Sustainable use of the earth's natural resources

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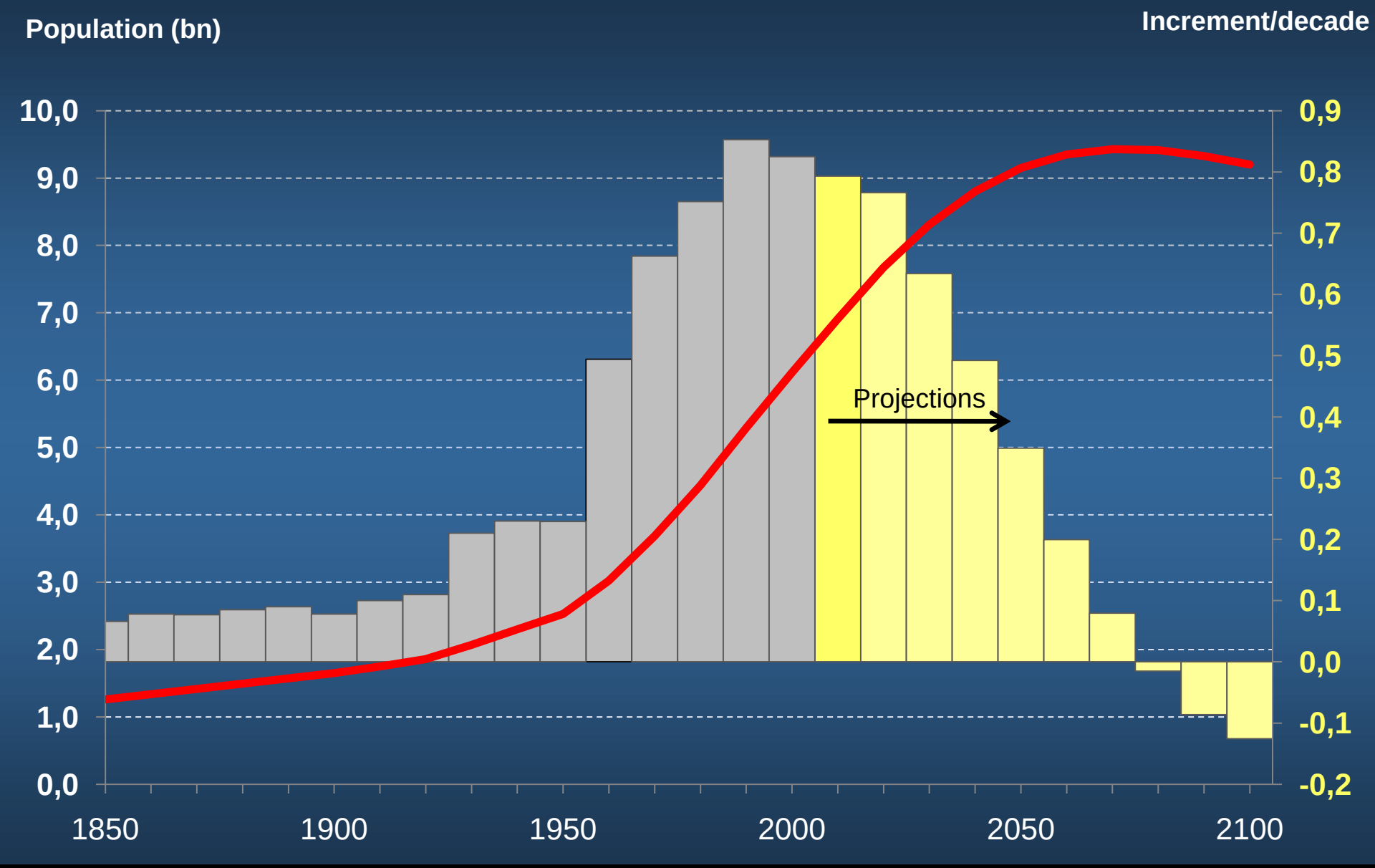
Assistant Director General
FAO

1. What are the main challenges for agriculture and natural resources?

… feed a growing Global Population



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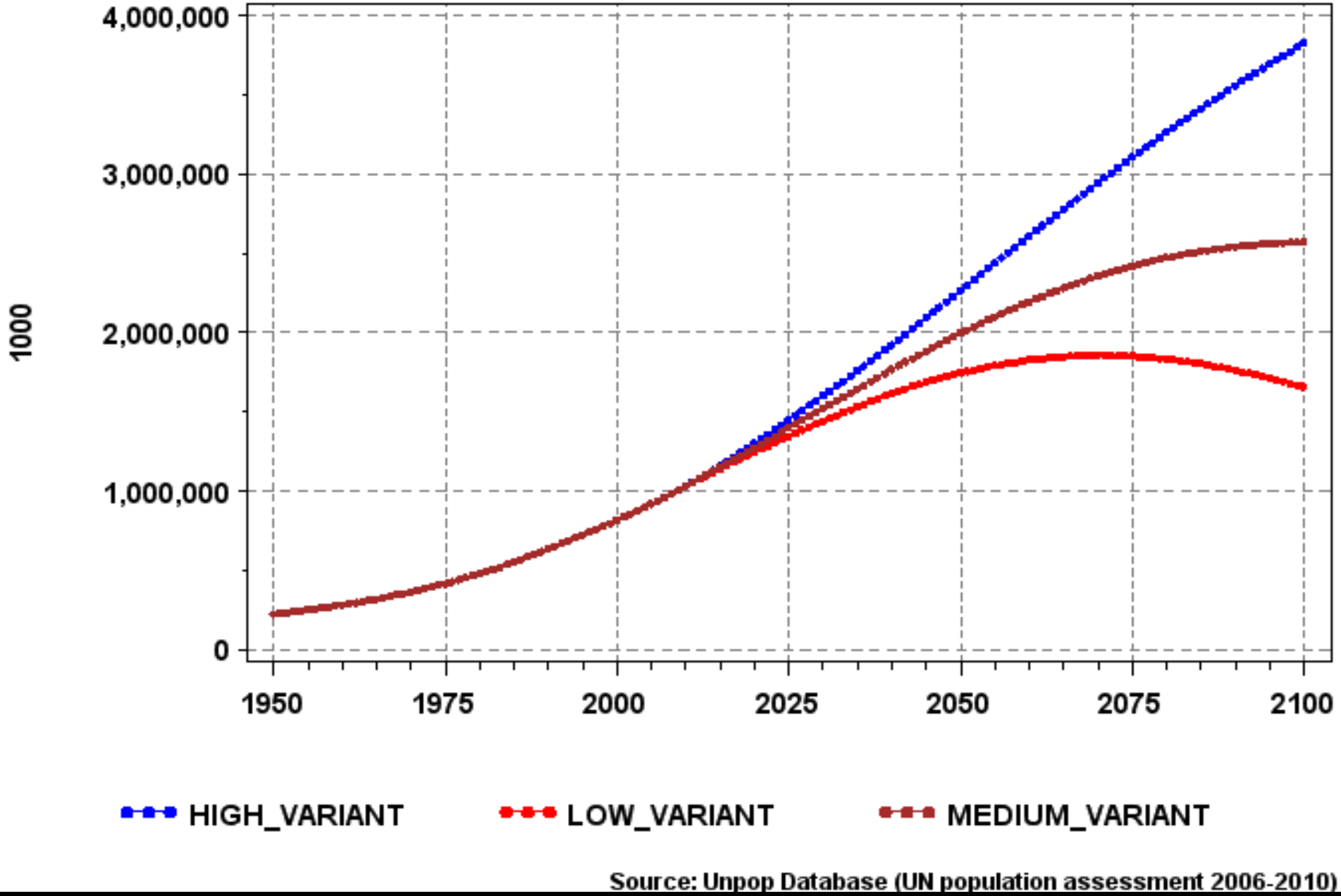
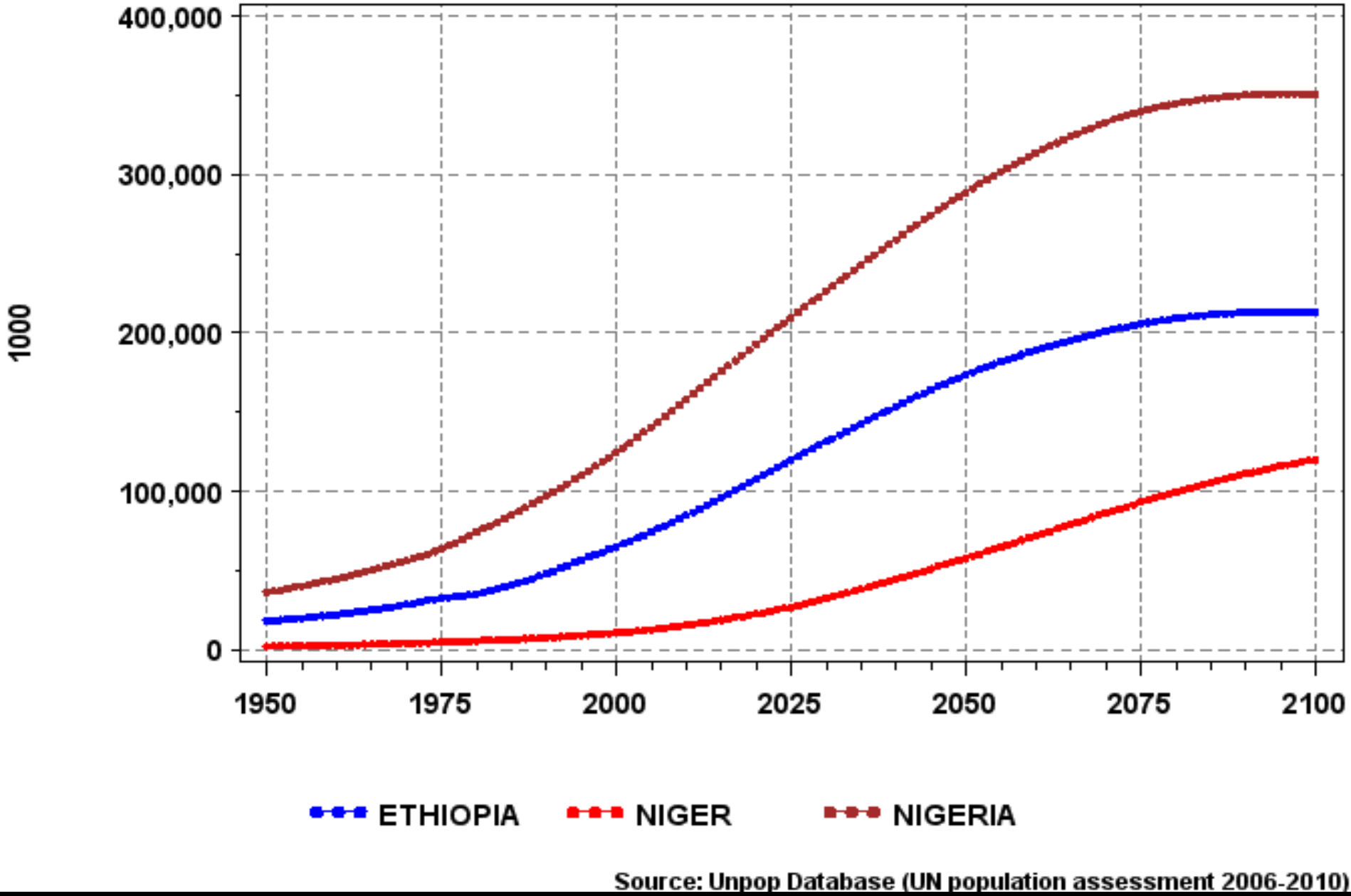
Rapid Population Growth foreseen for Africa



