Climate Change in the framework of Security

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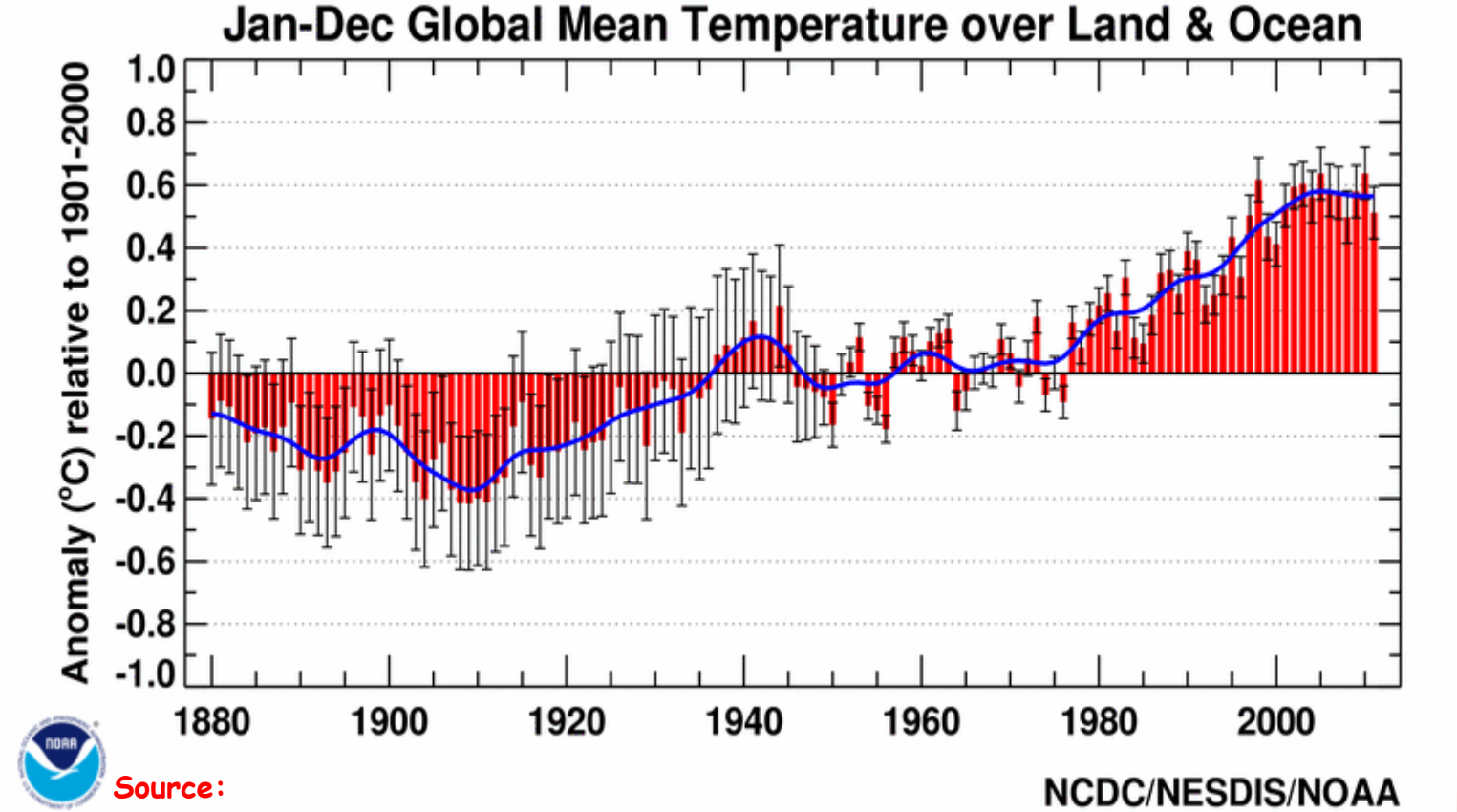
Challenge on Climate Change

