



# Development & Environment Myths & Realities

**By Garry Jacobs**

**The Mother's Service Society**



# Options ?

- No growth
- De-growth
- Growth
- Development
- Conscious Development or Evolution

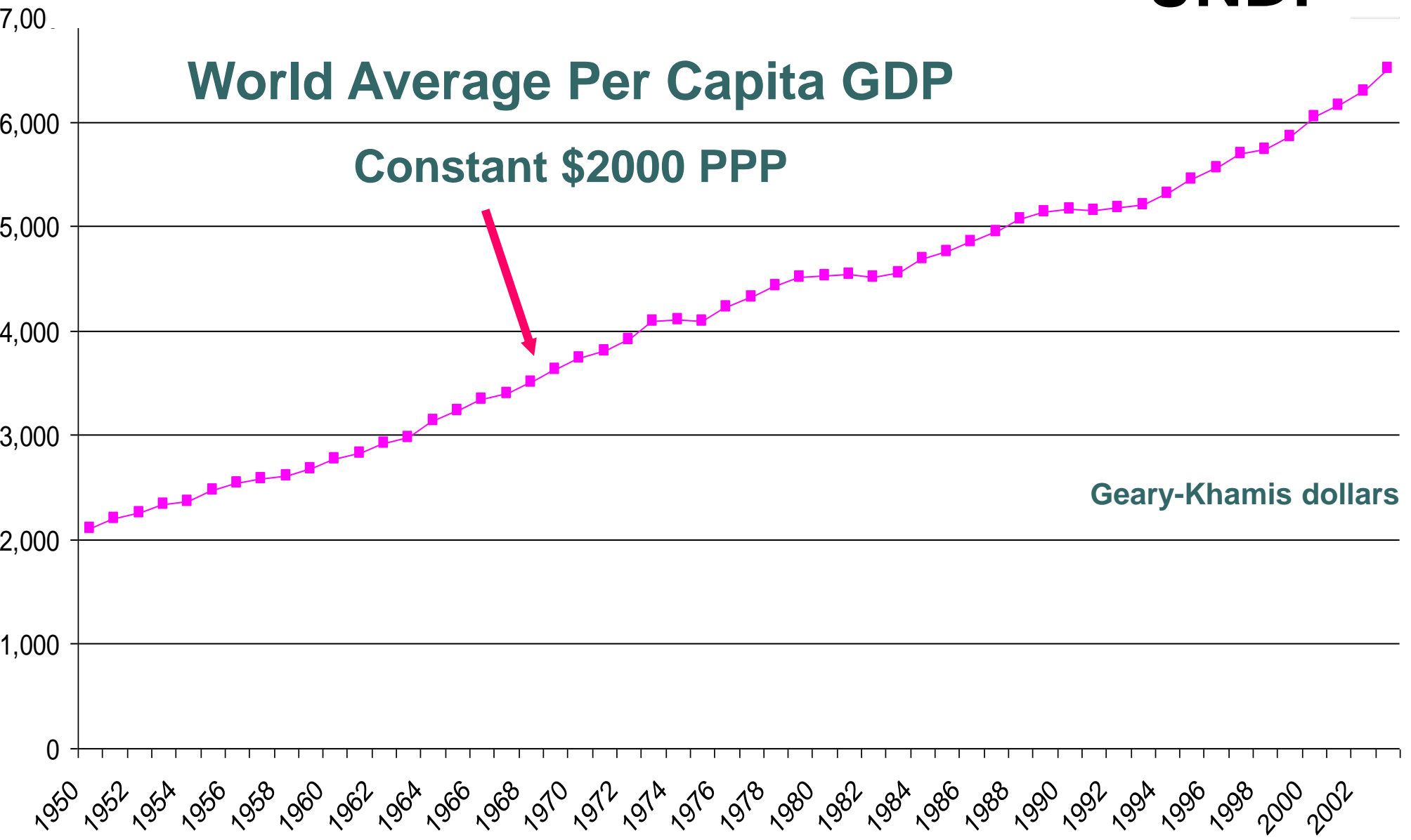
# “500 years of progress in 50 years”