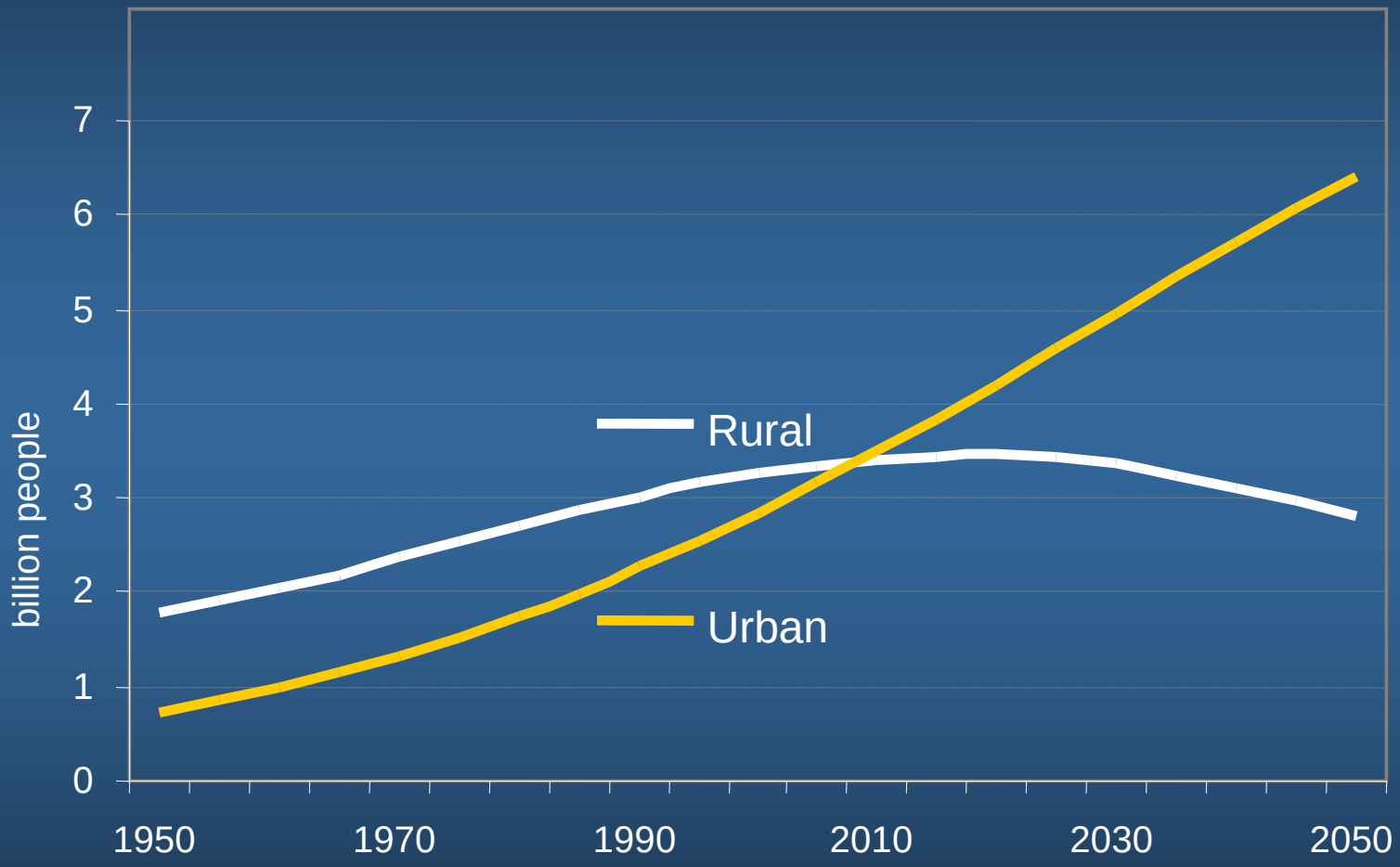
Source: Unpop Database (UN population assessment 2006-2010)

