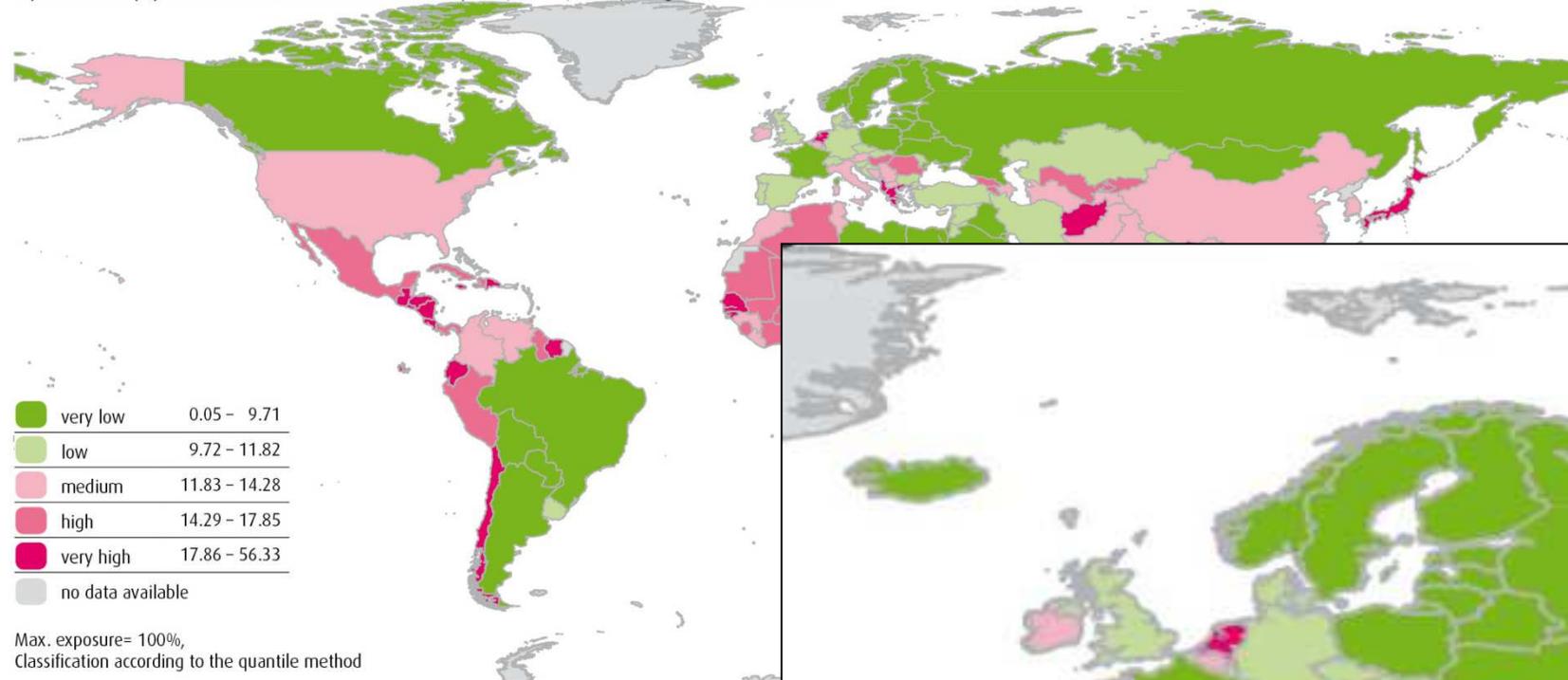
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Exposure

Exposure of the population to natural hazards such as earthquakes, storms, floods, droughts and sea level rise.



