

Presentación del libro

El Valor del Agua: Una Visión Socioeconómica de un Conflicto Ambiental

*Úrsula Oswald Spring
COLTLAX, CRIM-UNAM
Cátedra MunichRE: UNU-EHS
Junio, 2006*



Un Mundo de Sales

Agua Salada y Dulce Global Estimada



Agua Salada

97.5%
1 365 000 000 km³

Agua dulce

2.5%
35 000 000 km³

0.3% Lagos y ríos

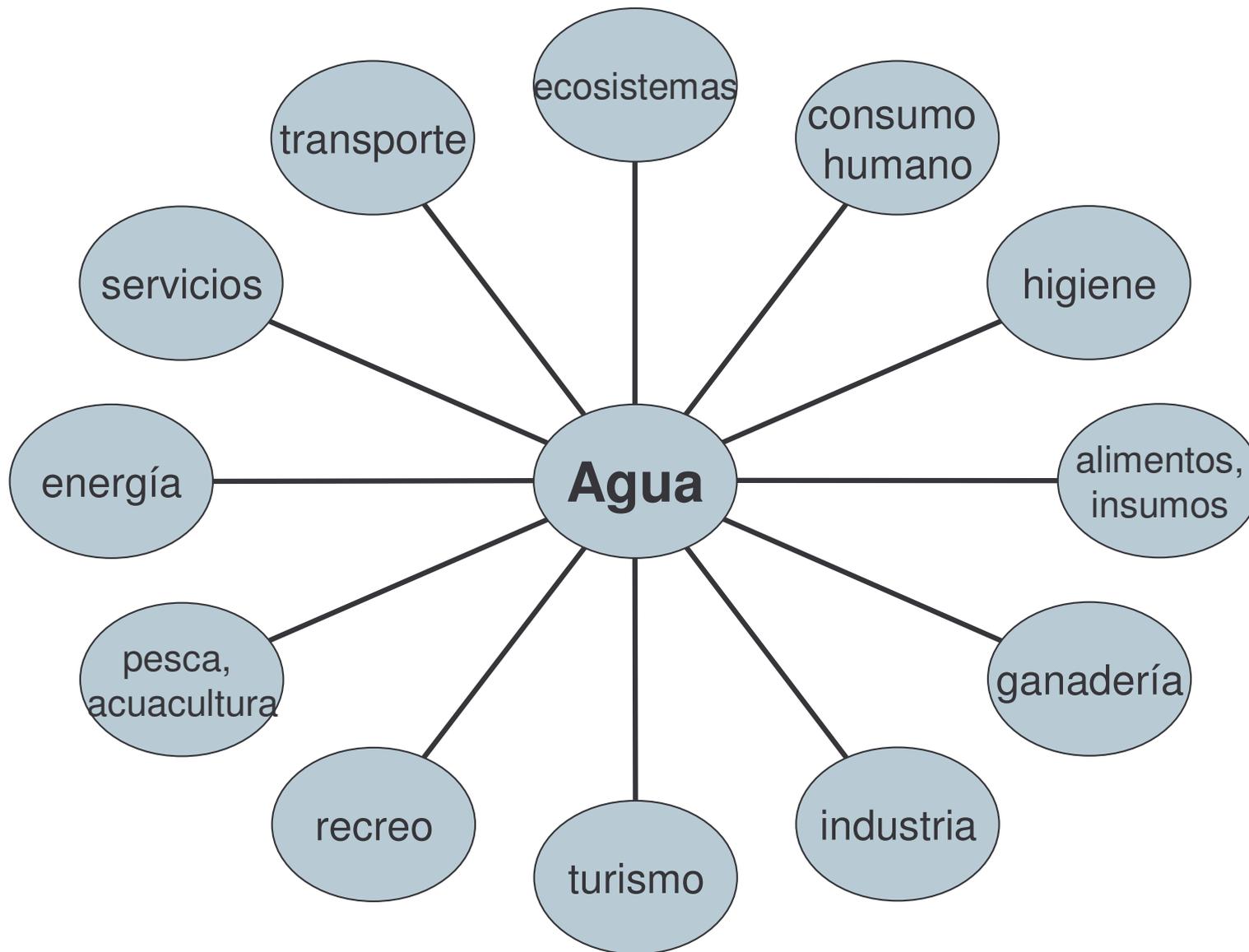
30.8% Acuíferos, humedad de suelos, pantanos y permafrost

69.9% Glaciales y cubierta de nieve permanente

Fuente: Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999.

PHILIPPE FEKACEWICZ
FEBRUARY 2002

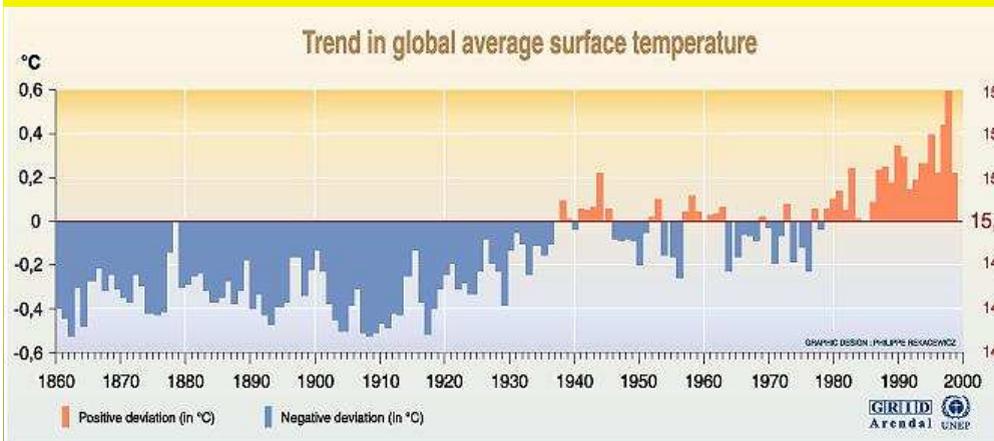
Usos del Agua



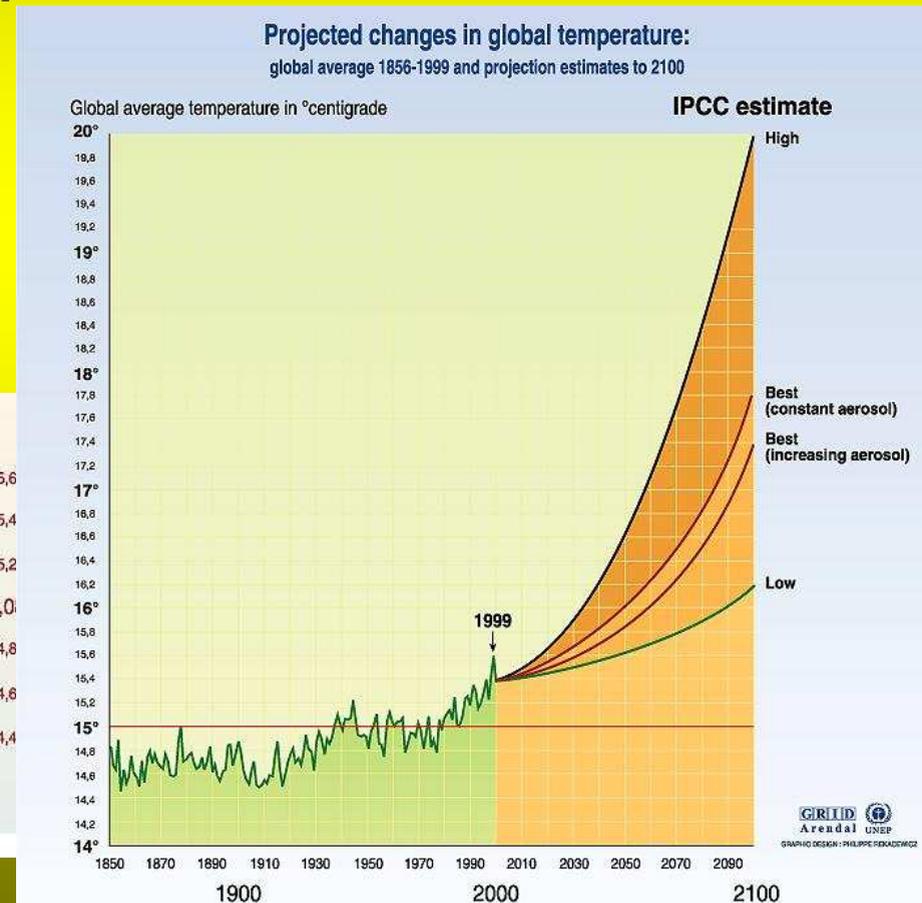
2.2. Cambio Climático Global: Proyecciones del Aumento de Temperaturas