Exponential/explosive population growth in the poorest countries

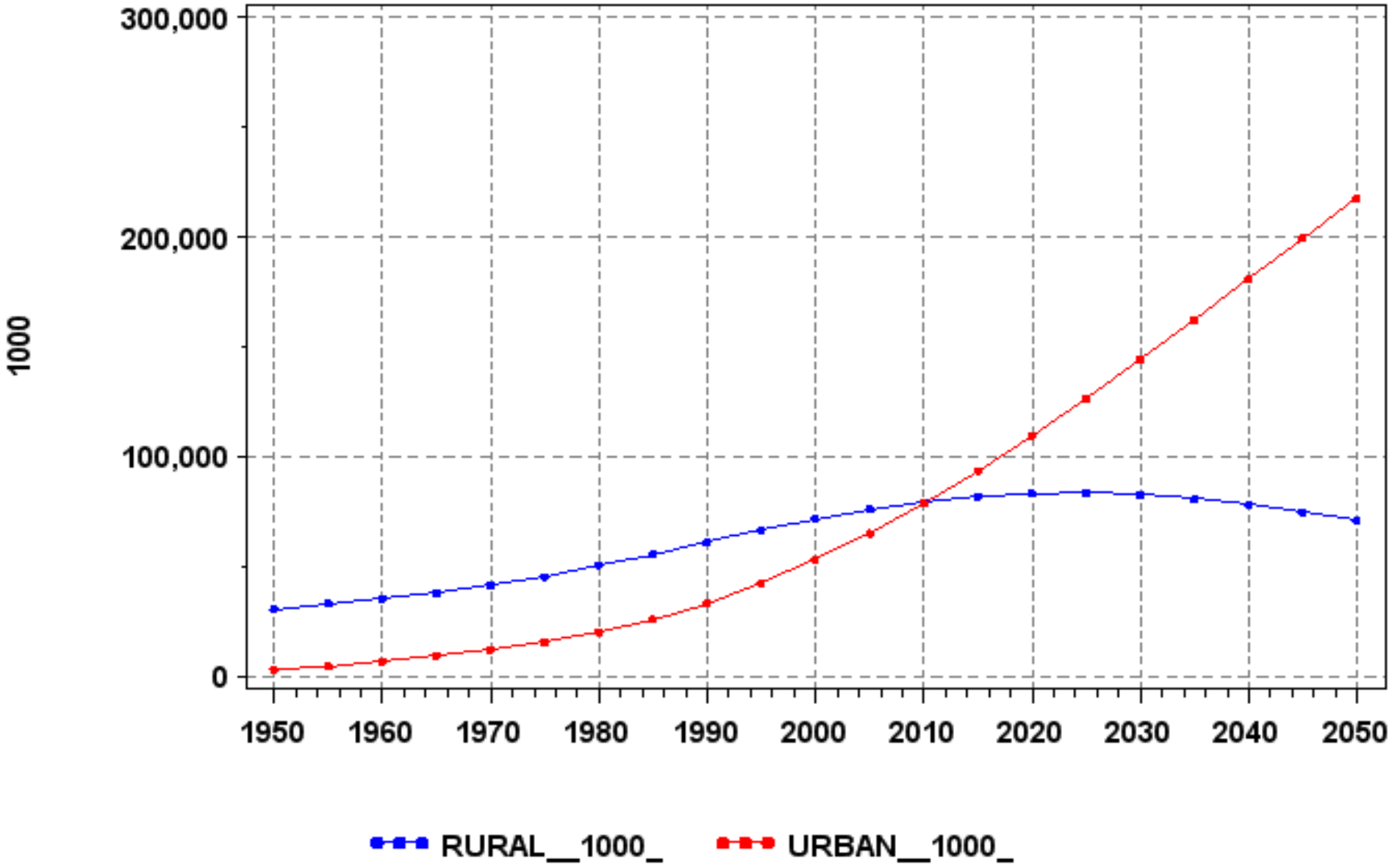


Source: Unpop Database (UN population assessment 2006-2010)

Urbanization to accelerate



Nigeria: Massive (premature) urbanization expected



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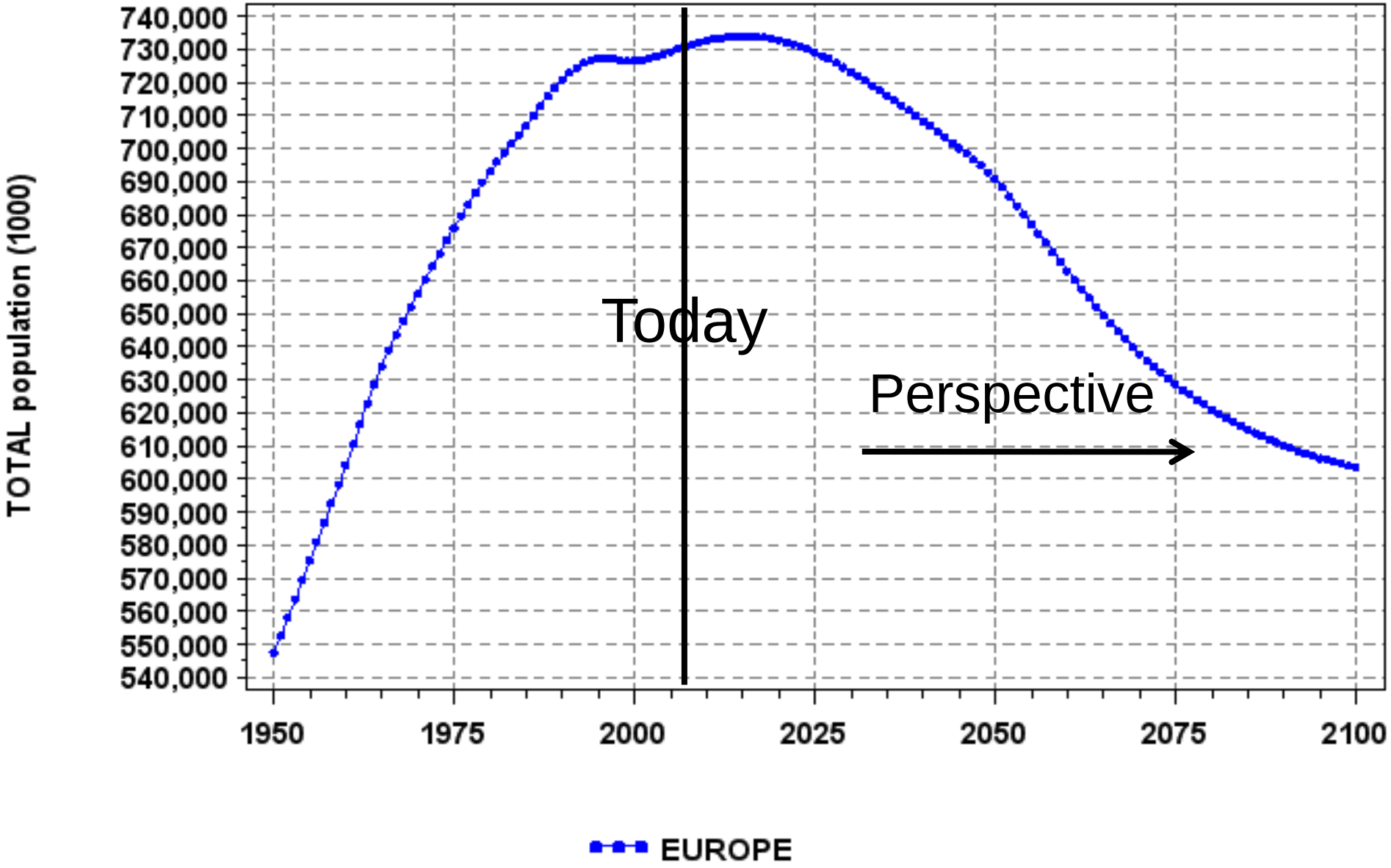
Stagnation und sogar Abnahme der Bevölkerung in Europa