- Increase of global average temperature
  - 1.0° C since 1850, accelerating
- Warming by 2100: approx. 4° C
- 2015 warmest year in history
- EU and UNFCCC target:
  - limitation of global warming to 2° C
- Achievement of target:
  - Mitigation:
    - reduction of GHG emissions on global scale before 2020,
    - -50% by 2050,
    - almost ZERO by 2100
  - Adaptation: Required - visible impact of mitigation not before 30 years

Global Mean Temperature



Source:
National Oceanographic and Atmospheric Administration (NOAA), USA

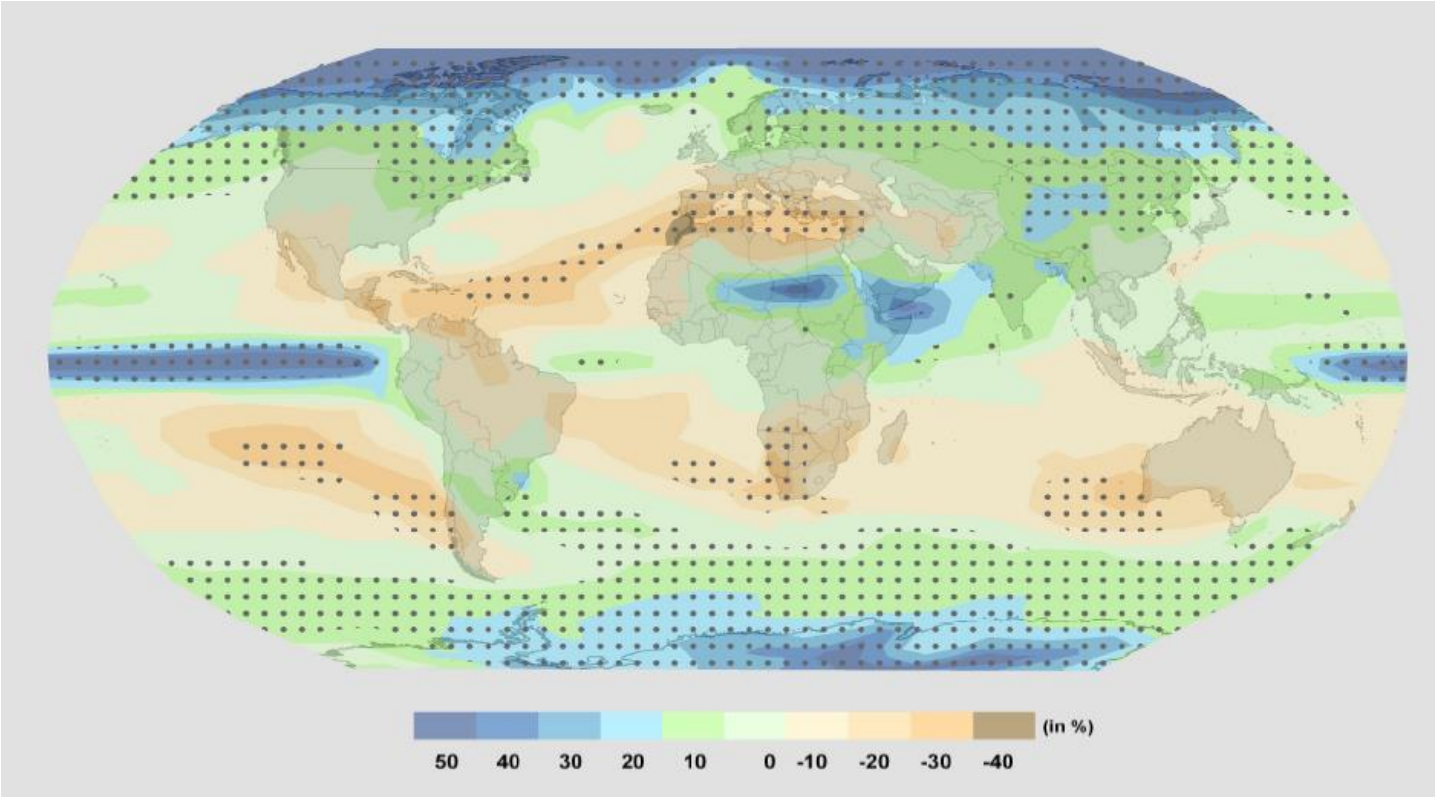
Climate Change and Security

- Impact in many tropical and subtropical countries
  - Decrease of water and land resources and crop productivity
- In contrast - increasing demand for water and foodstuff
  - Increasing population
  - Increasing standards of living