- ❖ Aumento de temperatura global durante el siglo XX: **+ 0.6°C**
- ❖ Proyección de aumento de temperatura: 2000-2100: **+1.4 – 5. 8°C**

Fuentes: IPCC 1990, 1995, 2001



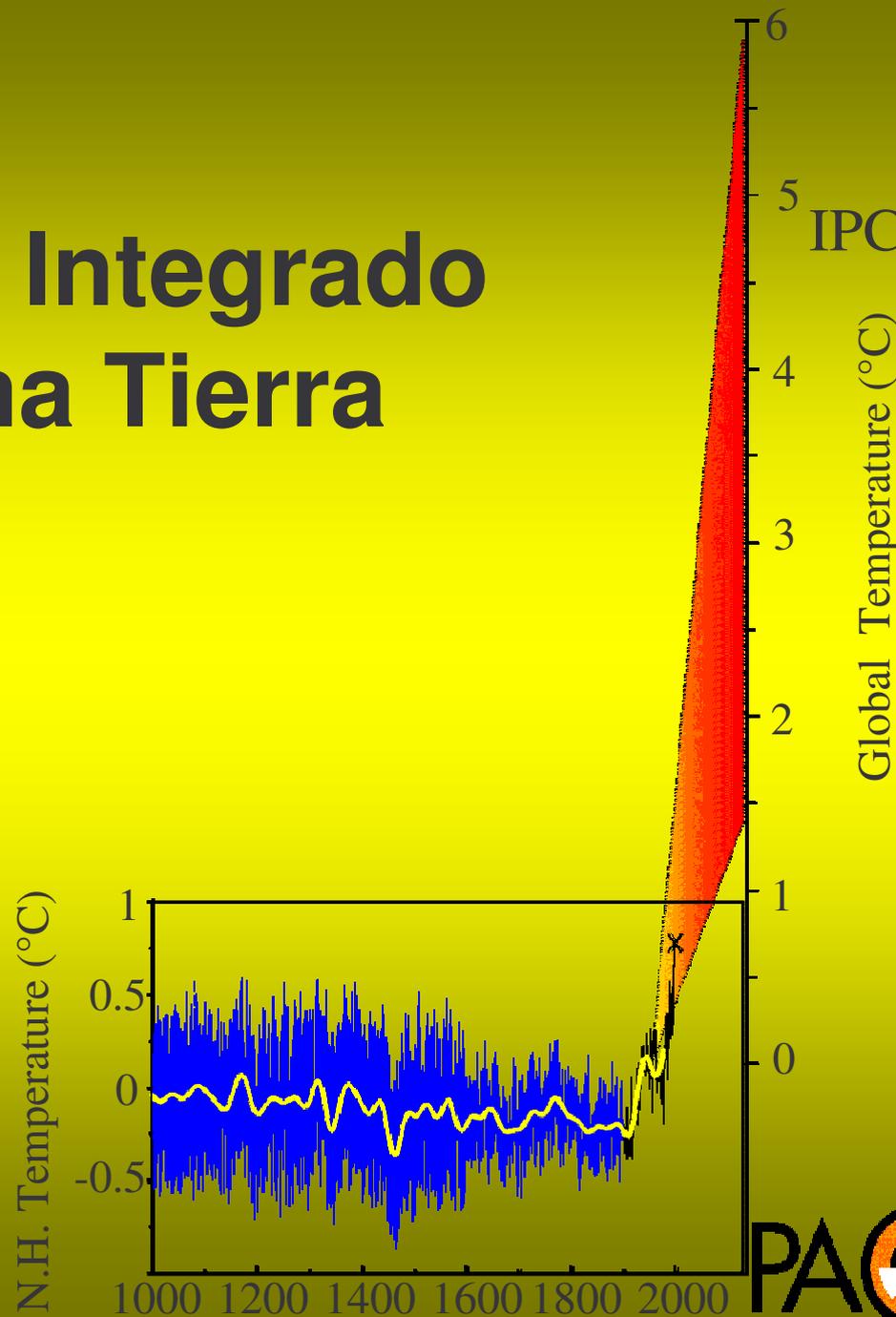
Source: School of environmental sciences, climatic research unit, university of East Anglia, Norwich, United Kingdom, 1999.



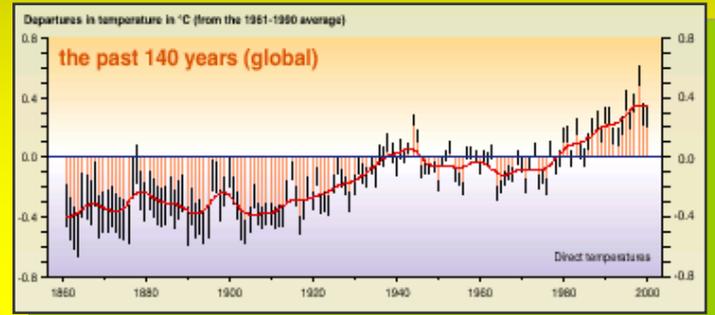
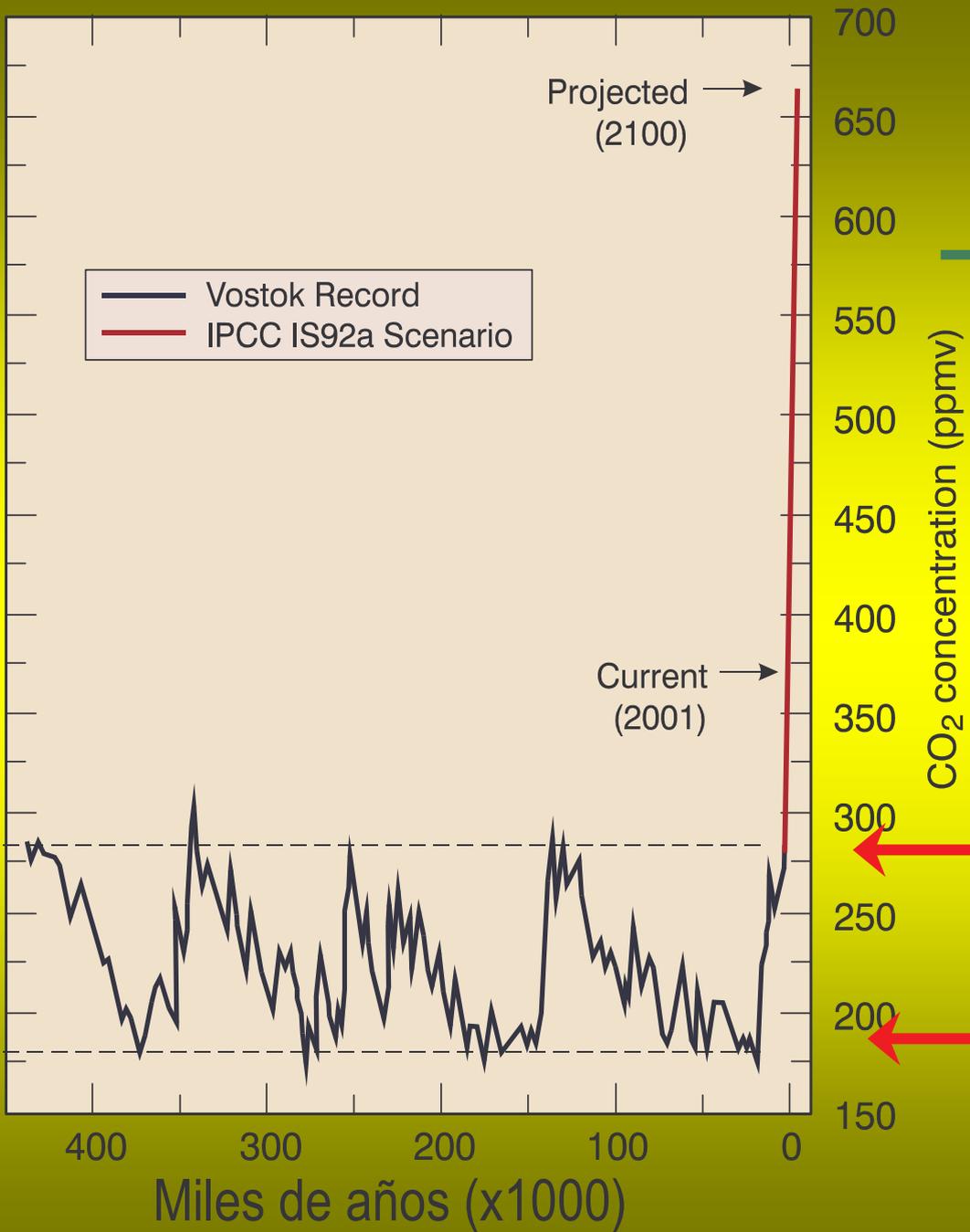
Source: Temperaturas 1856 - 1999: Climatic Research Unit, University at East Anglia, Norwich UK. Projections: IPCC report 95.