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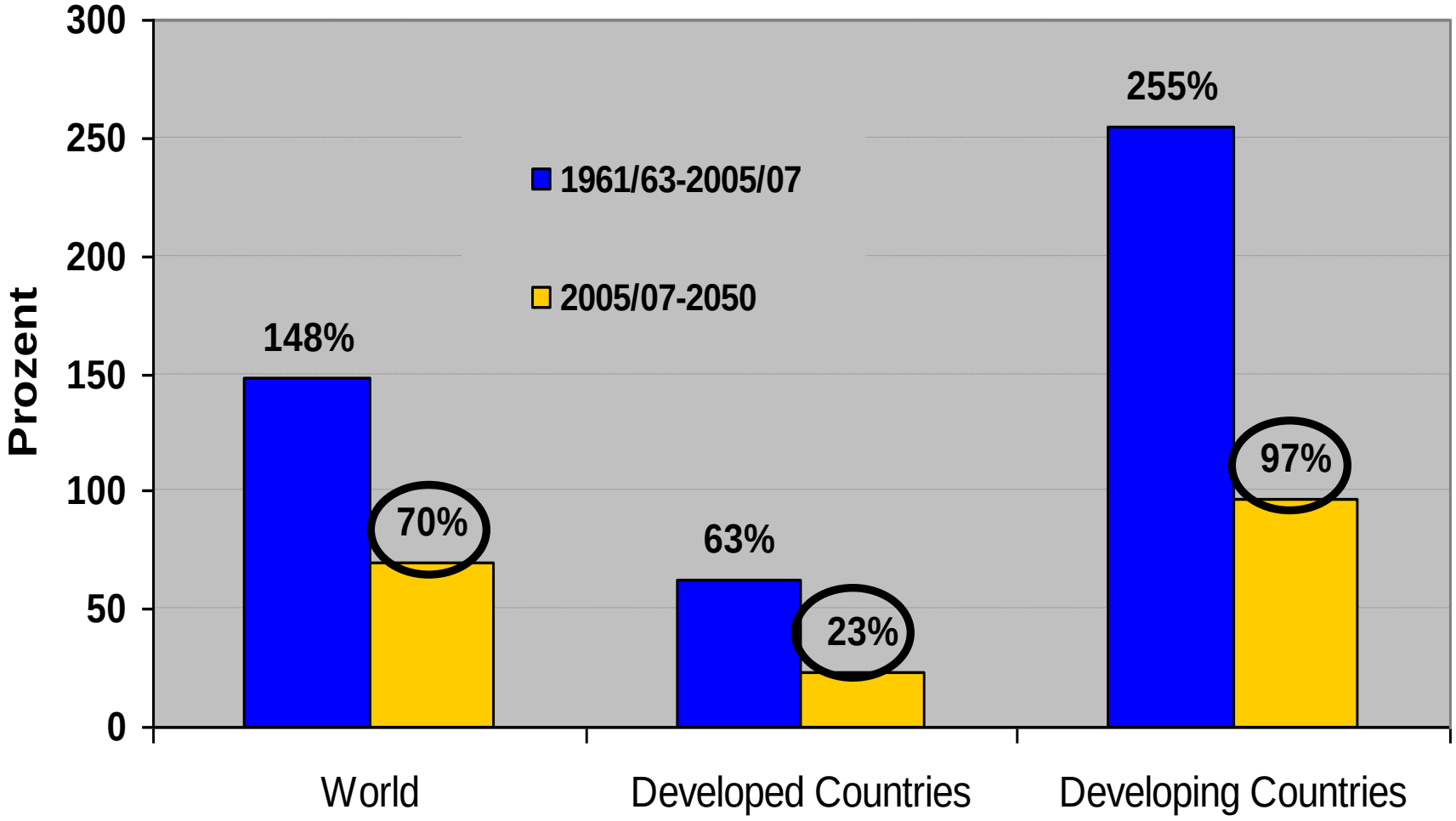
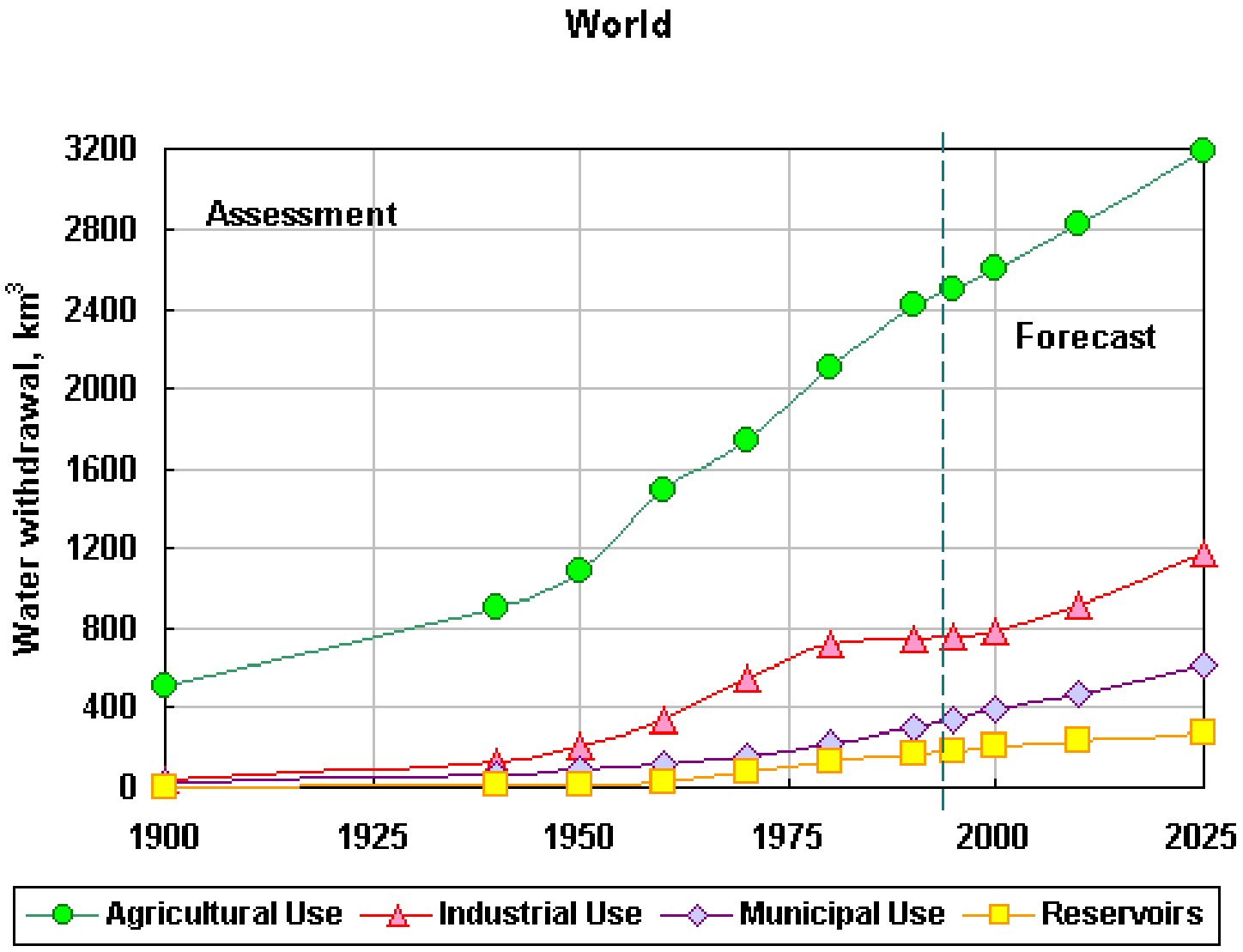
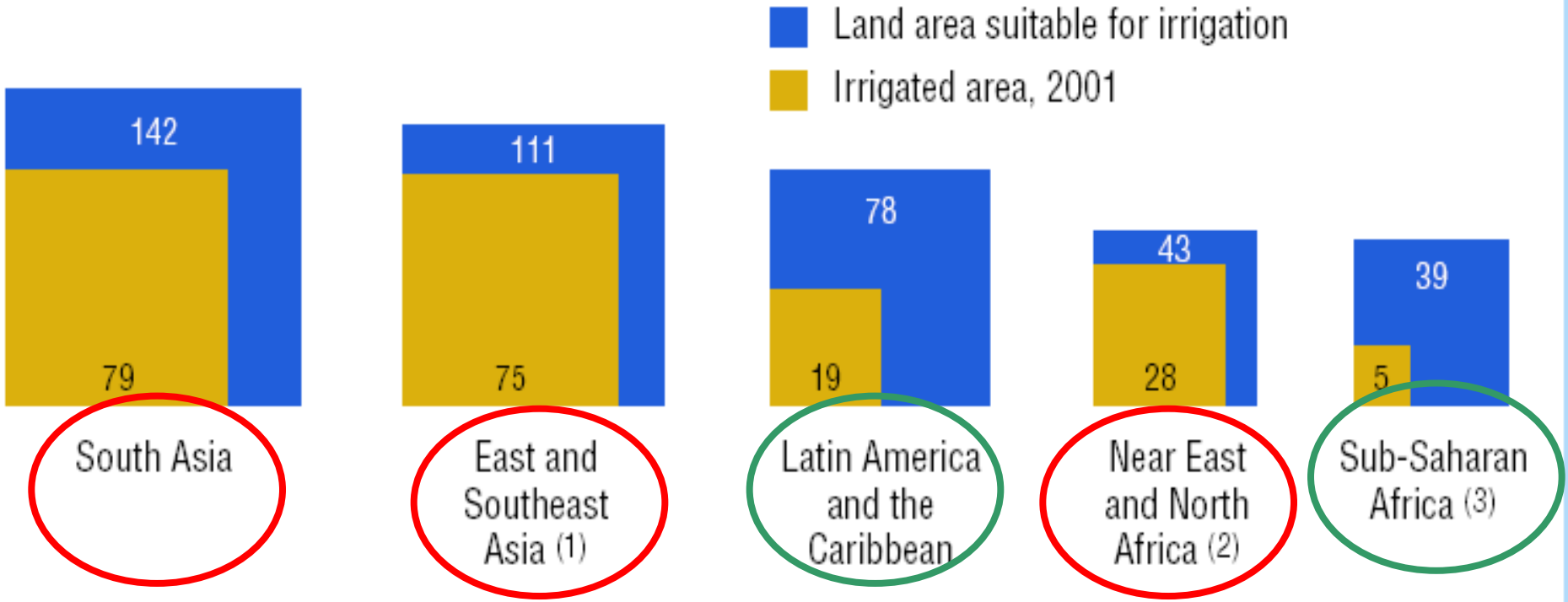
Growth in Agricultural Output
Past and Future



