UNFCCC technical workshop on water and climate change impacts and adaptation strategies under the Nairobi work programme on impacts, vulnerability and adaptation to climate change

18.20 July 2012, Mexico City, Mexico

There is evidence that anthropogenic influences, including increasing atmospheric greenhouse gas concentrations, have changed these extremes

Session 3: Assessment of climate change impacts on water resources, and on related sectors and ecosystems

Assessment, knowledge dissemination, education and training: Tasks to start now!

Assessment of climate change impacts on water

What?

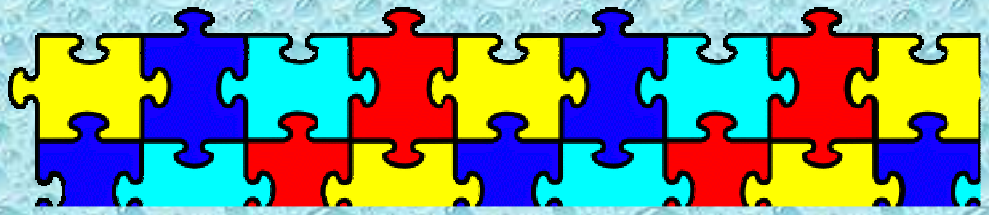
Why?

How (much)?

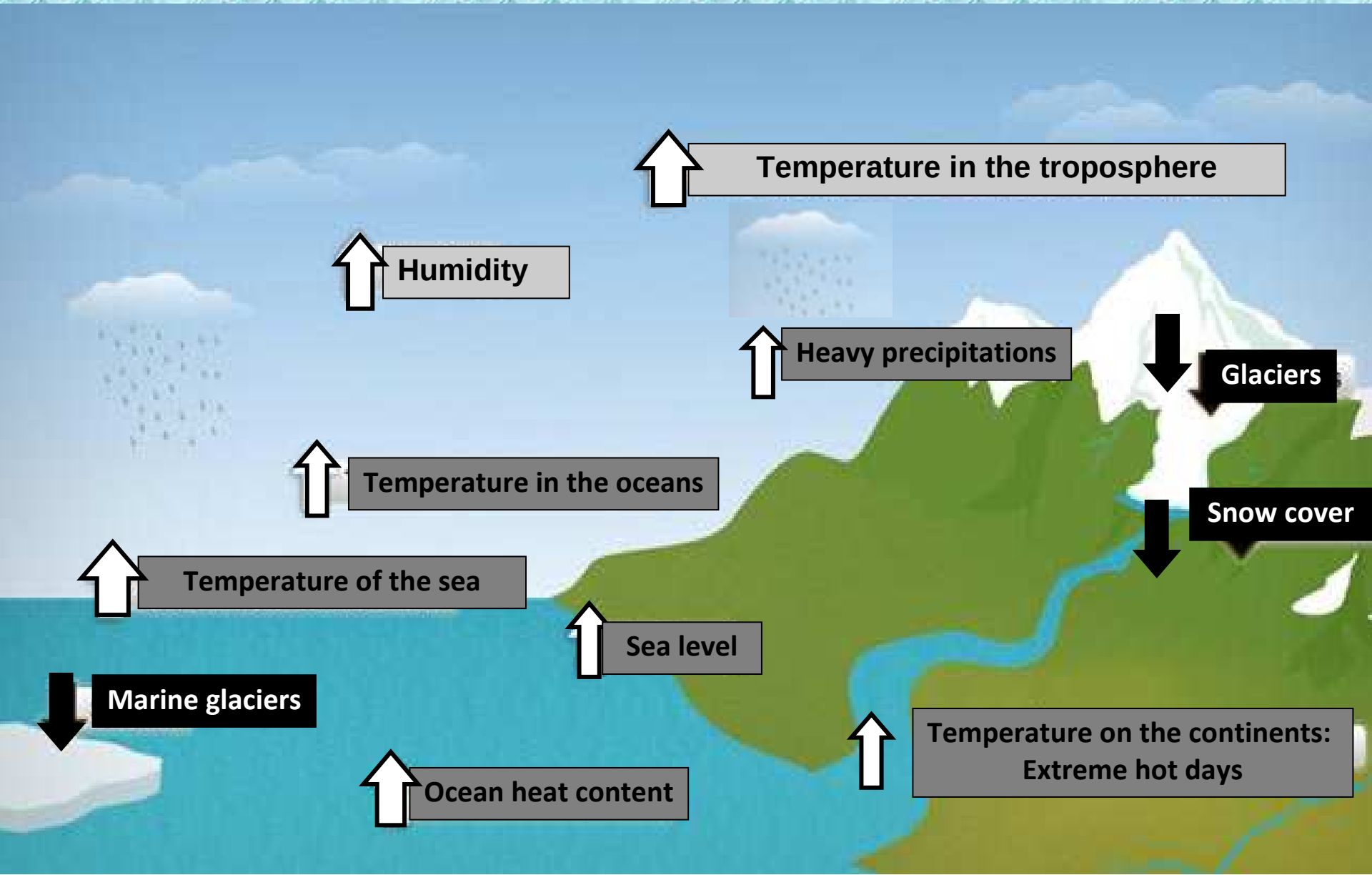
When?