Escenario Integrado del Sistema Tierra

IPCC Proyecciones
2100 AD



Cambios climáticos pasados y futuros

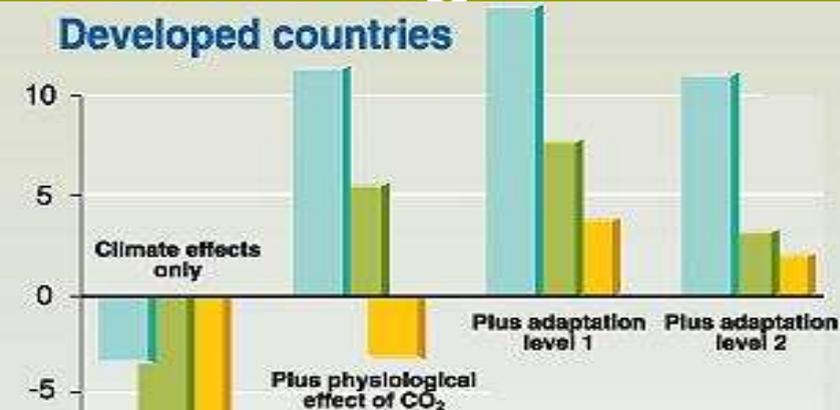


← 280 ppm

← 180 ppm

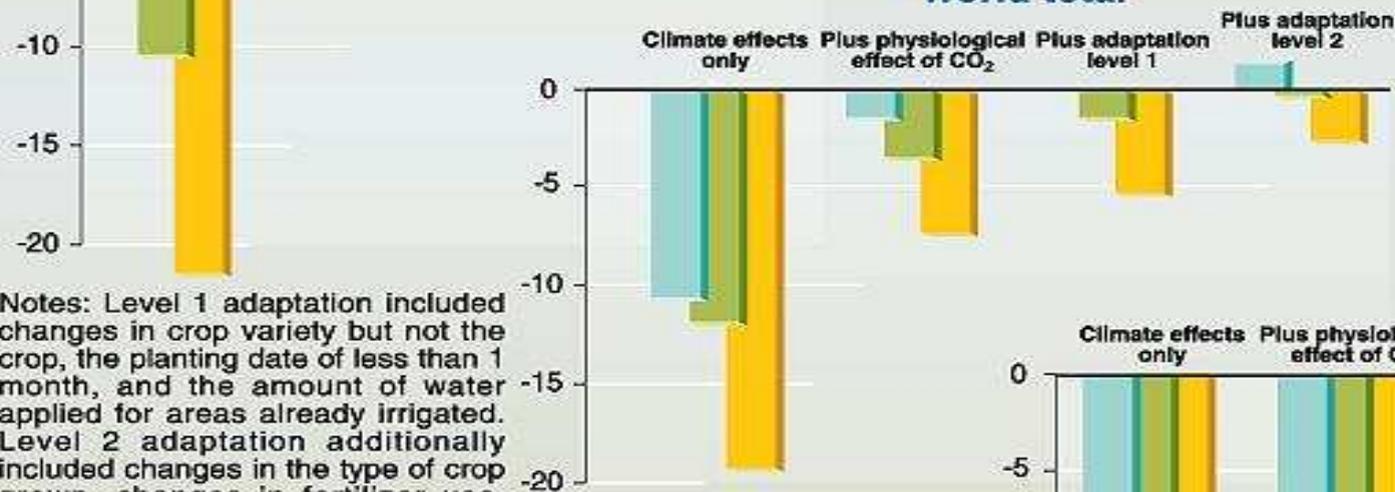
Cambio Climático e Impactos en la Agricultura © Fuente; GRID Arendal

Change in cereal production under three different GCM equilibrium scenarios in percent from base estimated in 2060