**UNDP**

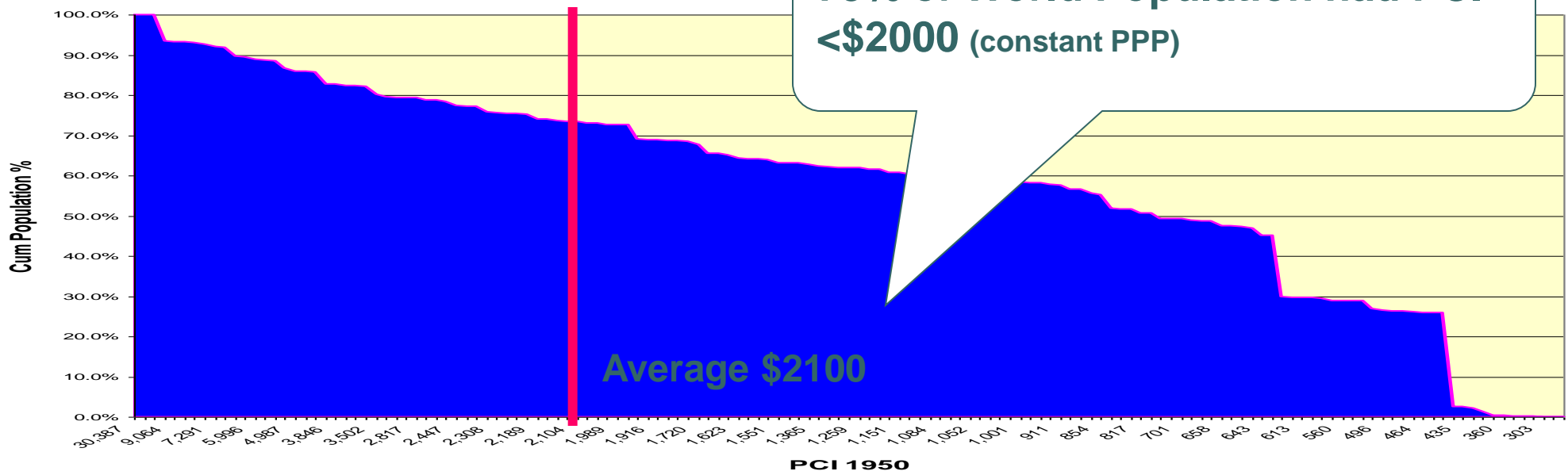
**World Average Per Capita GDP**

**Constant \$2000 PPP**

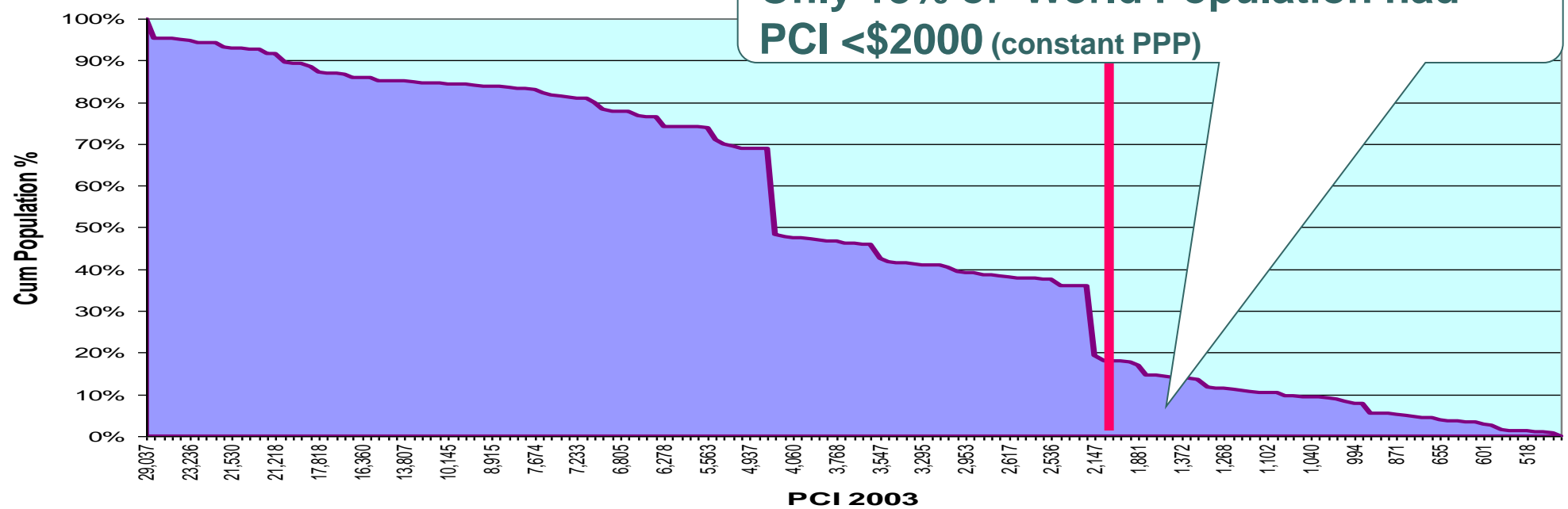
**Geary-Khamis dollars**



# PCI 1950



# PCI 