Projections of precipitation

1990 – 2090

Scenario RCP 8.5



Source:
IPCC 2013: AR5

Further Projections by 2100

Sea level: Increase by 100cm (± 50)

Oceans: Acidification (Reduction of pH-value by 0.2–0.3)

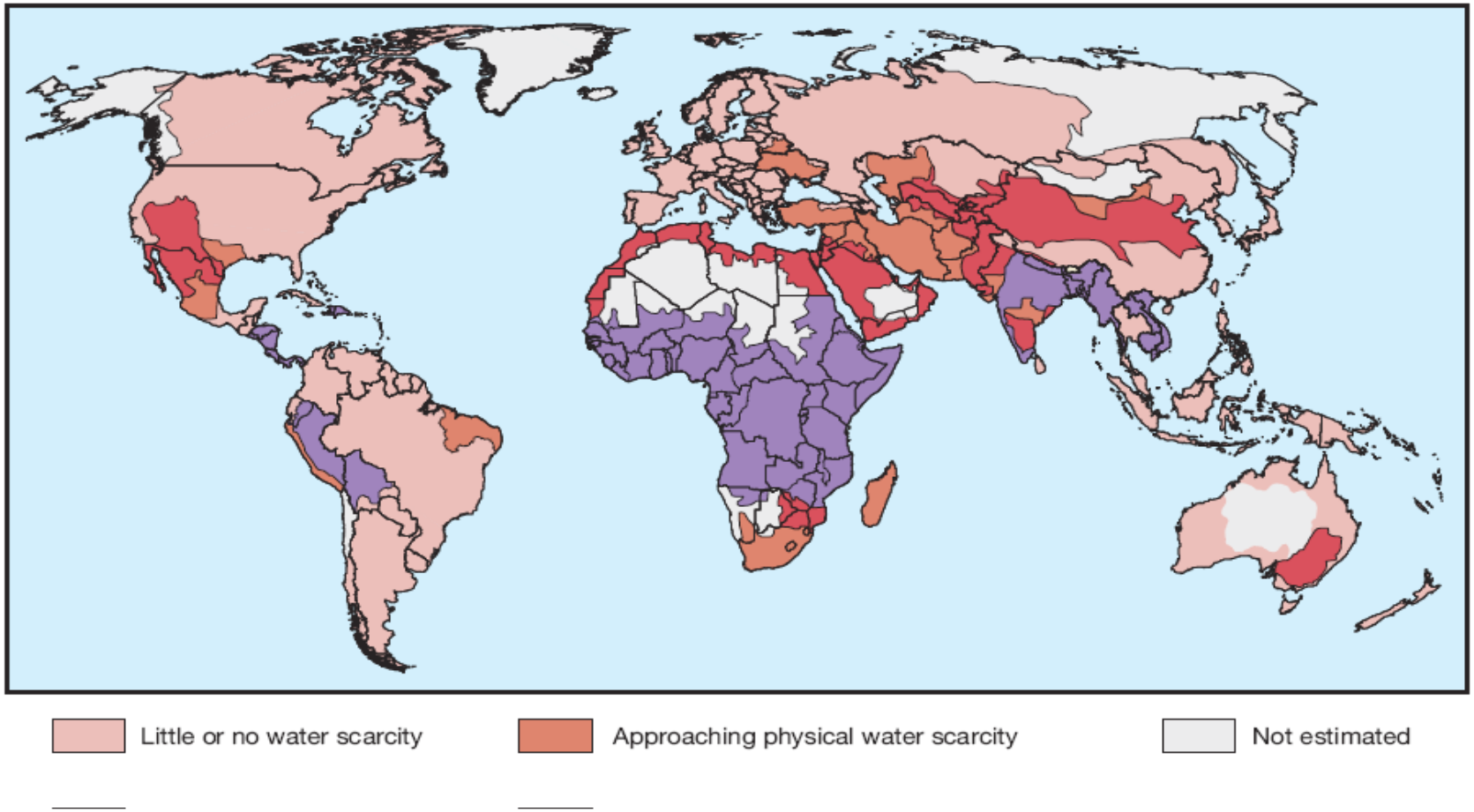
Sea ice: Rapid reduction – Arctic in near future during summer free of ice