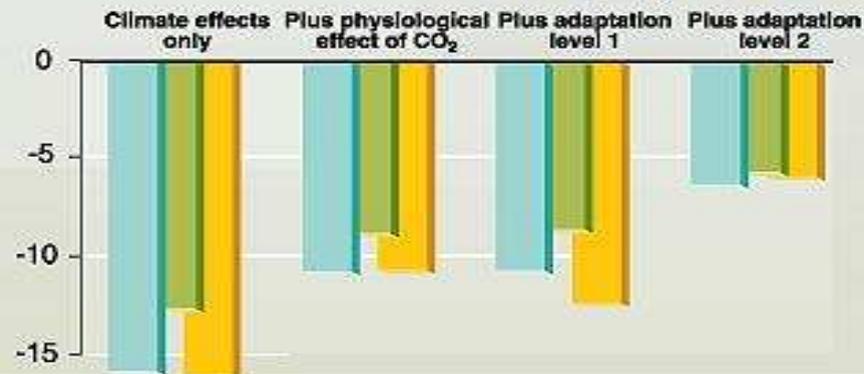


GISS scenario
GFDL scenario
UKMO scenario

World total

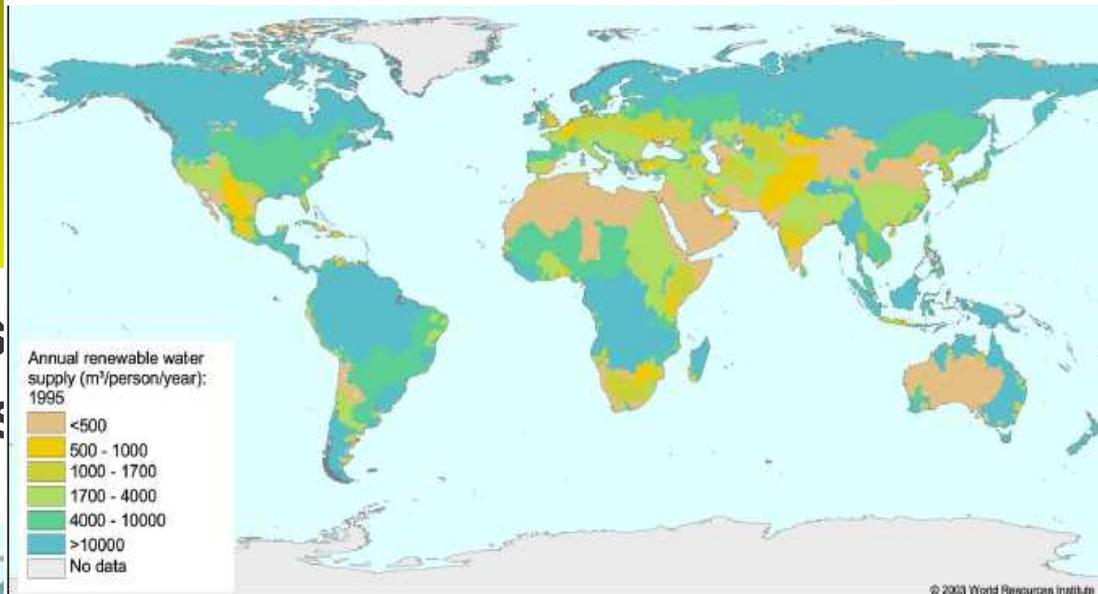


Developing countries

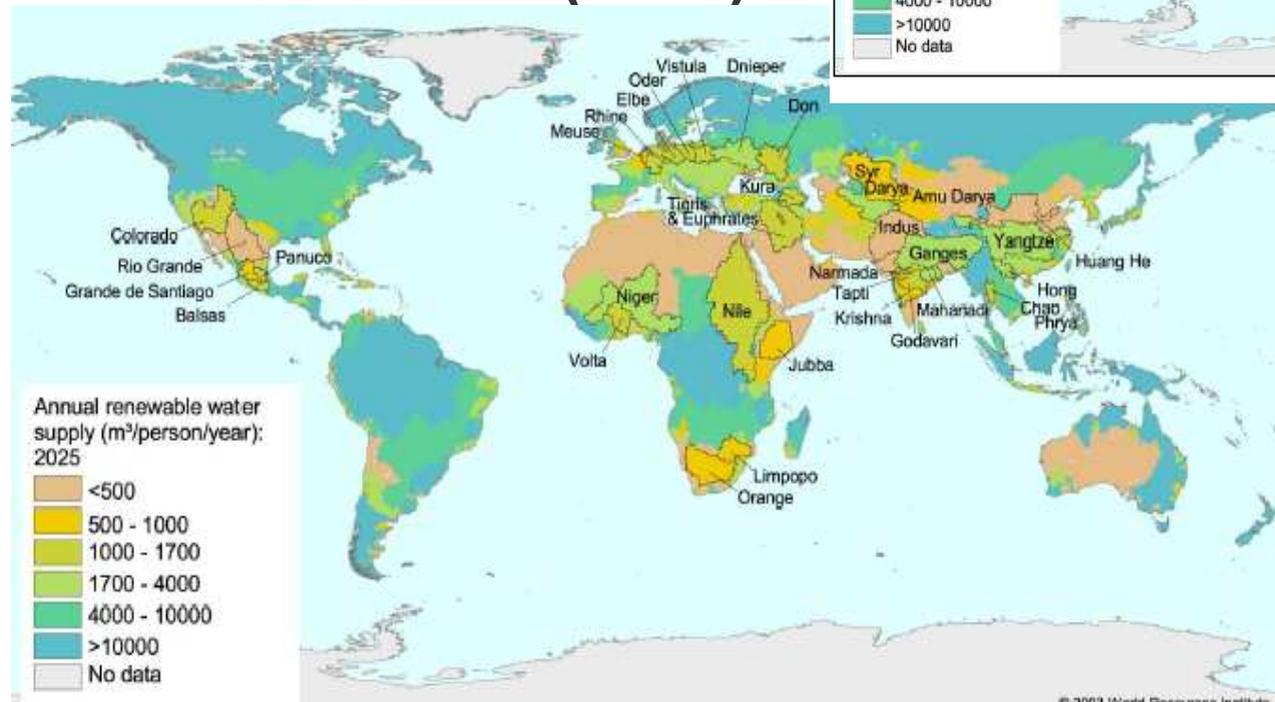


Notes: Level 1 adaptation included changes in crop variety but not the crop, the planting date of less than 1 month, and the amount of water applied for areas already irrigated. Level 2 adaptation additionally included changes in the type of crop grown, changes in fertilizer use, changes in the planting of more than 1 month, and extension of irrigation to previously unirrigated areas.

Mapa 1 Reservas de Agua Renovable por Año/Persona/Cuenca (1995)

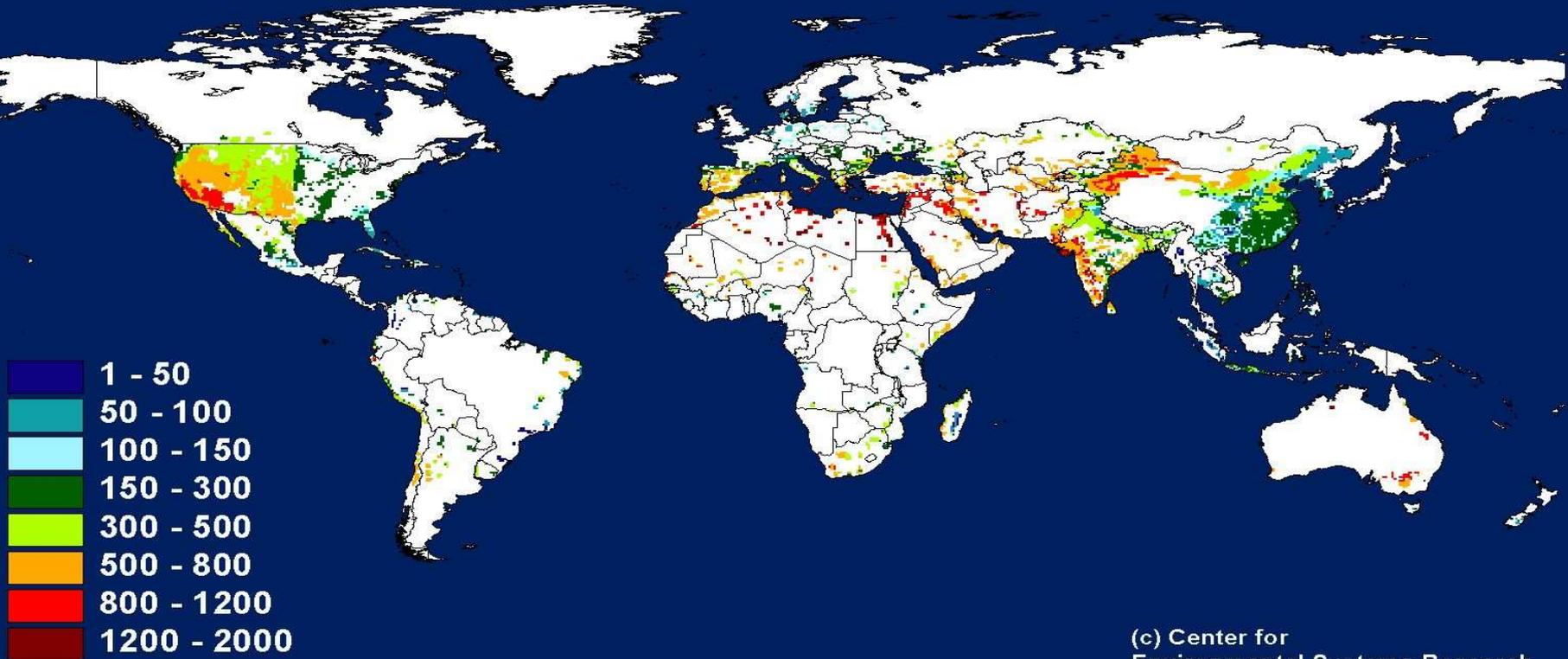


Mapa 2 Proyecciones de Reservas de Agua Renovable por Año/Persona/Cuenca (2025)



Agua Virtual: Uso del Agua en la Agricultura

Áreas Irrigadas y Uso del Agua



(c) Center for
Environmental Systems Research,
University of Kassel, Nov 2000

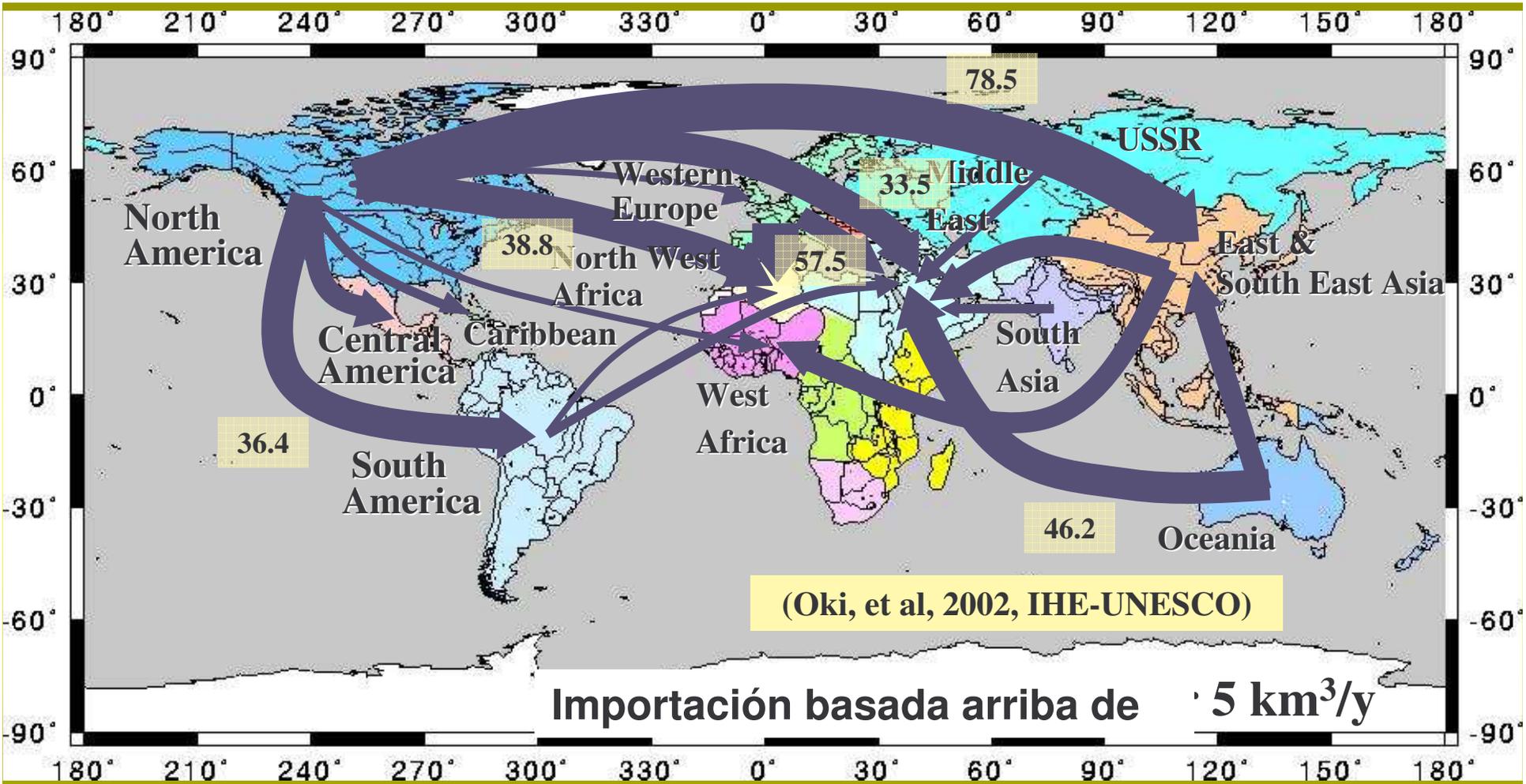
Balance del Agua Virtual/ países

(m³/c/y) in 2000

Azul: Exportación
Rojo: Importación



Flujo de Agua Virtual en 2000 (Compra-Venta sólo de granos)