2. Conservation and sustainable use of the natural resource base


World
Assessment
Forecast
Water withdrawal, km3
3200
2800
2400
2000
1600
1200
800
400
0
1900
1925
1950
1975
2000
2025
Agricultural Use
Industrial Use
Municipal Use
Reservoirs

Irrigated area and land suitable for irrigation, 2001 (million ha)



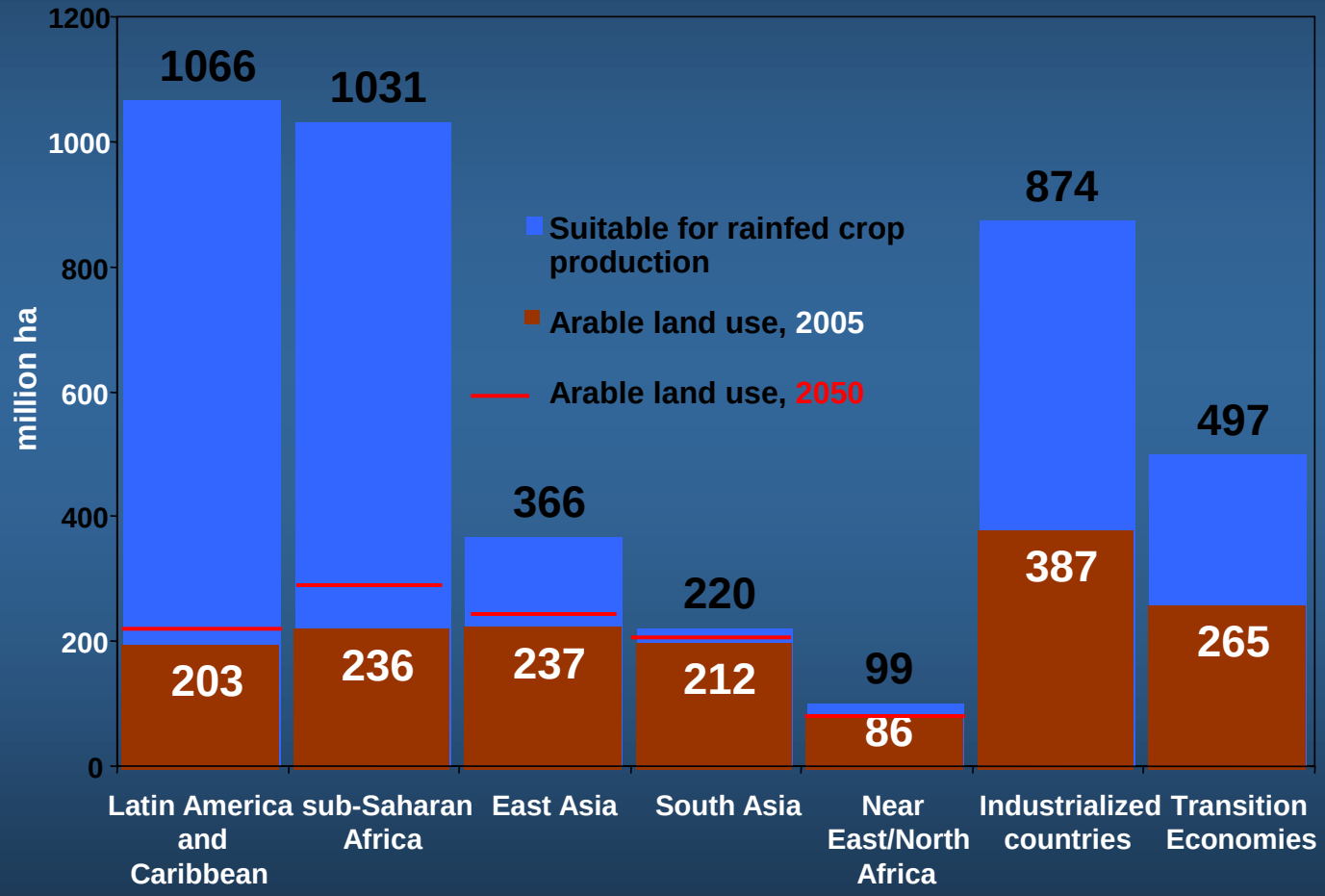
(1) excluding Japan
(2) excluding Israel
(3) excluding South Africa

The figure shows that the potential for expanding irrigated agriculture is relatively the greatest in sub-Saharan Africa and Latin America.