Mountain Glaciers: melting - **Impact**

Rivers fed by melting glacial water from Himalayas and Andes -
20% of world population will be affected

Water Availability

Regions of Water Scarcity



Source: German Advisory Council on Global Change, Flagship Report 2007

Loss of Land (1)

Impact of climate change causing flooding

- Sea level rise
- Erosion of coasts
- Increasing intensity of tropical storms

Loss of Land (2)

Increase in Storm and Flood Disasters

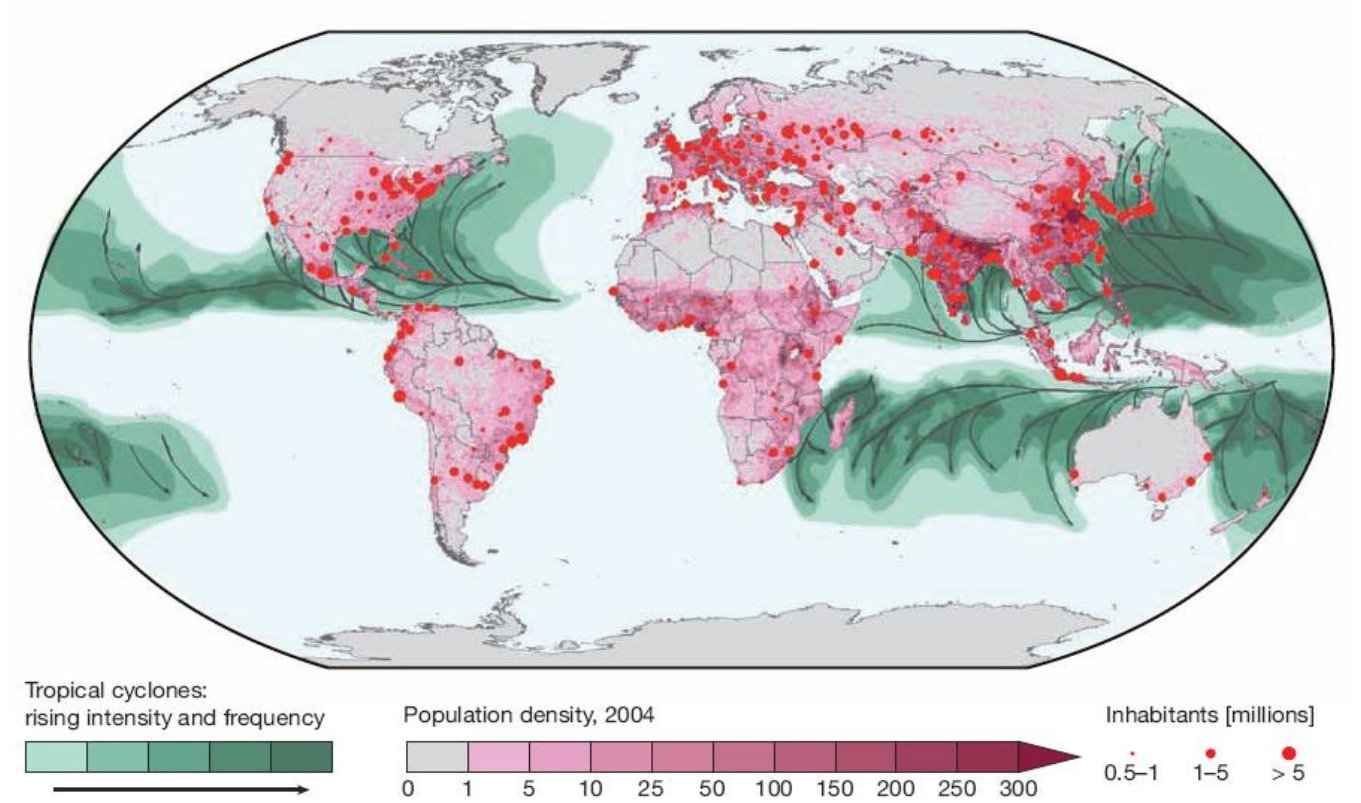
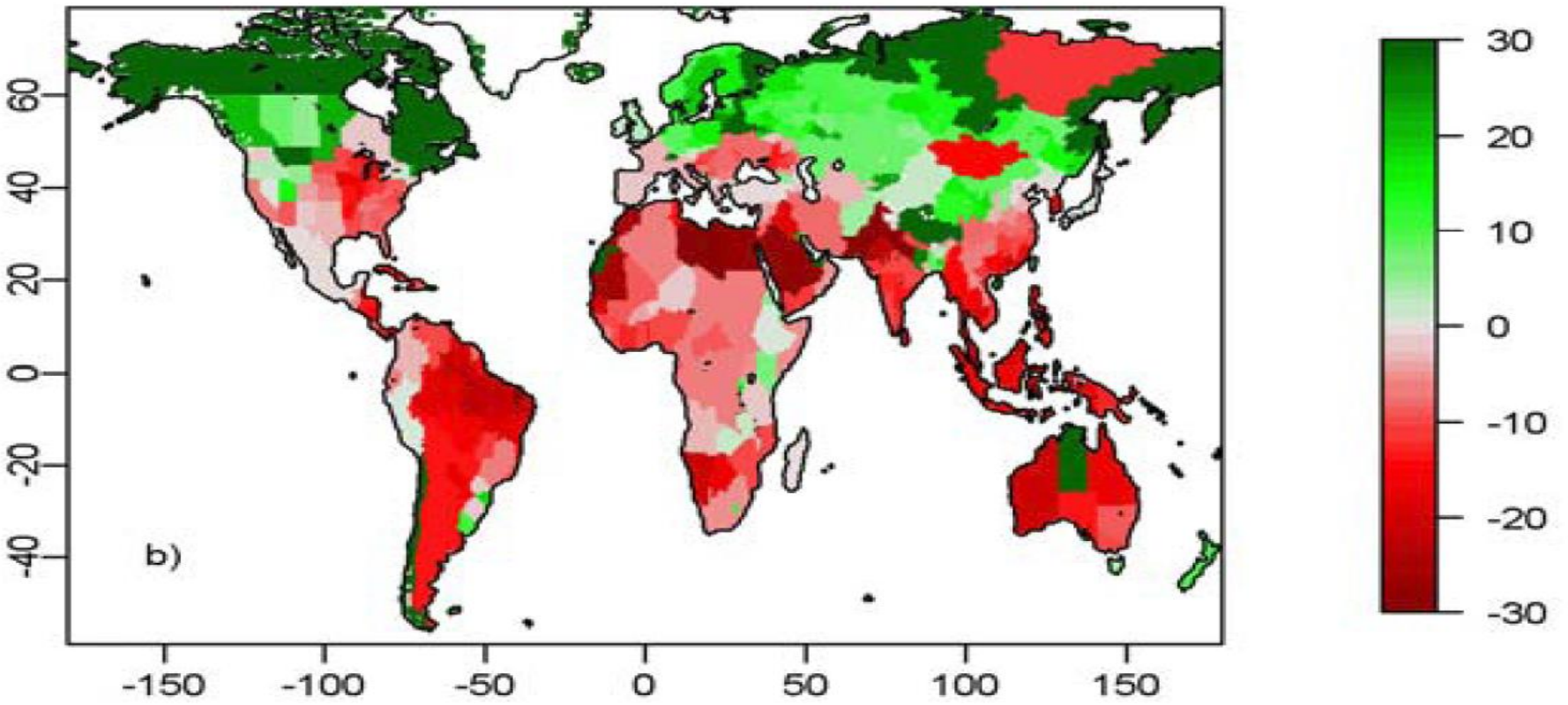