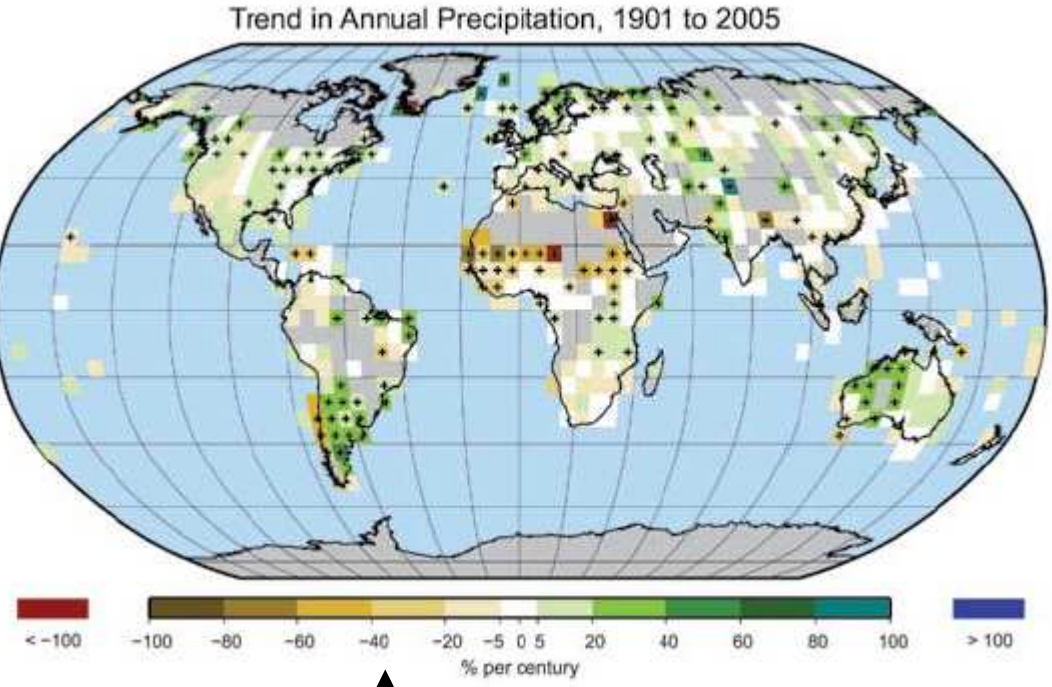
Where?