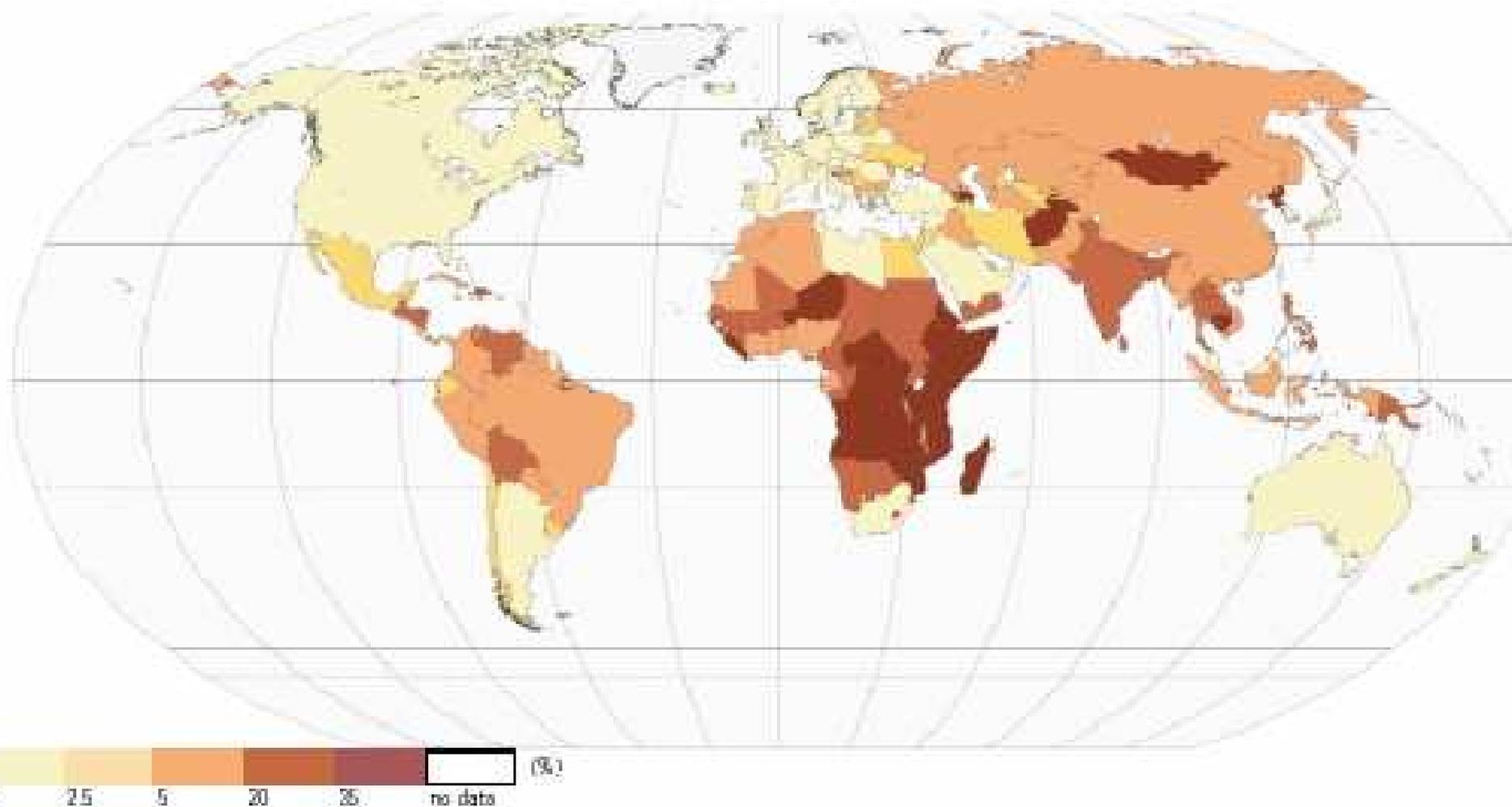


Elaborado con estadísticas de FAO y otros, 2000

Hambre

Pobres en América Latina	211 millones	
Aumento pobreza/ año en AL	7 millones	
Aumento de pobres desde 1990	11 millones	
Pobreza extrema en AL	89 millones	
Pobreza extrema rural en AL	54 millones (64%)	
Muerte infantil/ hambre	23/día	
Hambre en Asia Sureste	23.6%	
África	27.8%	
Medio Oriente	7.7%	
Asia Oriental	9.7%	

% de Personas Desnutridas



Fuente: FAO, 2001



← Alto Potencial de crisis alimentaria existente (1901-1995)
Alcamo/Endejan 2002: 143

Figure 4. High Potential for Food Crisis 1901-1995.

Crisis Alimentaria (con cambio climático y crecimiento mediano del PIB (2001-2050)
Alcamo/Endejan 2002:143

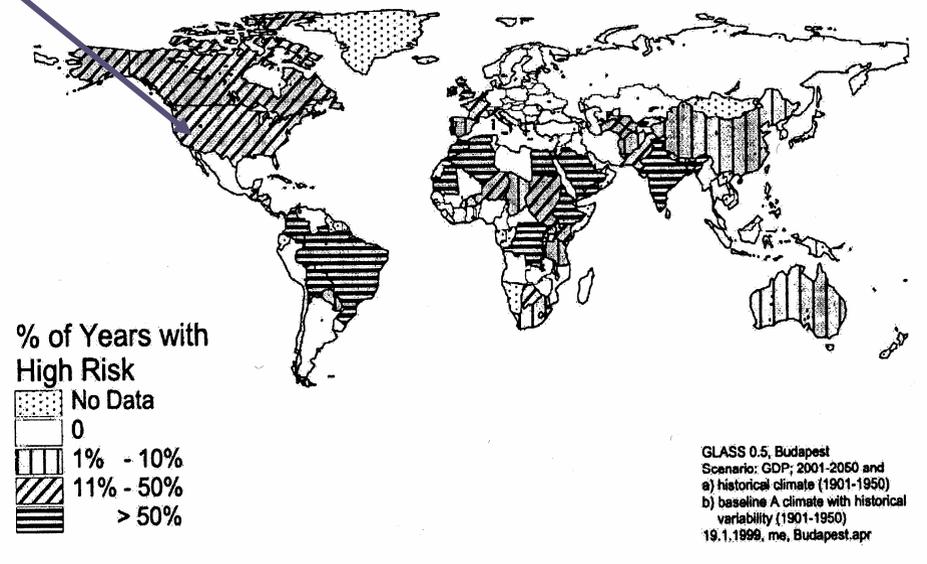
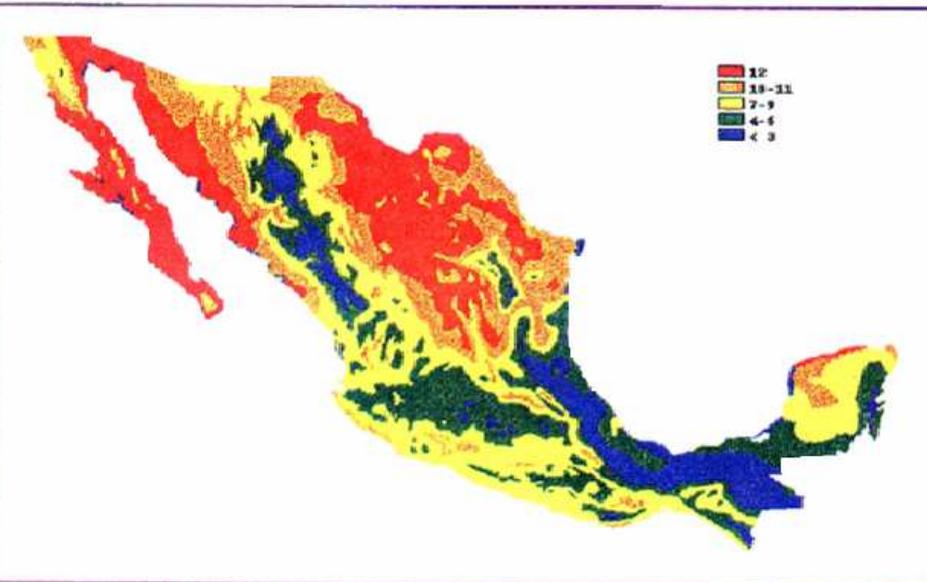


Figure 6. High Potential for Food Crisis 2001-2050 – with GDP Increase and Climate Change.