Figure 6.4-1
Tropical cyclone threat to urban agglomerations.
Cartography: Cassel-Gintz, 2006.
Source: WBGU

Source: German Advisory Council on Global Change, Flagship Report 2007

Impacts on Food Insecurity

Projected changes in crop productivity 2000 – 2050 caused by Climate Change



Source: Potsdam Institute for Climate Impact Research, 2009

Land Degradation

as contributing factor to insecurity

Causes

- Over-exploitation for extraction of fuelwood

  (near the margins of the desserts)

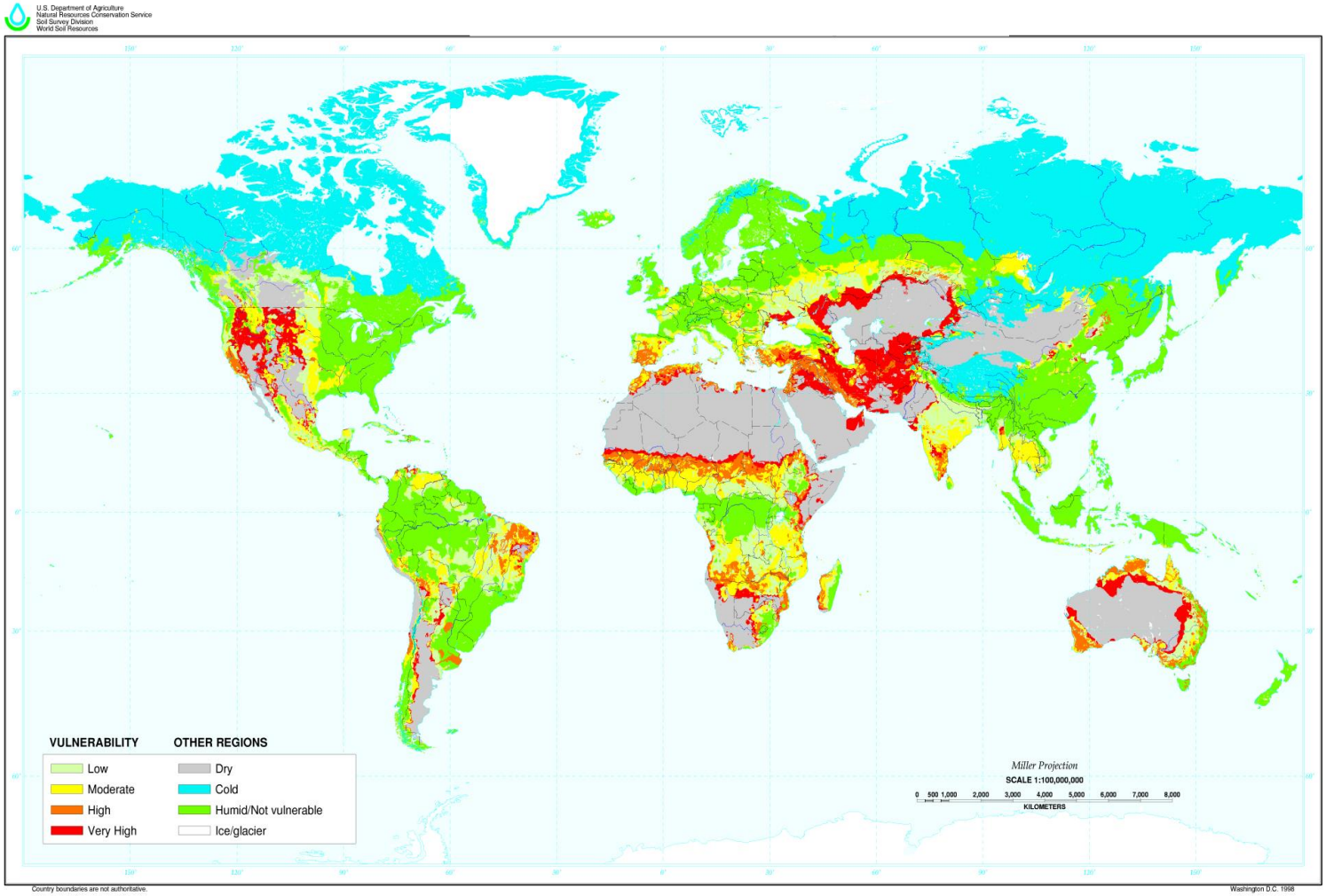
- Overgrazing by cattle (in arid regions mostly be nomads)
- Over-exploitation by permanent agriculture (in less arid regions)