Susceptibility



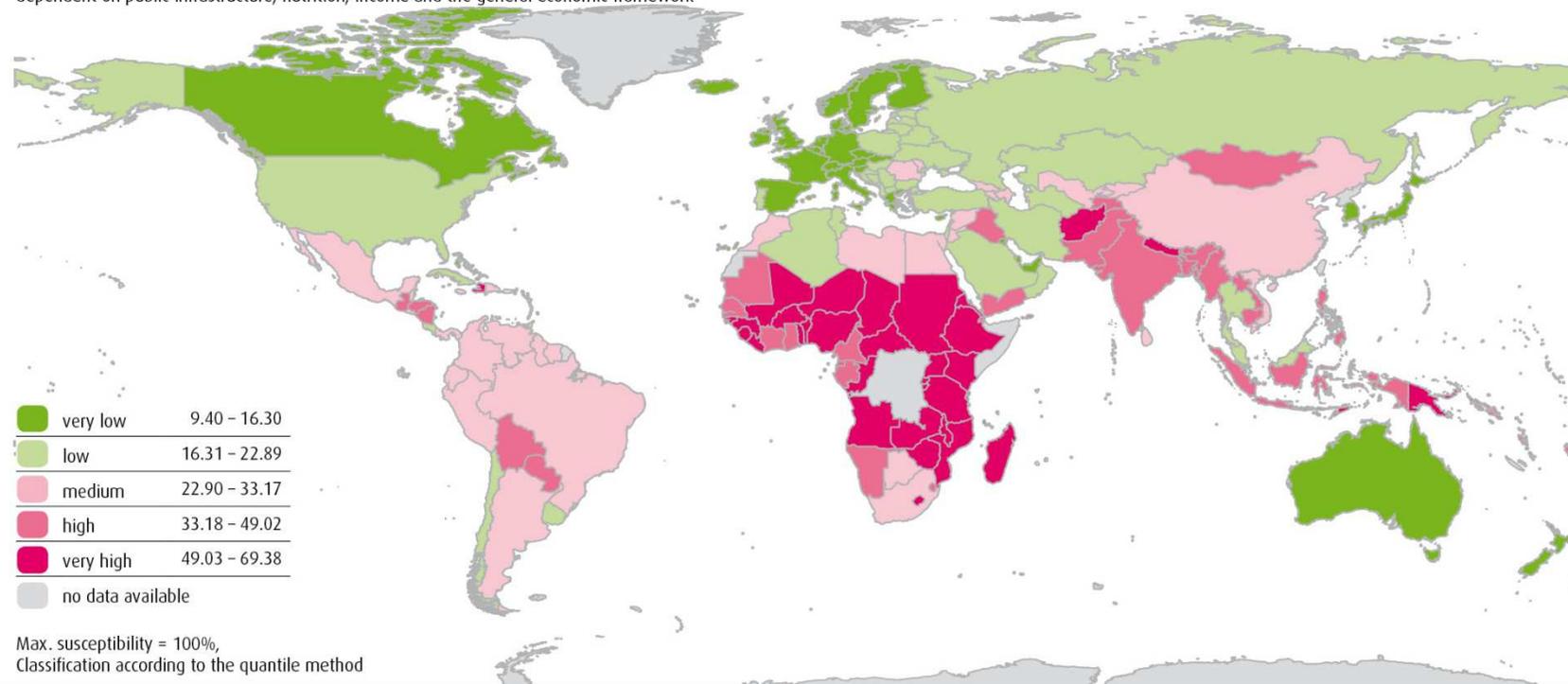
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Susceptibility

dependent on public infrastructure, nutrition, income and the general economic framework



Worldwide environmental risks - many are related to water!