Diet and water

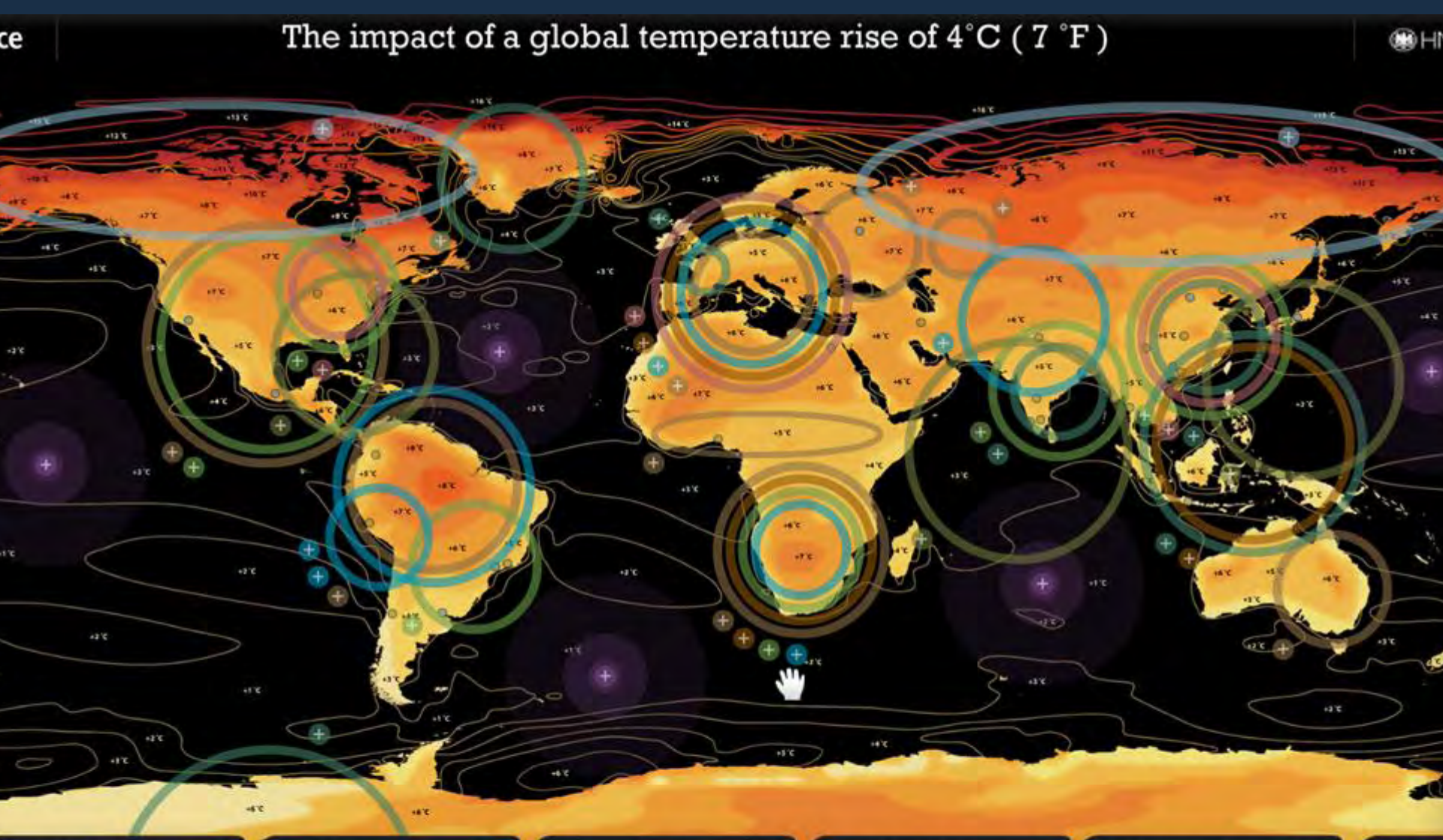
Product	(m^3 per Kg)
Beef meet	15
Sheep meet	10
Pork meet	6
Chicken meet	2.8
Eggs	4.7
Cheese	5.3
Milk	0.9
Cereals	1.5
Fruit	1
Legumes	1

How much land is in use, how much is available now and in 2050?



3. Climate Change

The impact of a global temperature rise of 4°C (7 °F)



The Amazon Forest ▲ | Agriculture ▲ | Water availability ▲ | Sea-level rise ▲ | Carbon cycle ▲ | Temp

Water Availability | Sea Level Rise | Marine | Drought | Permafrost | Tropical Cyclones | Extreme Temp | Health

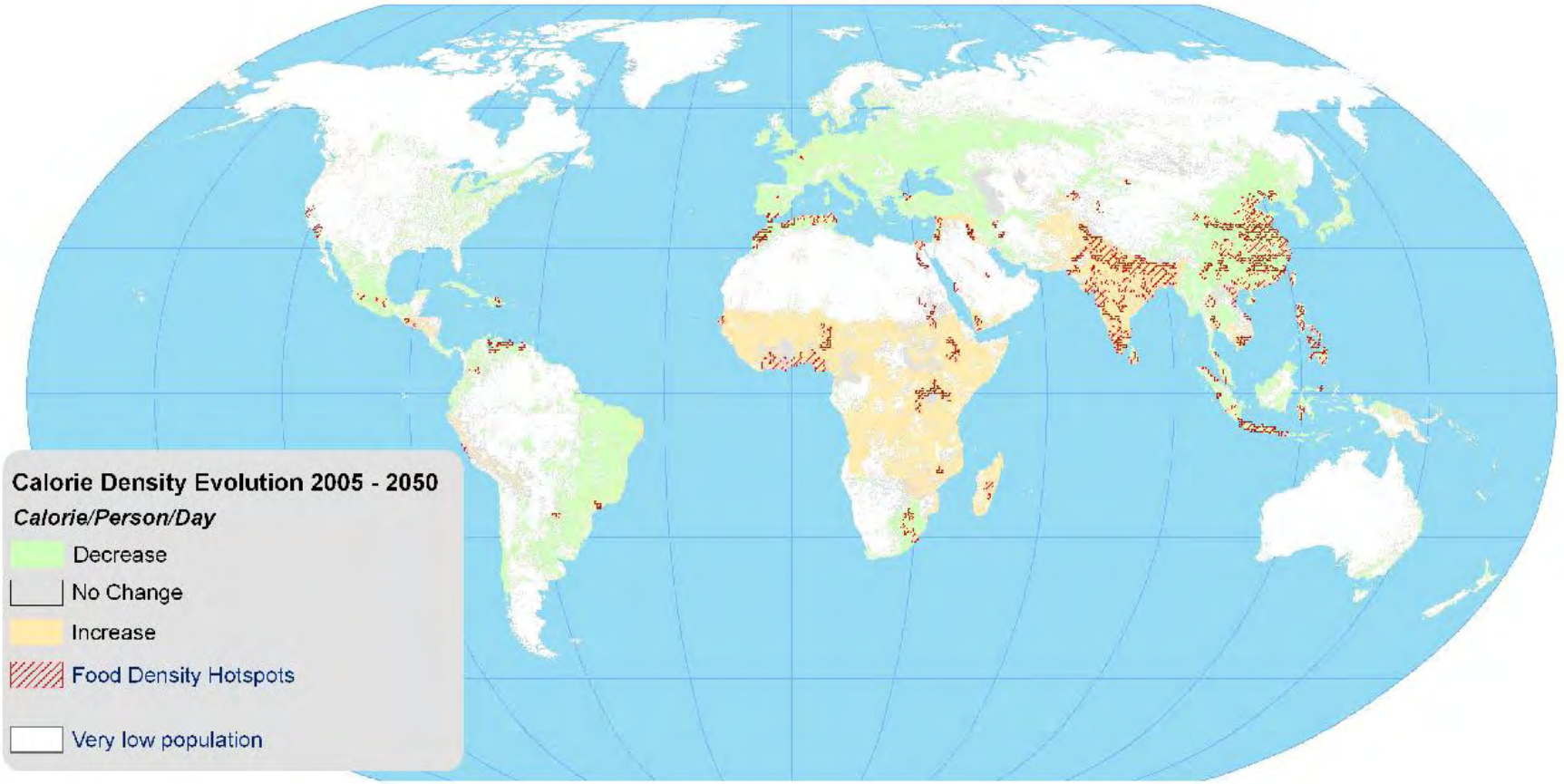
+ °Celsius

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	4	5	7	9	11	13	14	16	18	20	22	23	25	27	29