Extend *(proportion of agricultural land global)*

- 1/4 threatened by land degradation
- 1/10 threatened by desertification
- 0.1 % per year is converted to desert

Impact: Reduction on agricultural productivity and production

Vulnerability to desertification



Conflict constellations

- **Conflicts for water**
  - Mostly solved by more cooperation
- **Conflicts for land**
  - Land area for agriculture decreasing
  - Challenge of land grab increasing
- **Conflicts for foodstuff**
  - 2008: Riots in 33 countries caused by high food prices
  - Many countries prohibited exports of food stuff
  - Arabian revolution started when food prices skyrocketed
  - Syrian civil war started during severe drought / food insecurity (lasted already for 5 years)

Environmental degradation
as threat multiplier (1)

- **Impacts of decreasing availability of foodstuff and water threatening livelihood**
  - Adaptation - for the richest
  - Migration - for the others who can afford
  - Trapped – those who cannot afford migration
- **Migration**
  - To industrialised countries – only the richest 5-10% - no security risk, revenues improve living conditions
  - To cities (esp. megacities along the coasts) – vast majority – security risk huge if settlement in floodplain regions
  - to regions with vulnerable local populations - security risk high

Environmental degradation
as threat multiplier (1)

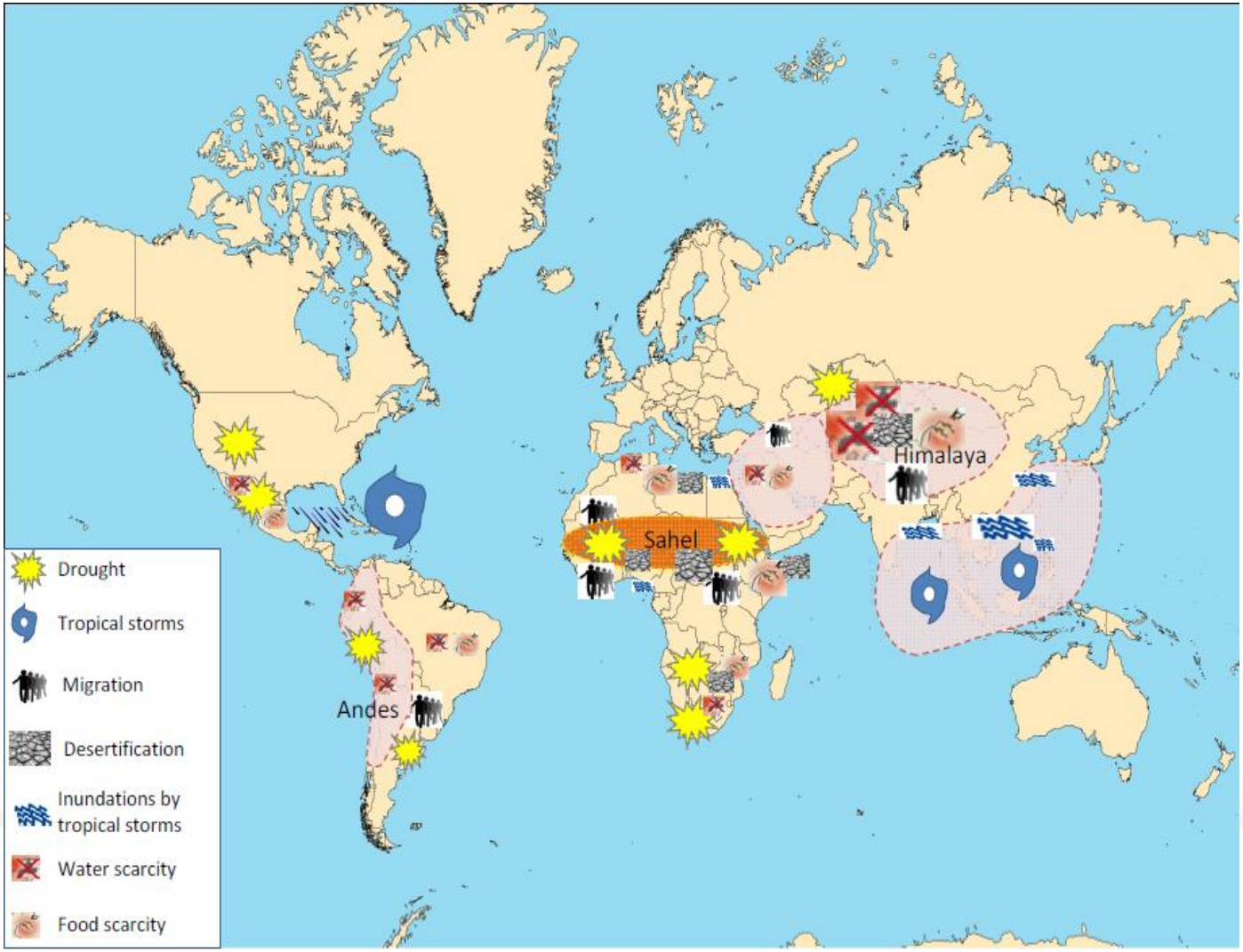
- Deteriorating governance of weak states (failing states) caused by overstretching of
  - emergency assistance to migrants
  - trapped populations in urgent need of food and water
- Conflict Potential is especially high in