What can people do? Adaptation and resilience



Some indicators for climate change and socio-environmental impacts

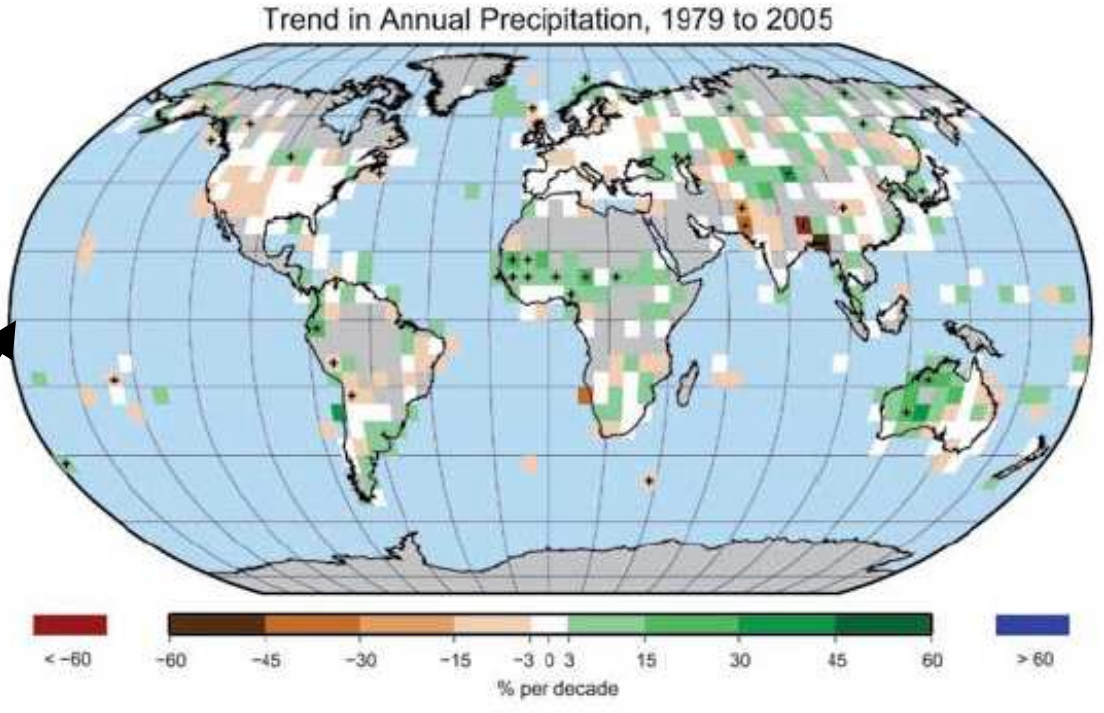




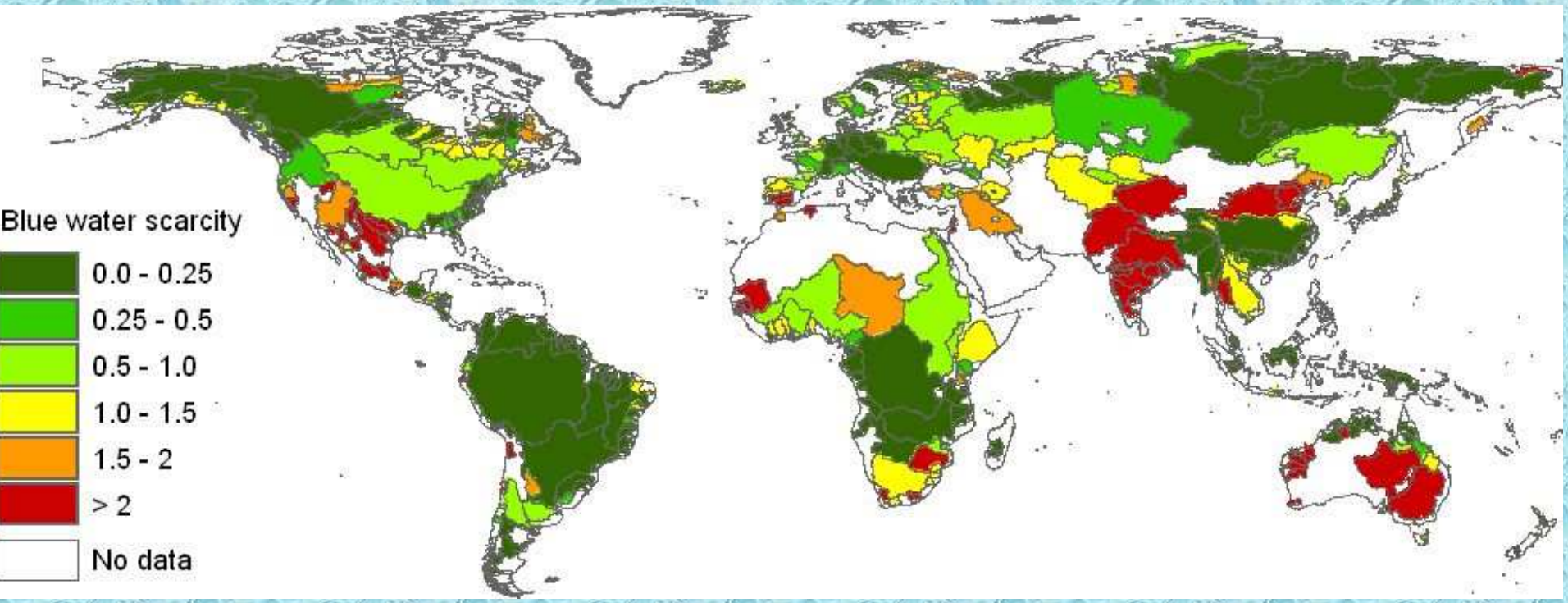
How to adapt to drought, floods & storms without affecting livelihood?