+ °Fahrenheit

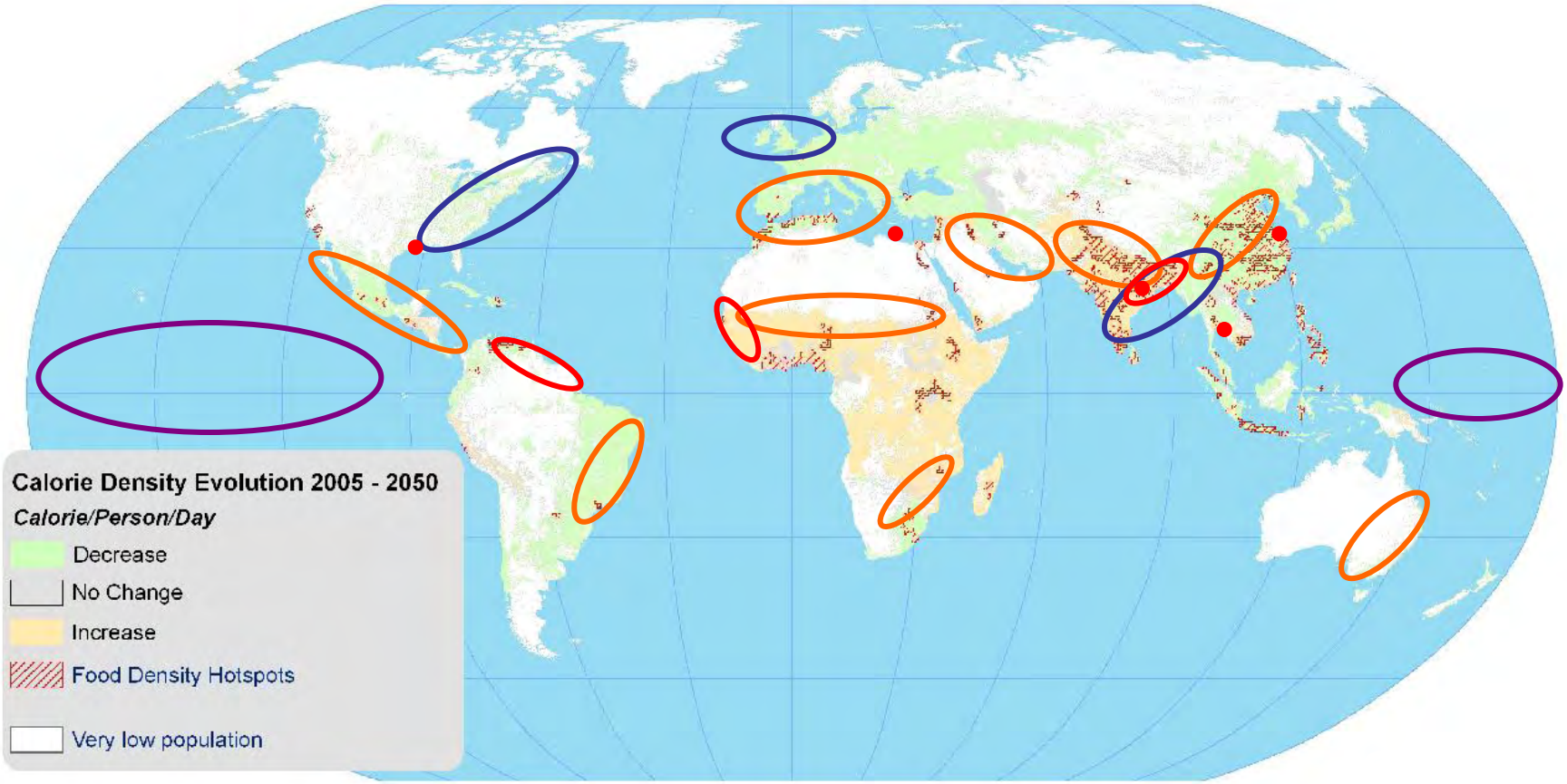
Source: UN Statistics Division Demographic

Global Calorie Density Evolution and Food Density Hotspots (2005 and projection for 2050)



Source : FAO

Global Calorie Density Evolution and Food Density Hotspots (2005 and projection for 2050)



Drought

Cyclones/Extreme events

SIDS

Sea level rise incidence (mangroves/deltas/SIDS)

4. Adaptation to climate change and genetic resources

Impact of Climate Change: Genetic Resources for Food and Agriculture

- Climate change will become a major driver of biodiversity loss, including genetic erosion
- The resilience of many food ecosystems is likely to exceed, with loss of ecosystem services
- Interdependence among countries on genetic resources for food and agriculture will increase

Adaptation to Climate Change in Food and Agriculture

- Adaptation will not occur by itself, the speed and magnitude of changes in climate will present new challenges
- It will be costly but essential for food security, poverty reduction and maintenance of ecosystem services
- Adaption will require a combination of:
  - Integrated solutions at local level
  - Policy and legal frameworks to stimulate adaptation, including on access and use of resources
  - Investments in agriculture and other sectors based on natural resources

Adaptation: the role of genetic diversity (I)

Genetic diversity will underpin adaptation to climate change in food and agriculture:

- Heat tolerance (PGR; AnGR)
- Effective use of scarce water and nutrients (PGR; AnGR; AqGR; FoGR)
- Resistance to diseases (PGR; AnGR; AqGR; FoGR)
- New timing of sowing and harvesting (PGR)
- Growth control in forestry species to avoid late frosts.

- Breeding is a long-term effort, investments are required now.

Adaptation: the role of genetic diversity (II)

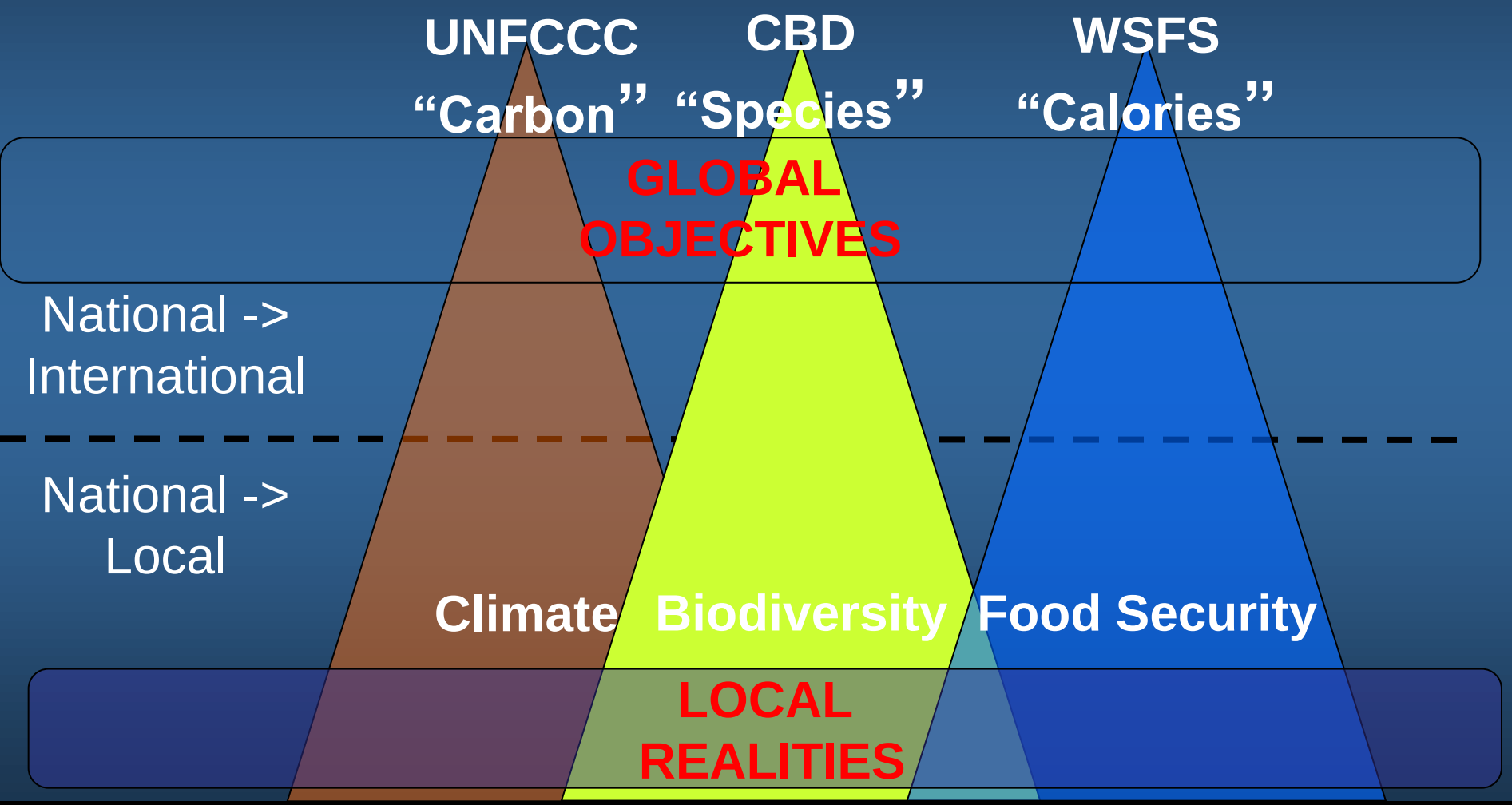
- Biodiverse agroecosystems are generally resilient to abrupt disruptions (extreme events).