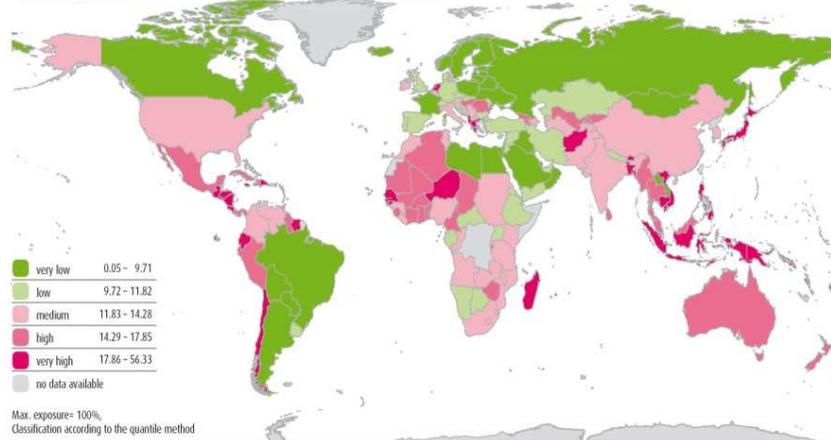
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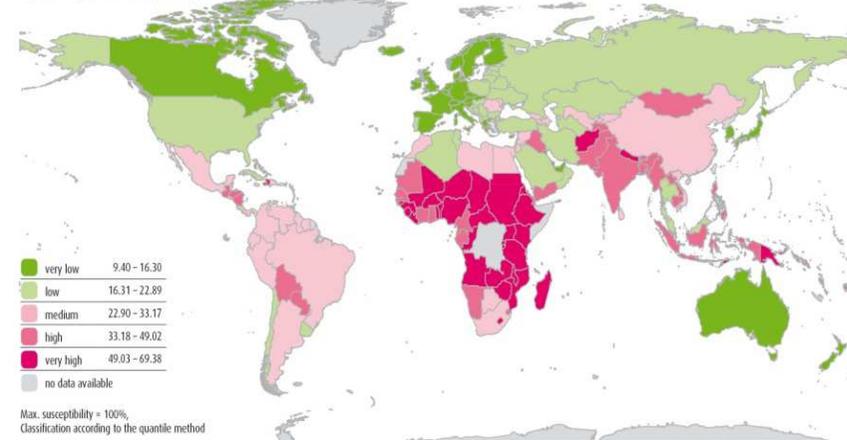
Exposure

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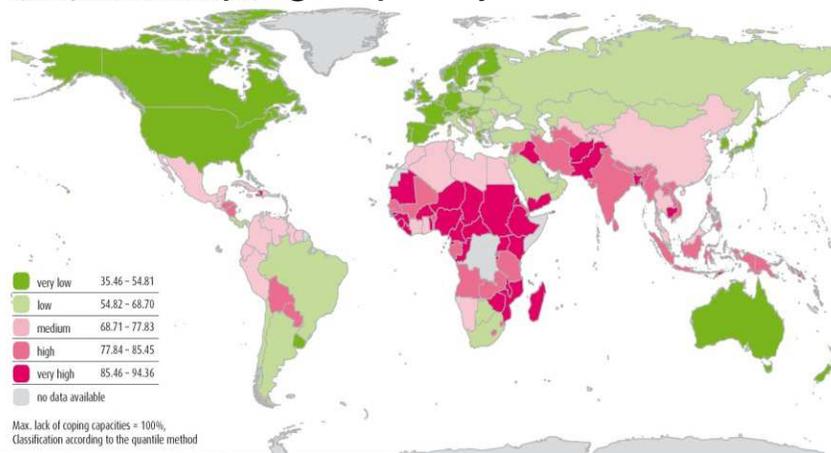
Susceptibility

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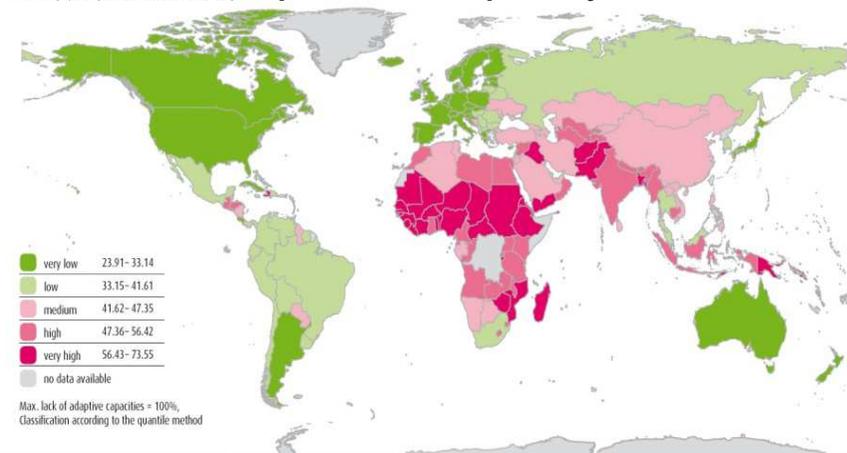
Lack of coping capacities