1901-2005

Trends in annual precipitation 1979-2005

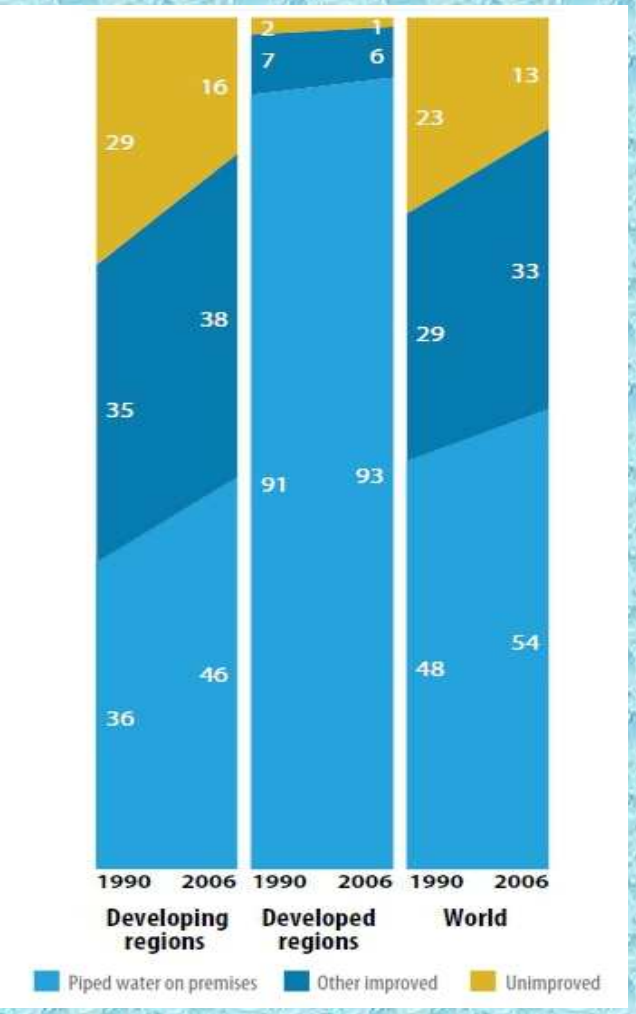


Blue water availability per month in world basins, 1996-2005
How to promote IWRM?