Average Number of Dry Months Per Year

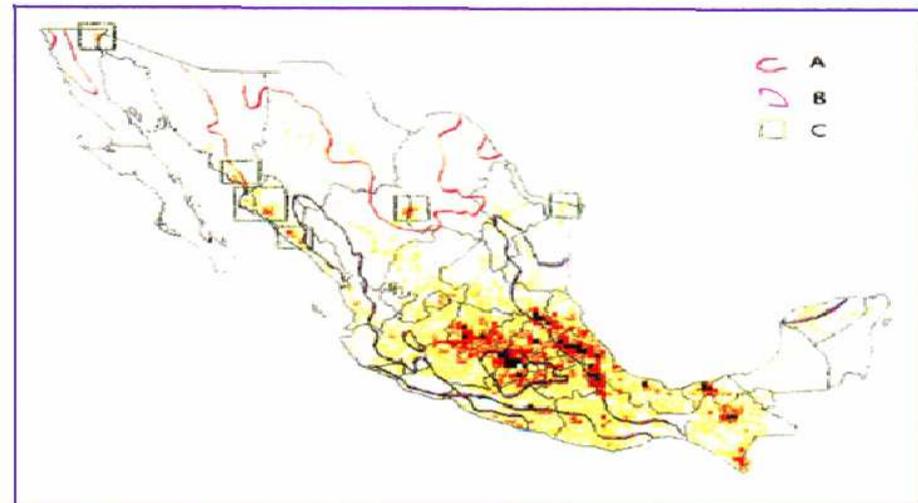


12
10-11
7-9
4-6
< 3

Sources:
Atlas Nacional del Medio Físico de México de INEGI
Mapas temáticos de INEGI
Atlas Nacional de México de INEGI

Months:
12 arid area
10 - 11 semi-arid area
7 - 9 dry and subhumid areas
4 - 6 humid area
< 3 very humid area

Aridity and Density of Rural Population



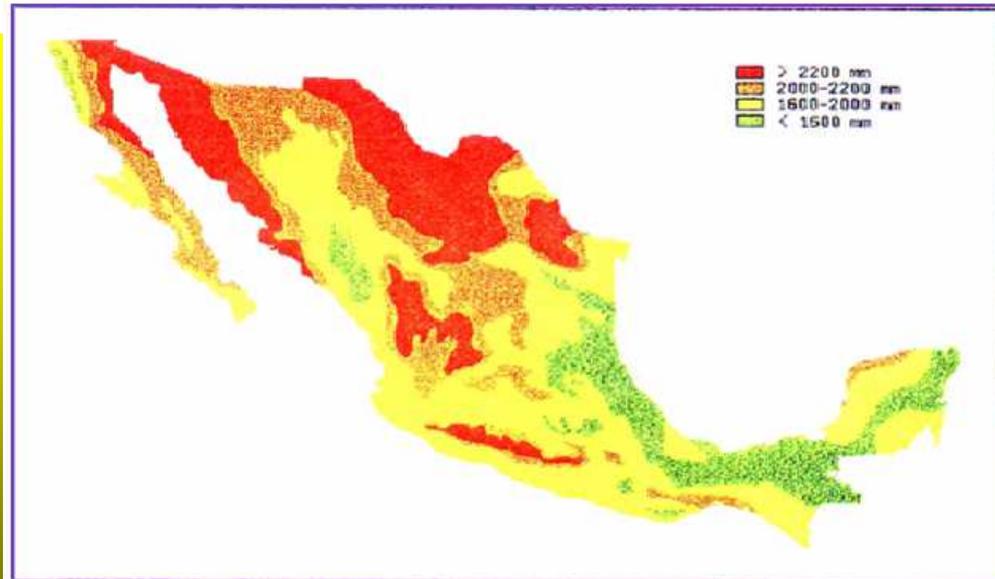
A
B
C

A- Transition from arid to dry area
B- Transition from dry to humid area
C- Arid area with irrigation

Density of rural population (living in localities of less than 2500 inhabitants) in 1990 (X Mexican Census).

Sources:
C. Centro de Población y Vivienda, 1990
INEGI Censos de Población
Atlas Nacional de México de INEGI
Sistema de Información Geográfica y Estadística de INEGI
Instituto de Estadística y Geografía (INEGI) 2007-2008

Average Annual Evaporation



> 2200 mm
2000-2200 mm
1600-2000 mm
< 1600 mm

> 2200 mm > 83.6 inches
2200 - 2000 mm 78.7 - 86.5 inches
2000 - 1600 mm 62.9 - 78.6 inches
< 1600 mm < 62.8 inches