dependent on governance, medical care and material security



Lack of adaptive capacities

illustrating upcoming natural events and climate change





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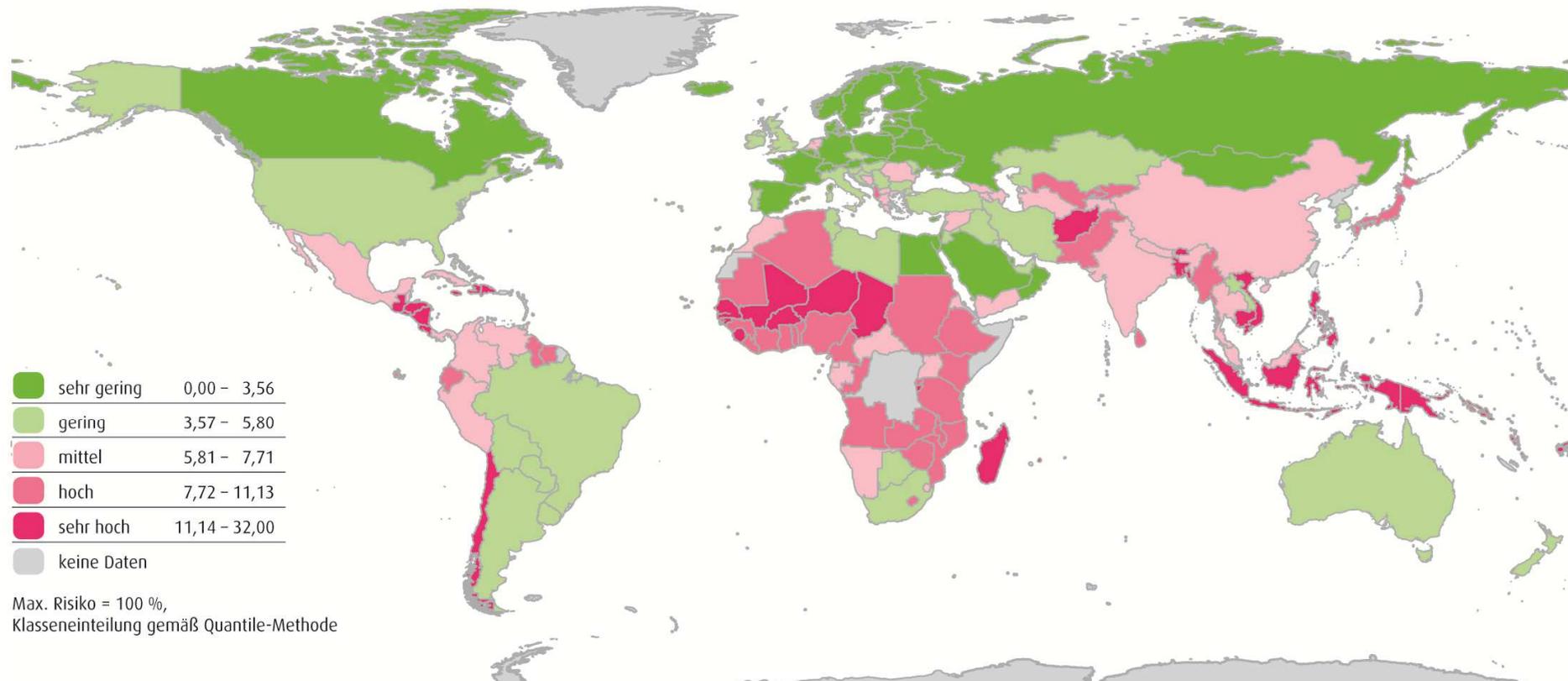
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Map: Risk Index Results