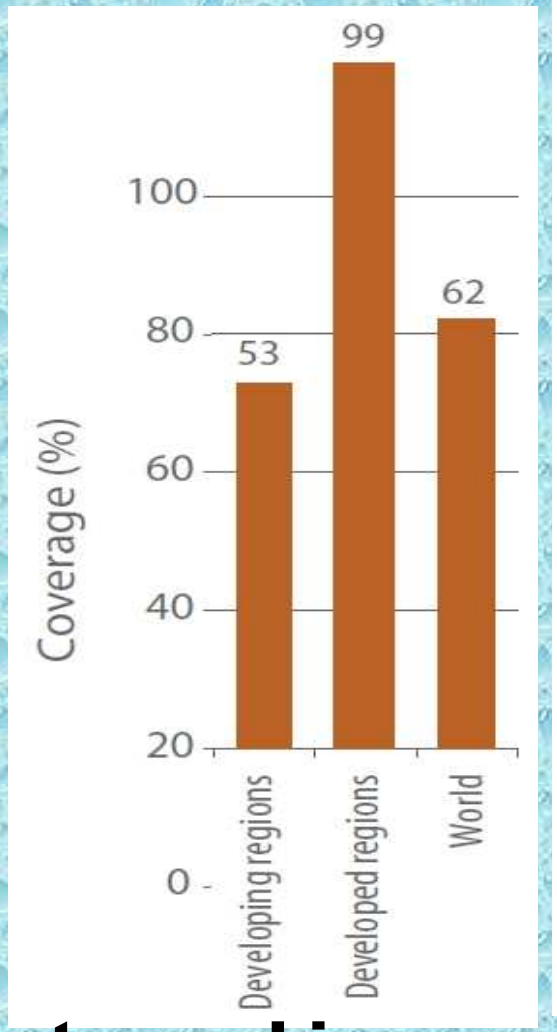


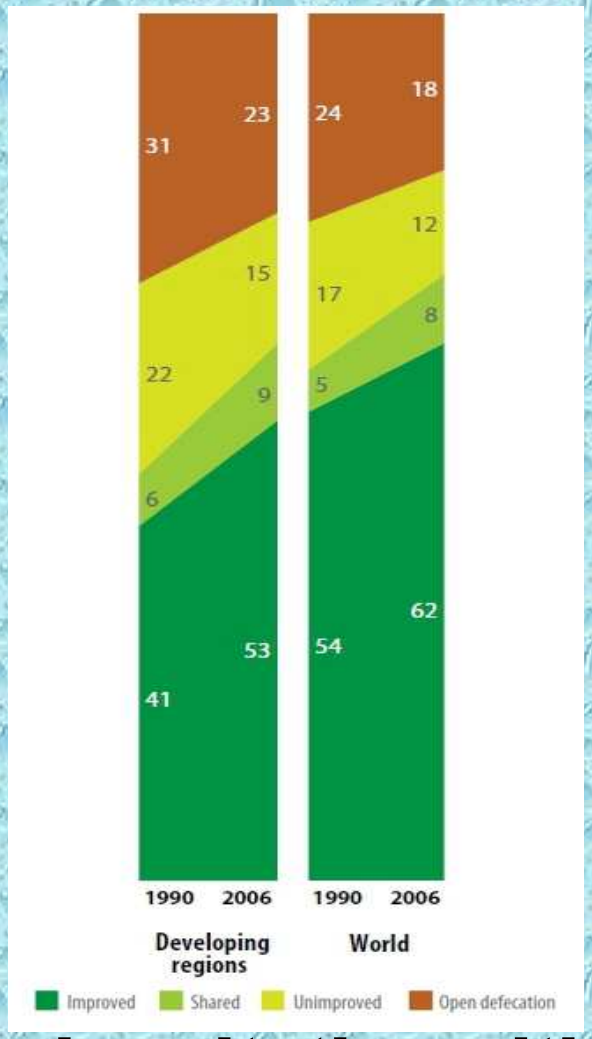
Source: Hoekstra and Mekonnen, 2011

Drinking water



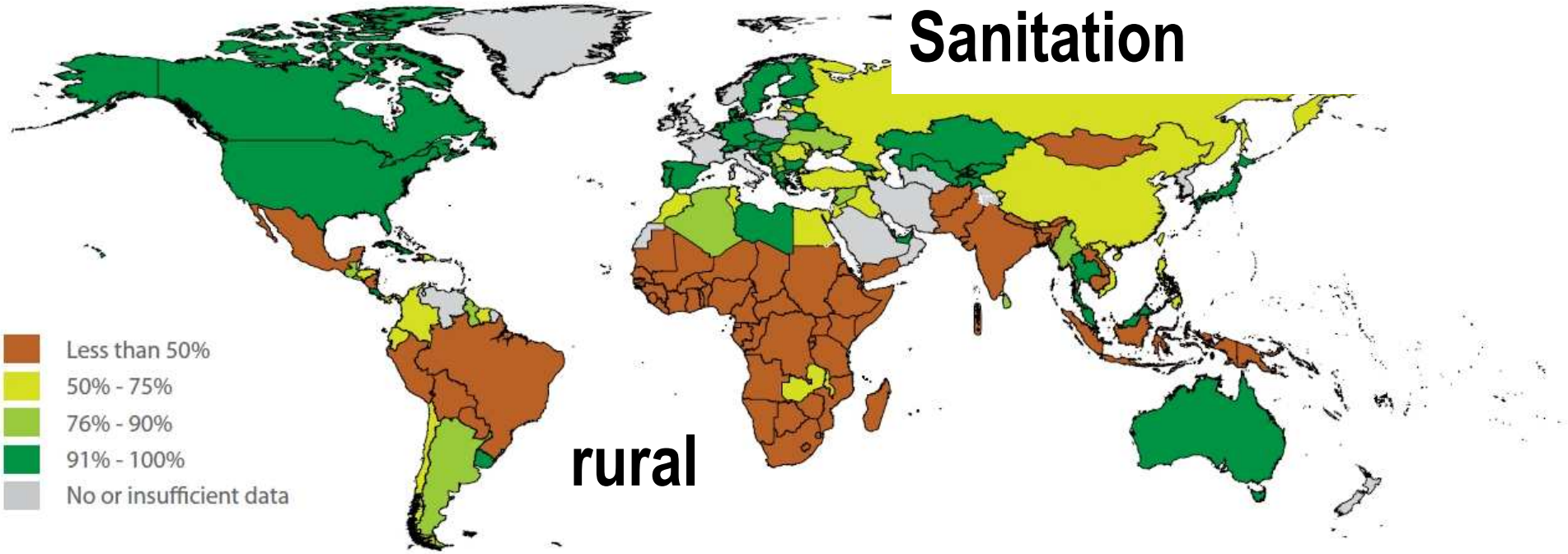
Sanitation

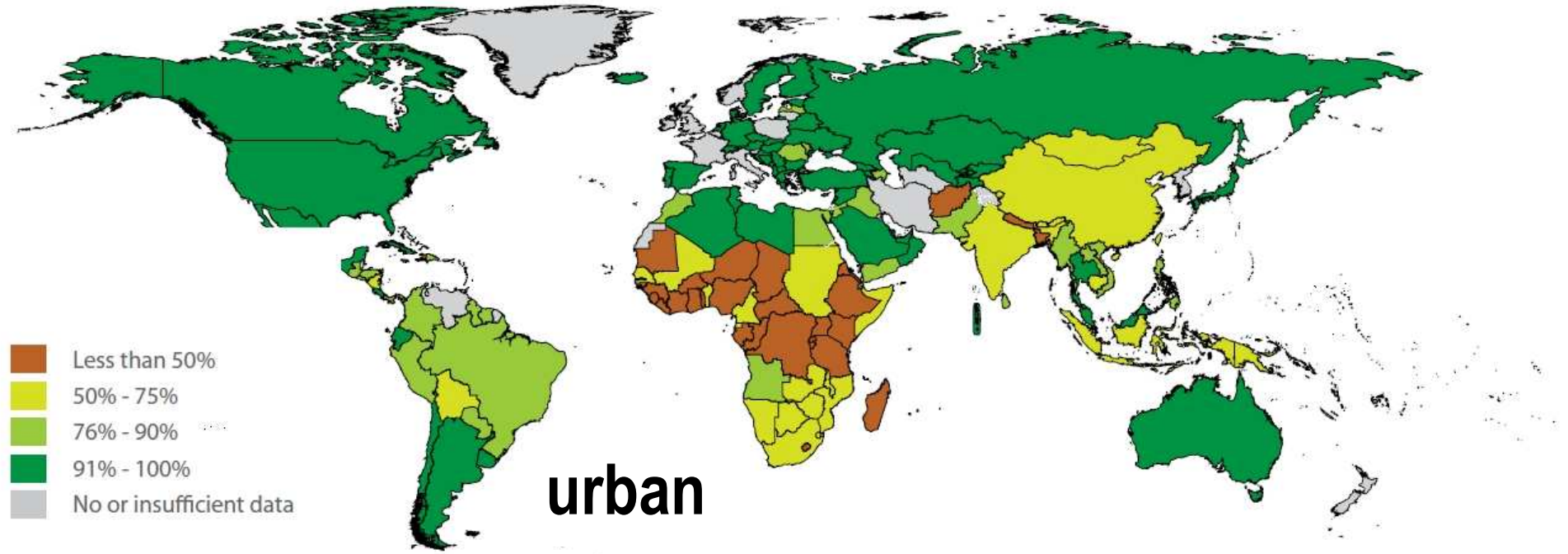




How to create safe water and improved sanitation with higher temperatures & less water in urban areas and an equal rural development?

Sanitation


Less than 50%
50% - 75%
76% - 90%
91% - 100%
No or insufficient data
rural


Less than 50%
50% - 75%
76% - 90%
91% - 100%
No or insufficient data
urban

IWRM and water saving technologies

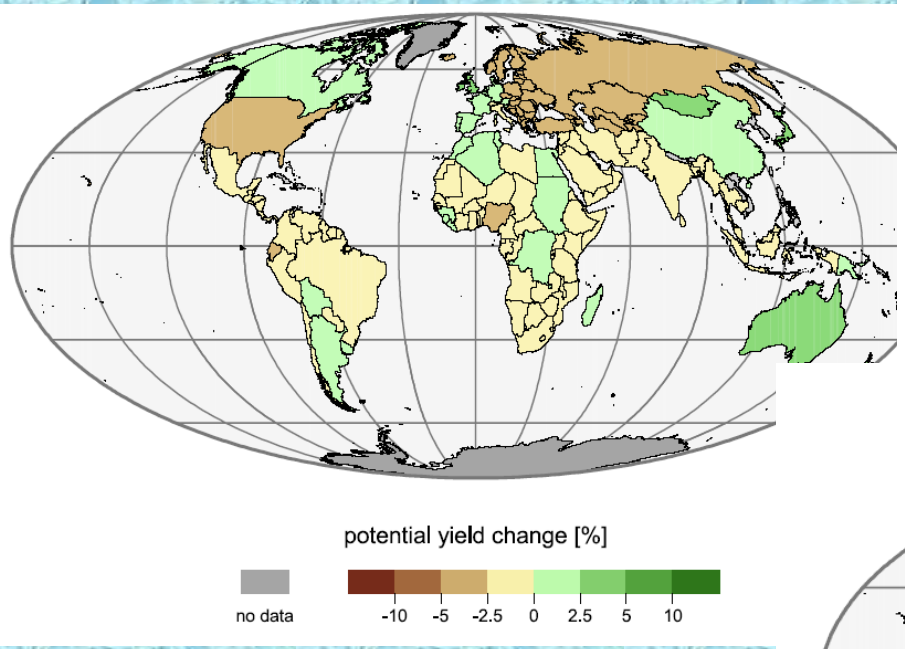
IWRM pursues 5 key **strategic goals** to:

a) **enhance efficiency** of water resources (aspersion, micro-tunnel, drip irrigation, mixed agriculture, crop rotation, renewables)
b) **achieve equity** in the allocation of water across different social and economic groups (negotiation)
c) **recover environmental sustainability**, to protect the water resources base and the associated ecosystems.
d) **improve livelihood** of vulnerable people by reducing **risks**, DRM, education, **knowledge** sharing and integrated water **use**
e) **enhancing water security**, human security, gender security, and environmental security: a **HUGE security**