- Community based management of agricultural biodiversity can underpin local adaptation

But...Genetic diversity is still overlooked in the Climate Change negotiations

5. Managing natural resources in an integrated way

Overlaps, Synergies and Trade-offs



Thanks.
Questions?

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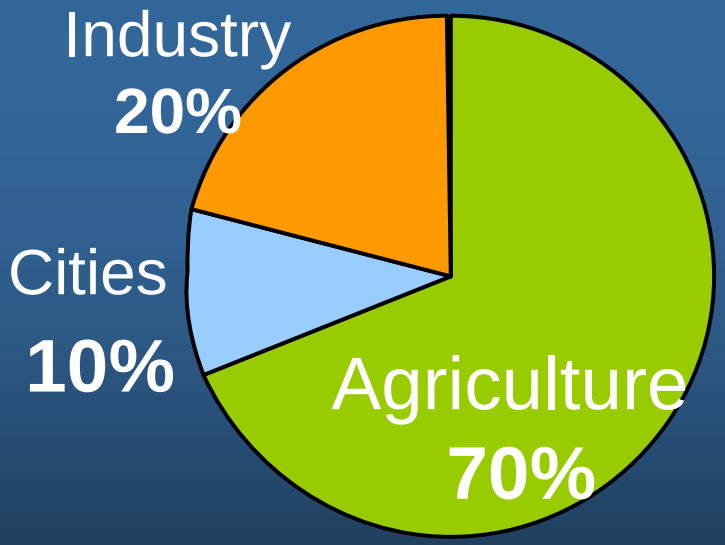
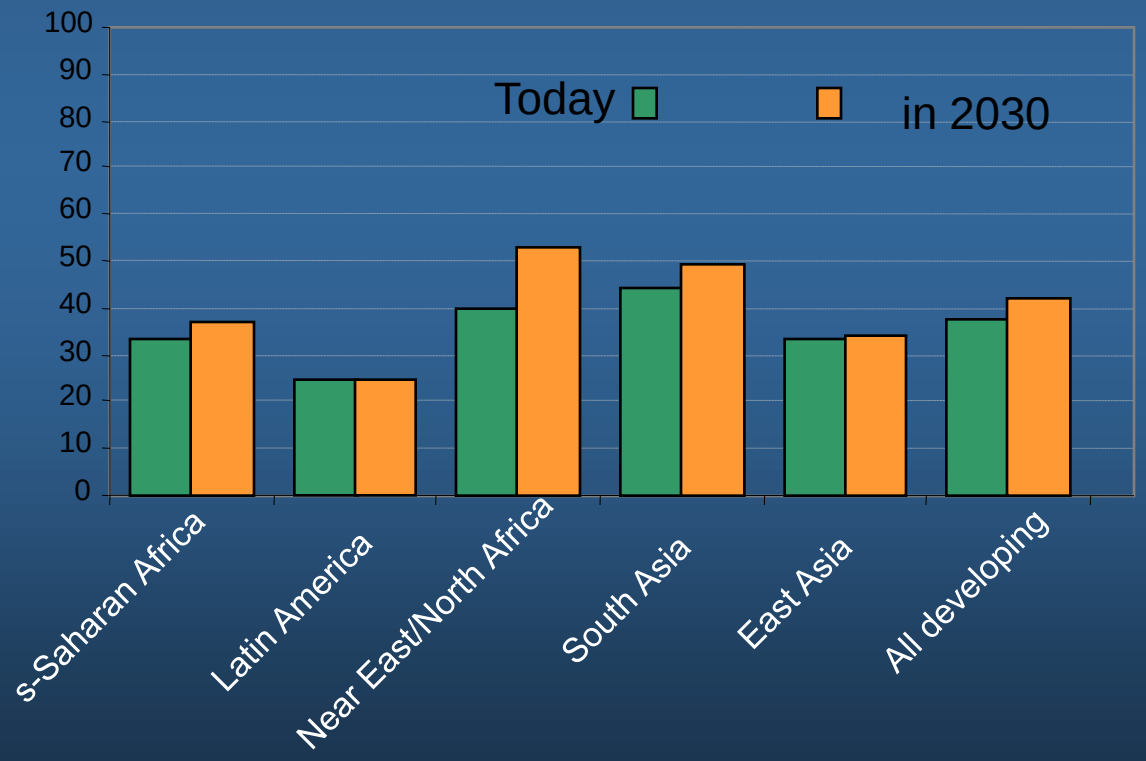
Today's agriculture uses 70 % of all fresh water withdrawals globally, and up to 95 % in several developing countries, to meet the present food demand



To keep up with growing food demand and shifting diets within the next 30 years, FAO estimates that the effective irrigated area will need to increase by 34 % in developing countries, and 14 % extra water to be withdrawn for agriculture

still significant water use efficiency gains to be had

Irrigation efficiency by region (in %)



The Multi-year Programme of Work
Major outputs and milestones

	12	13	14	15	16
PGRFA	*State of the World's PGRFA* – Update	Global Plan of Action PGRFA – Update			*State of the World's PGRFA* – Update

The Multi-year Programme of Work

Major outputs and milestones

	12	13	14	15	16
PGRFA	SoW update	GPA PGR update			SoW update
AnGR	Follow-up to the Interlaken Conference		Review of imple-mentatio: Interlaken outcomes		*State of the World's AnGR* – Update

The Multi-year Programme of Work

Major outputs and milestones

	12	13	14	15	16
PGRFA	SoW update	GPA update			SoW update
AnGR	Follow-up Interlaken		Review		SoW update
AqGR		Review of information base for AqGR/ key issues for *State of the World's AqGR*	*State of the World's AqGR*	Develop-ment of Elements related to *Code of Conduct*	

The Multi-year Programme of Work

Major outputs and milestones

	12	13	14	15	16
PGRFA	SoW update	GPA update			SoW update
AnGR	Follow-up Interlaken		Review		SoW update
AqGR		Review	SoW	Elements of *Code*	
FoGR	Analysis of key issues in FoGR, for *State of the World's FoGR*		State of the World's FoGR		

The Multi-year Programme of Work

Major outputs and milestones

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AnGR	Follow-up Interlaken		Review		SoW update
AqGR		Review	SoW	Elements of *Code*	
FoGR	Key issues Analysis		SoW		
Mo's/ Inv.	Review of scoping Study		Review key issues in MO's and Inv.	Review of work on MO's and Inv.	

The FAO Multi-year Programme of Work

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