WeltRisikoIndex

WeltRisikoIndex als Produkt aus Gefährdung und Vulnerabilität



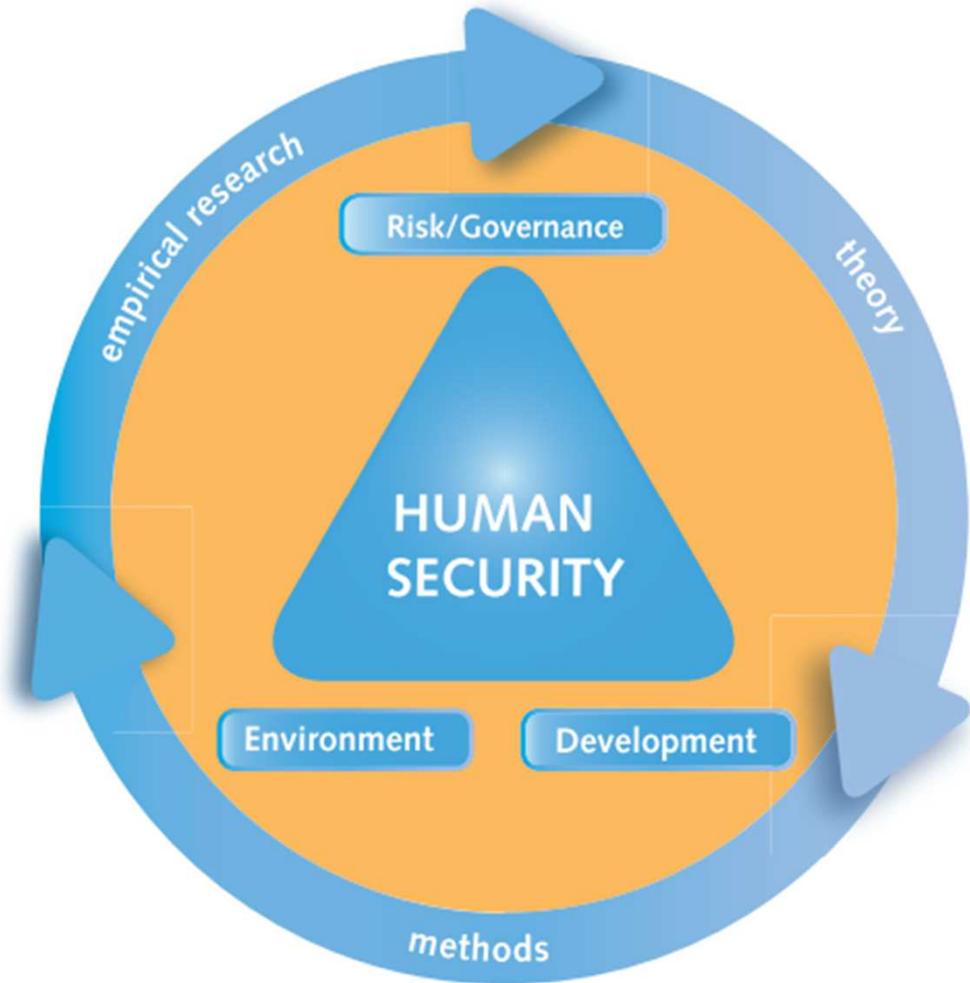
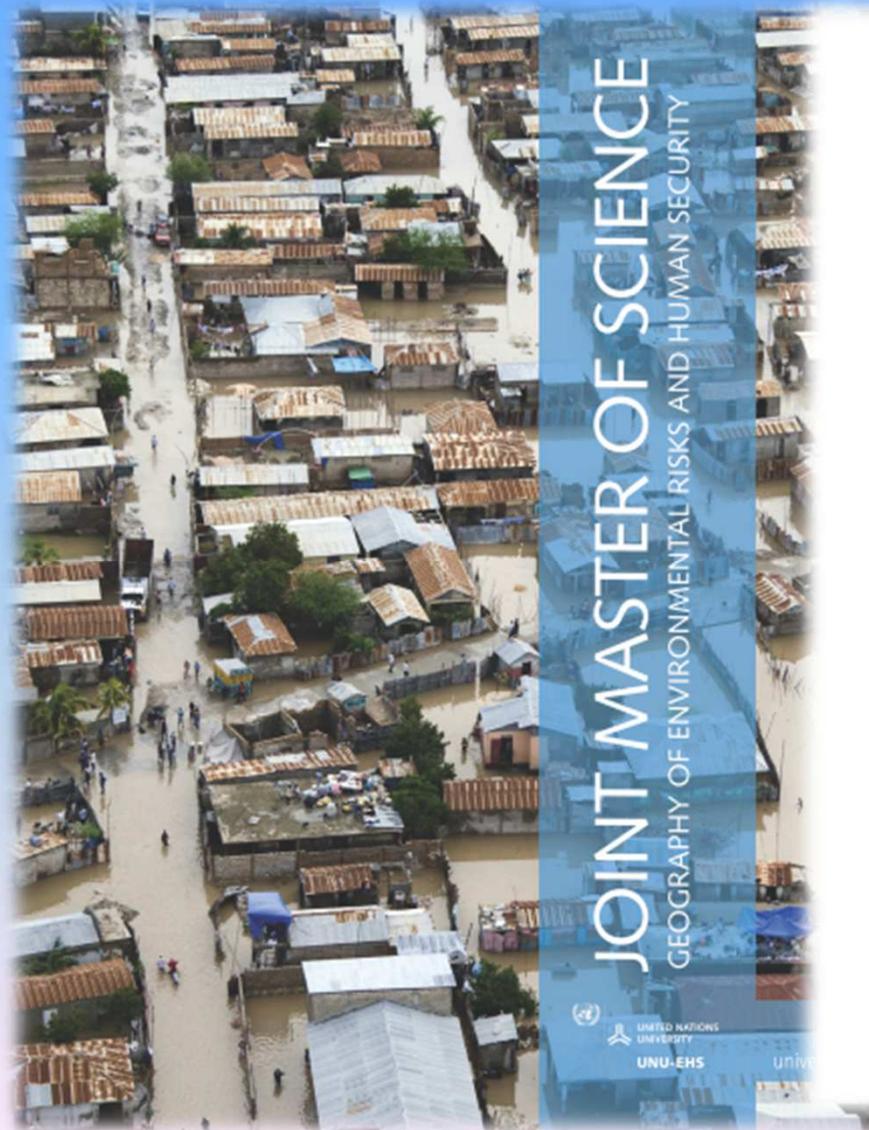
Training course in South Africa

28 January - 8 February 2014, Port Elizabeth,



Joint Master of Science together with University of Bonn:
“Geography of Environmental Risks and Human Security”

Launch: October 2013



Getting risk research into practice

– *what's needed?*



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- Know your partners and engage with them – not only when you need funding
- Need people who are willing to go the extra (non-scientific) mile
- “Co-design” – don’t be afraid to loose academic freedom
- Universities and funders need to reward the above
-and continue support fundamental research – not geared to “practice”!
It will perhaps answer questions that practice will ask in 40 years from now!

Thank you for your interest!



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Institute for Environment
and Human Security (UNU-EHS)

Hermann-Ehlers-Str. 10
53113 Bonn, Germany

Tel.: + 49-228-815-0200
Fax: + 49-228-815-0299

e-mail: rhyner@ehs.unu.edu
www.ehs.unu.edu

For the World Risk Index: www.worldriskreport.org

For UNU projects in Africa: <http://www.vie.unu.edu/project/map/priority-africa>