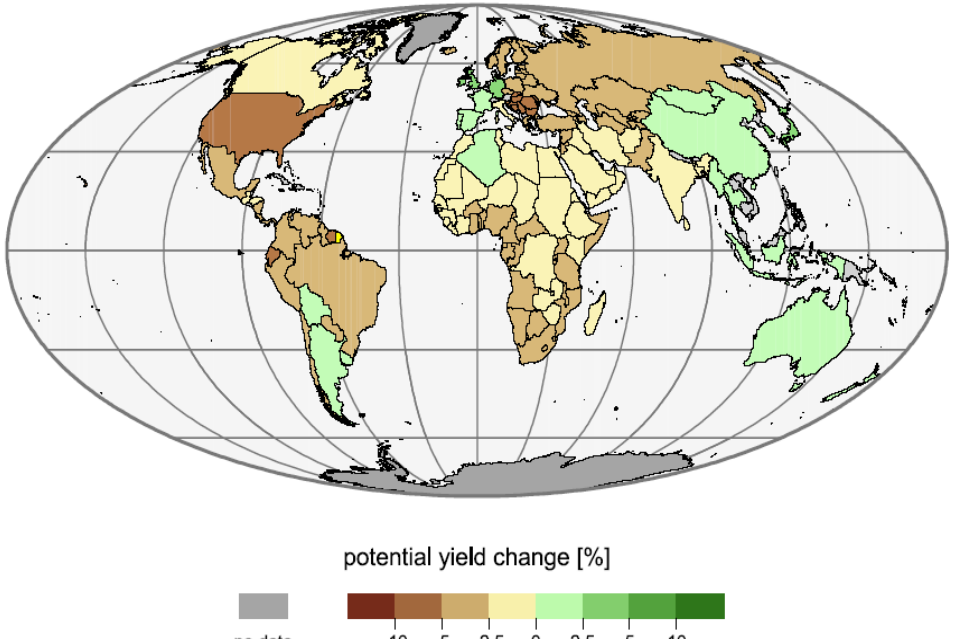
Aternatives: Water harvesting, Nasca, Peru

How to produce sustainable alternatives of water harvesting and water saving technologies with gender perspective?

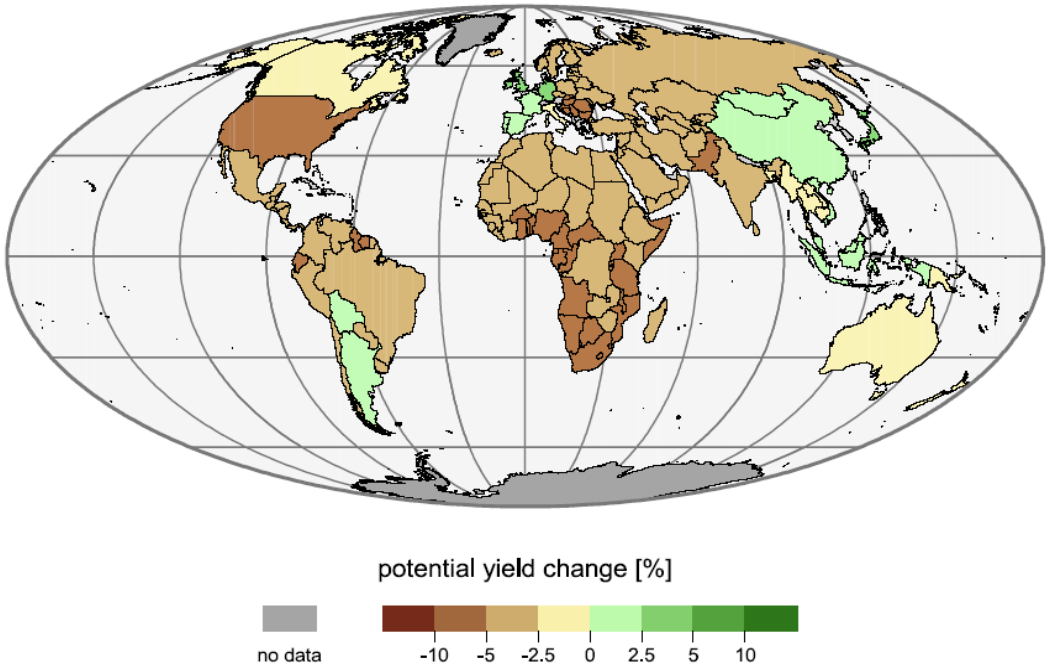
Climate change & food scenarios 2020, 2050, 2090