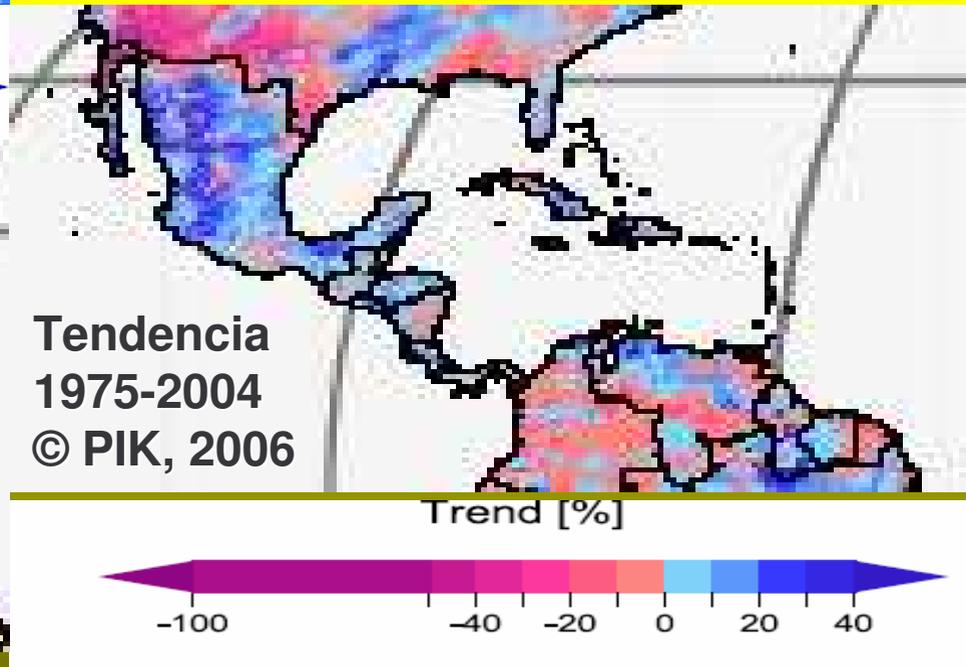
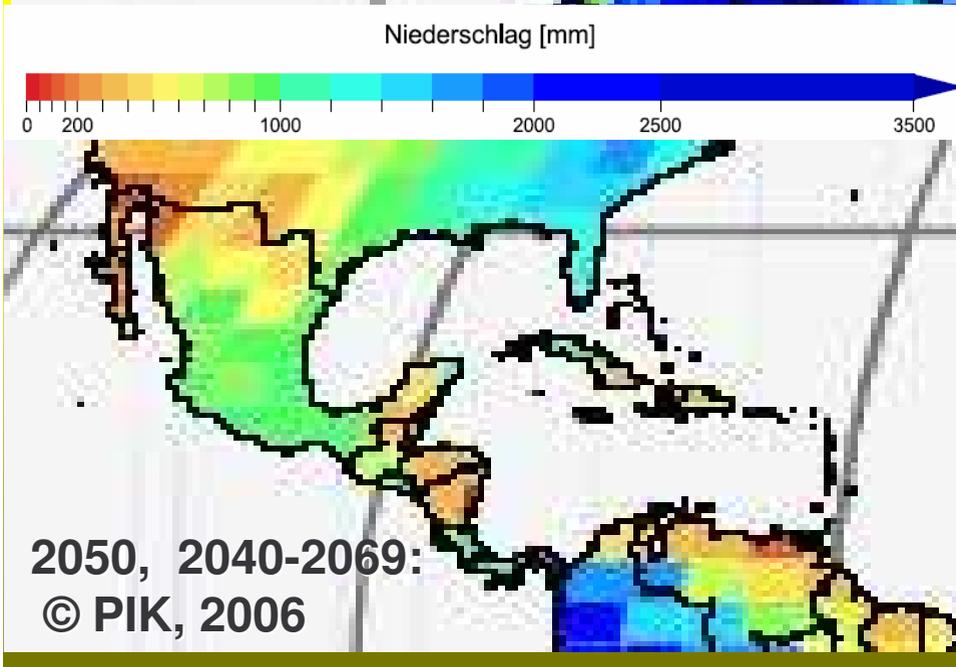
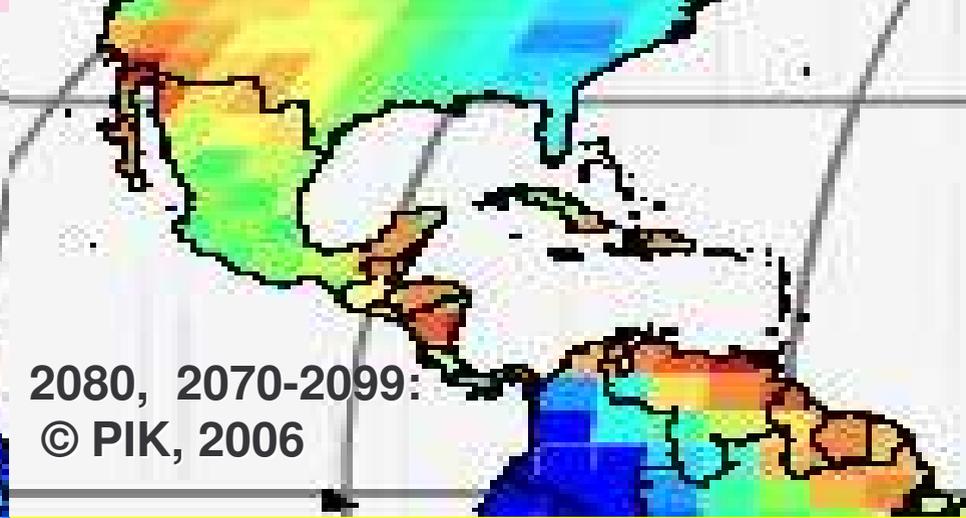
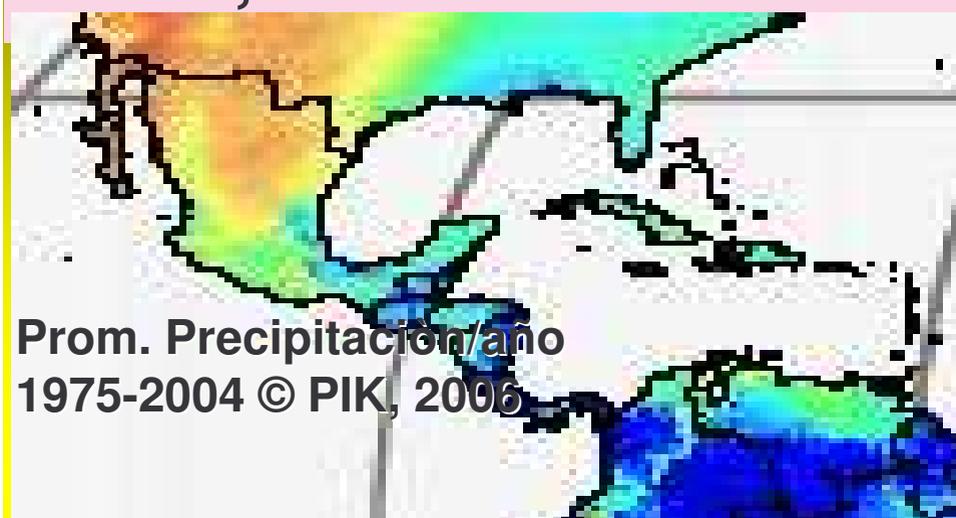
Sources:
Atlas Nacional del Medio Físico de México de INEGI
Mapas temáticos de INEGI
Atlas Nacional de México de INEGI

Historia de Sequías Severas

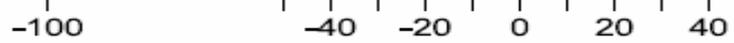
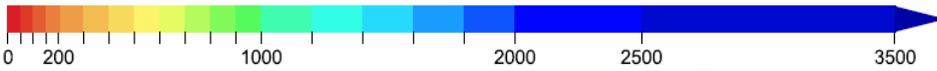


Fuente: GENAPRED, 2001

Tendencias de Precipitaciones (1975-2004) y Proy. 2050, 2080: México/Centroamérica y Caribe ©PIK 2006



Niederschlag [mm]



Futuras Amenazas de Sequía, 1975-2004 y Proyecciones para 2050 y 2080 © PIK

1975-2004,
© PIK, 2006

Klimatische Wasserbilanz [mm]

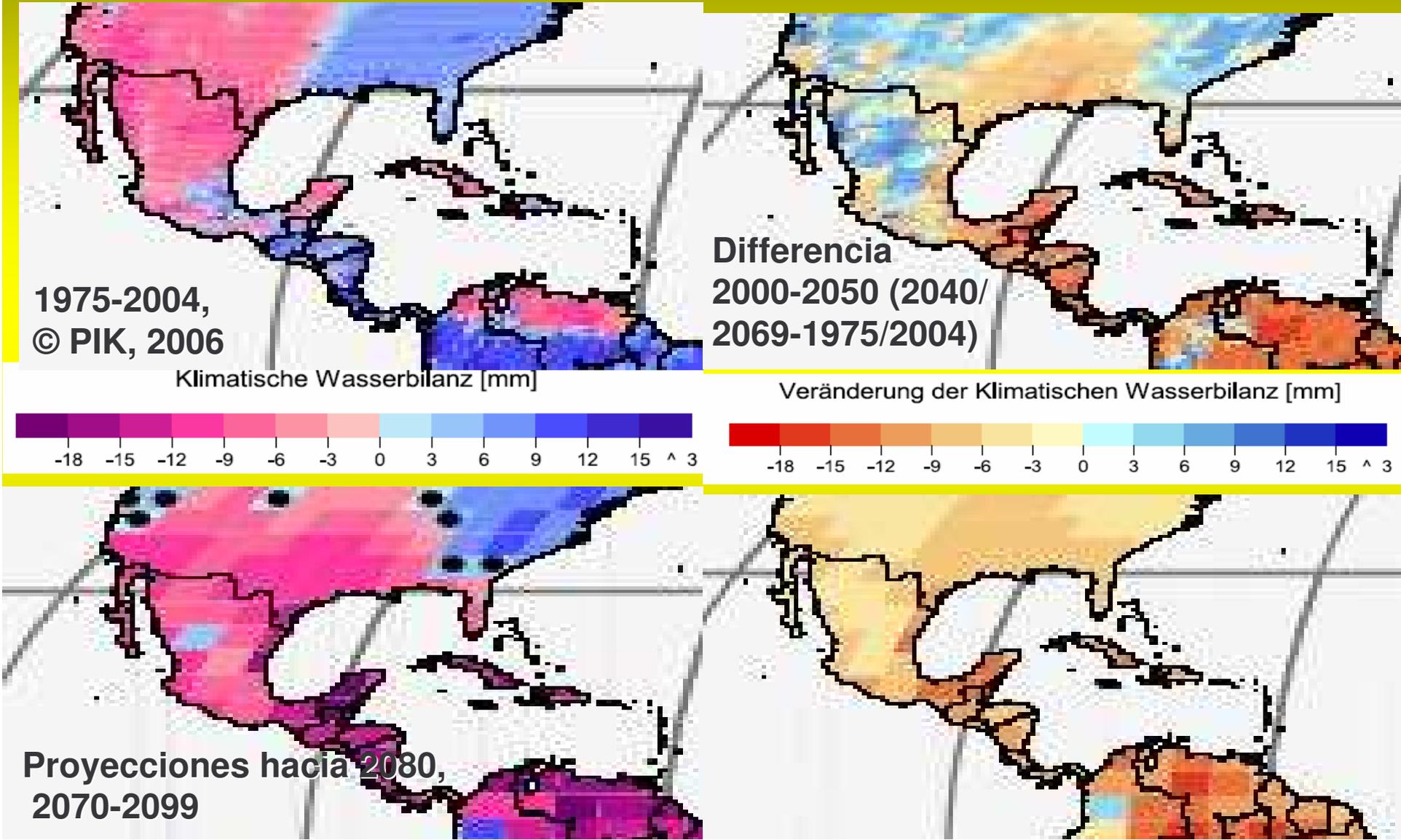
-18 -15 -12 -9 -6 -3 0 3 6 9 12 15 ^ 3

Diferencia
2000-2050 (2040/
2069-1975/2004)