  - Failing states
  - Mega-cities

Land-grab as contributing factor

in poor countries

- **Land-grab**
  - Rich countries buy/rent agricultural lands in poor countries
  - Started 2006 to become significant
  - Reasons: Access to food, water and bio-fuels
  - Extent: 2 - 3 % of agricultural lands most in Sub-Sahara Africa
  - Feedstock for bio-fuels harvested on more than 3 % of agricultural lands - increasing

Potential threats - Hotspots



Political Agenda CCIS (1)

(=Climate Change and International Security)

April 2007	First debate of UN Security Council
June 2007	German report on CCIS at G8-summit
March 2008	Report and work programme on CCIS by EU
June 2009	UN General Assembly agreed on resolution A/63/281
	expressing deep concern for possible security implications of Climate Change
Nov. 2009	EU progress report on CCIS

Political Agenda CCIS (2)

May 2010	EEAS Strategy for Security and Development in the Sahel
July 2011	Second debate of UN Security Council
July 2011	EU Council adopted "EU Climate Diplomacy" *1 (of 3) strands on Climate Change and intern. Security*
Nov 2011	EU Strategic Framework to the Horn of Africa
April 2015	EU Sahel Regional Action 2015 – 2020

Political responses

- New International Climate Treaty (COP 21, Paris)
- Green energy revolution

  accelerating in increasing number of countries
- Adaptation strategies for developing countries
  - Sustainable agriculture (agro-forestry)
  - Restoration of soils
  - Efficient stoves
  - Rural electrification
- Stabilizing fragile states

  sustainable strategies in discussion / preparation

Thank you for your attention !

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