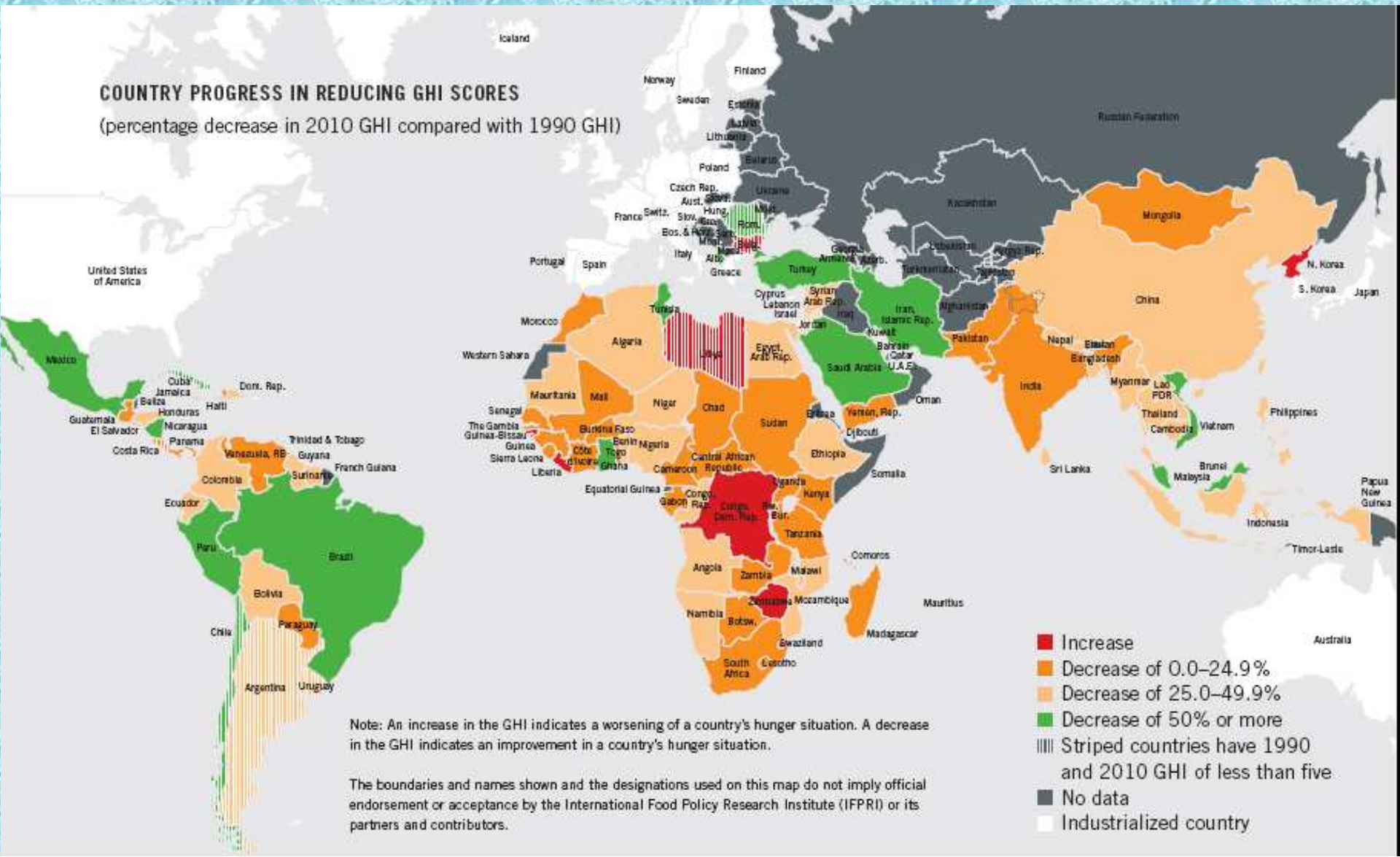
Food security 2040 - 2069 (HADCM3 GGa1)



Food security 2070 - 2099 (HADCM3 GGa1)



Country progress in reducing the global hunger index (percentage decrease in 2010 GHI compared with 1990 GHI). **Source:** IFPRI (2010: 13)



Food and climate change: complex relations and feedbacks

- impacts of climate change: **less water** for rain-fed agriculture, **humidity** in the soil, more **evaporation**, irregular **precipitation**, loss of **biodiversity**, flash **floods**, **erosion** and **desertification**
- growing global **population** & changing **diets**: increase of food by 50% for 2030 with less **yield** productivity
- increase in **meat products** due to economic improvement: more GHG & resources required (water, soil, fertilizers, pesticides, drugs)
- **Overfishing**: substitution with **land-grown food;** higher pressure on **soils**
- **biofuel**: competition for resources: **land, water** and **energy**
- **food system**, markets, globalization, finances, credits, subsidies, trade restrictions, speculation and governance
- consumer **values, health, ethics** and culture in food production & consumption

How to feed a growing population with the same amount of water? How to avoid hunger in drylands affected by climate change, especially in sub-Saharan Africa?

Synthesis of questions for session 3

1. How can people adapt to risk of drought, floods & storms without affecting their life & livelihood?
2. How to promote IWRM globally and regionally?
3. How to create safe drinking water and improved sanitation in urban areas (also slums) and an equal rural improvement?
4. How to feed a growing population with the same amount of water? How to reduce hunger in drylands and in sub-Saharan Africa?
5. How to reduce social and environmental vulnerability related to climate change? What can people do for adapting to climate change and for resilience-building?
6. How to produce sustainable alternatives of water harvesting and water saving technologies with a gender perspective?