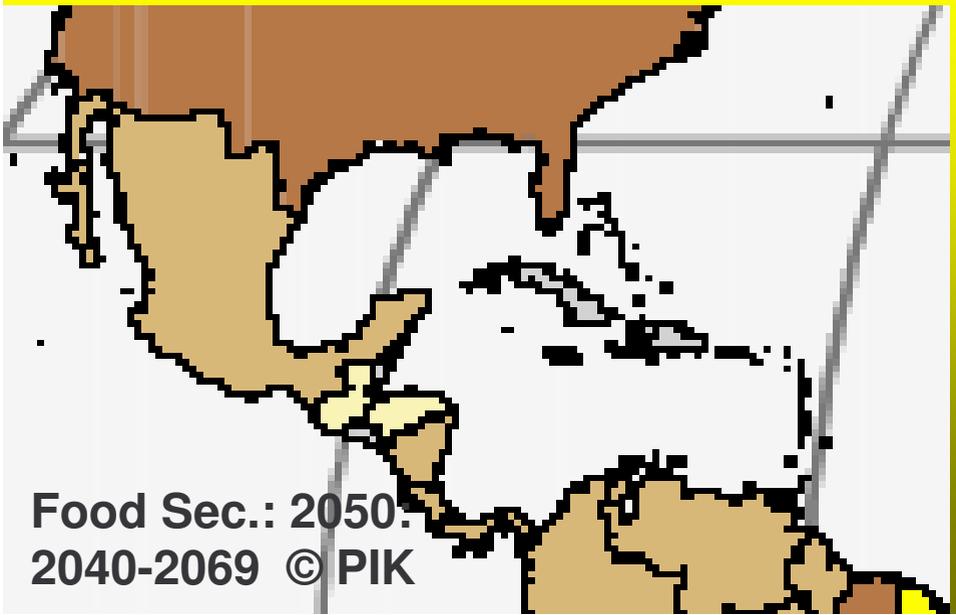
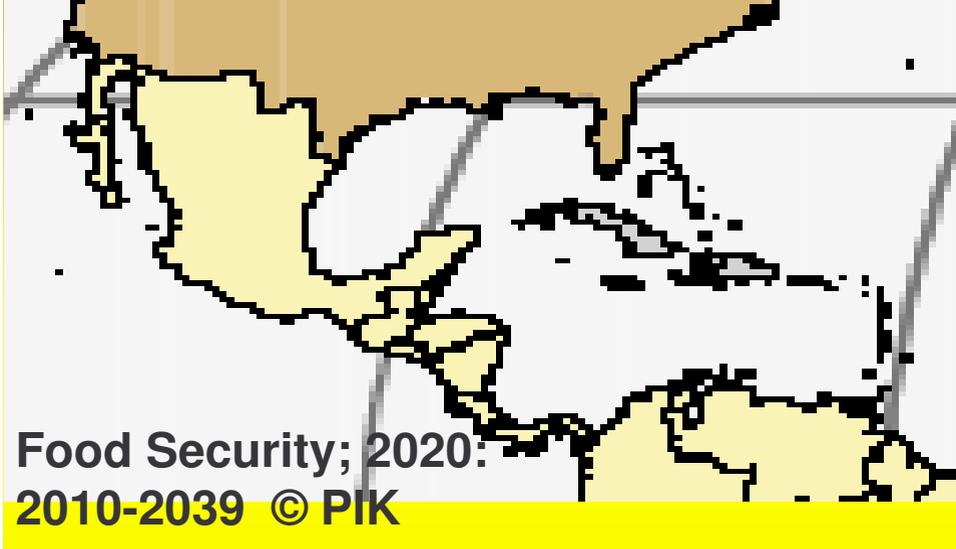
Veränderung der Klimatischen Wasserbilanz [mm]

-18 -15 -12 -9 -6 -3 0 3 6 9 12 15 ^ 3

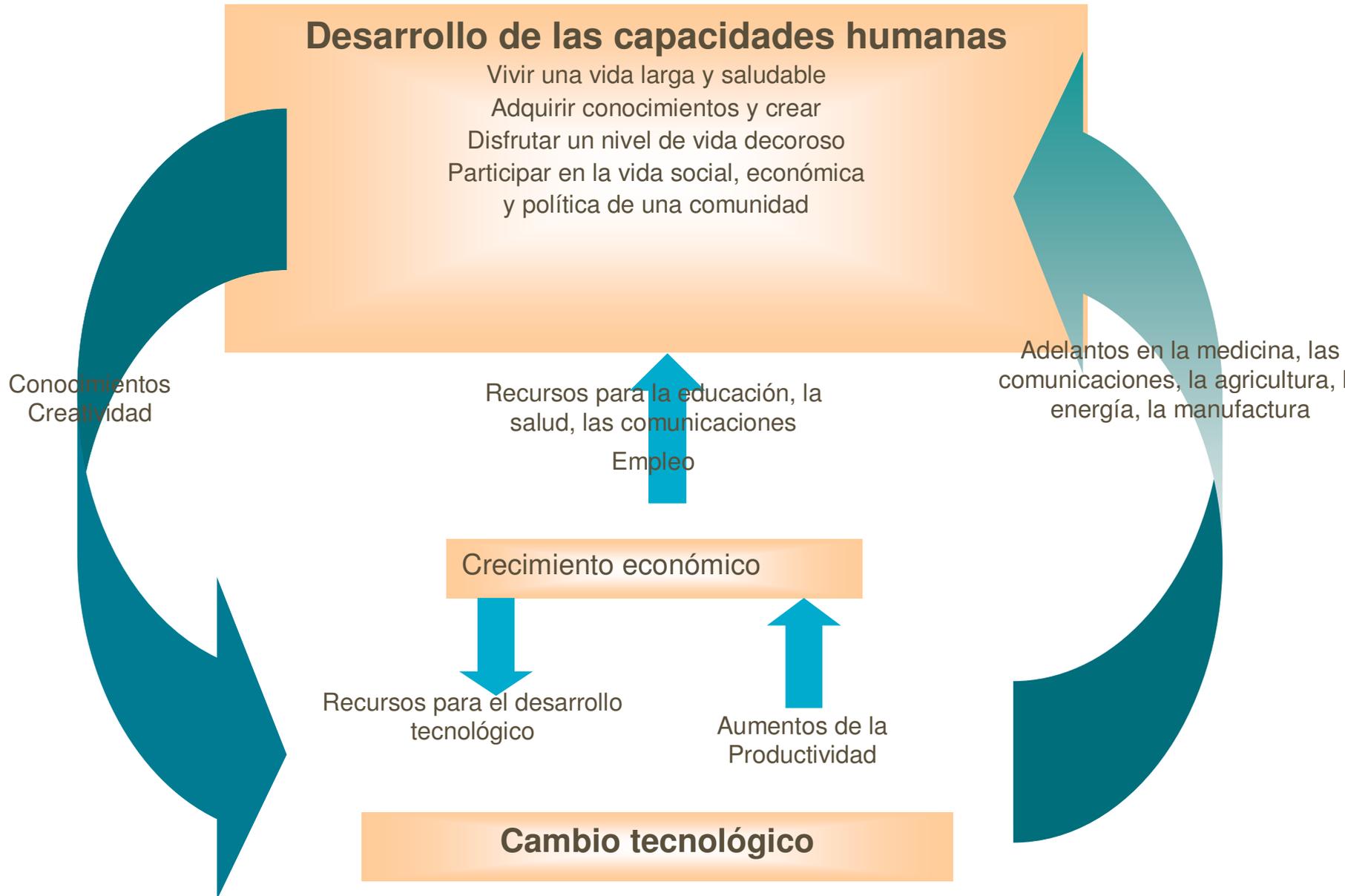
Proyecciones hacia 2080,
2070-2099



Proyecciones de Cambios en Rendimientos Agrícolas/Ha con Cambio Climático: 2020, 2050 y sólo 2080 sin mitigamiento



Vínculos entre la tecnología y el desarrollo humano



An aerial photograph of a bustling outdoor market. The ground is paved and filled with numerous stalls and vendors. People are seen walking through the aisles, and various goods are displayed on the stalls. The scene is vibrant and active, capturing the essence of a busy marketplace.

**Muchas gracias por su
atención**