2003













# Pace of development is accelerating

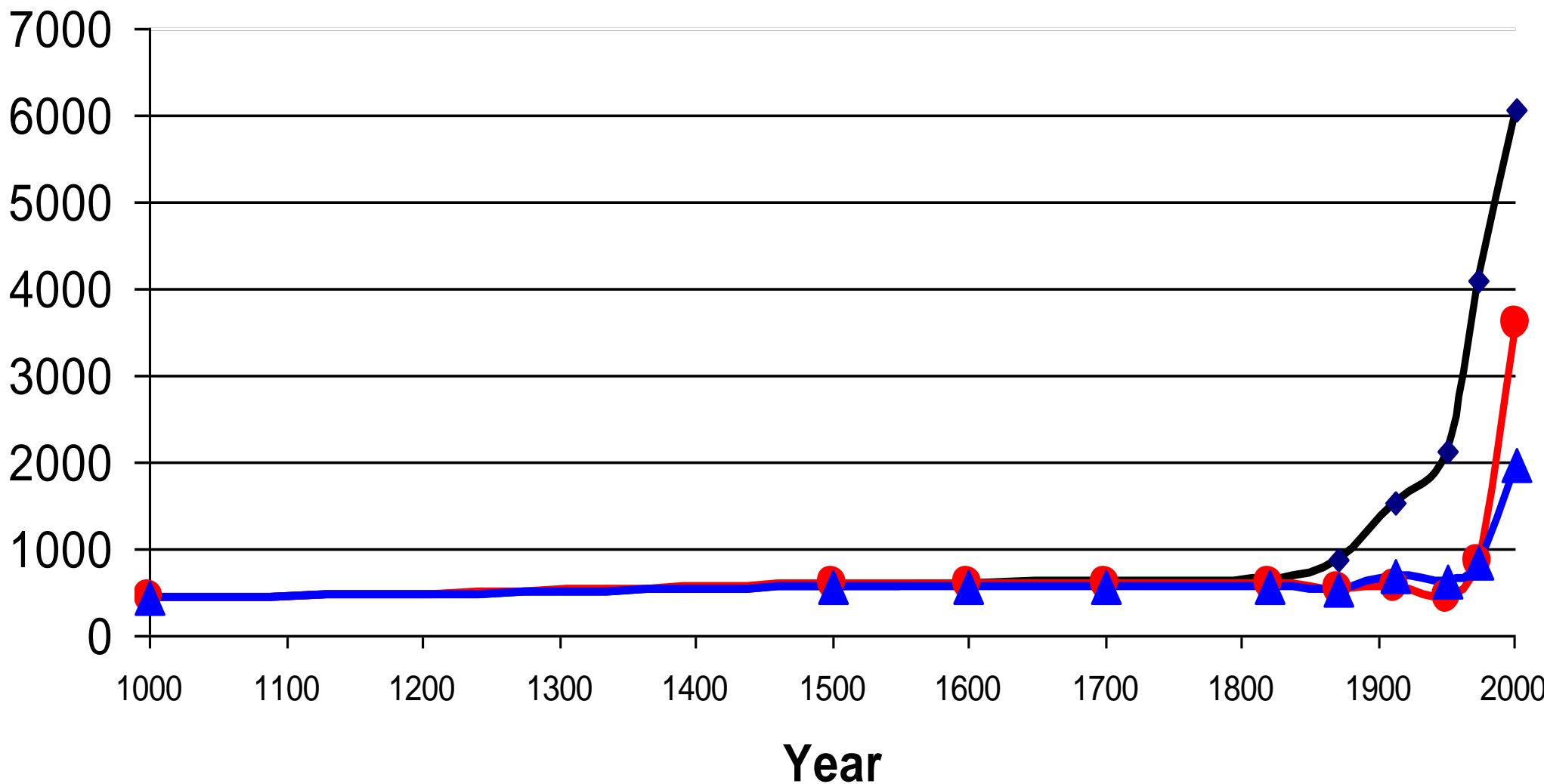
## Multiplication of real PCI (PPP) 1950-2000

Korea	19
Taiwan	18
Botswana	12
Japan	11
China & Thailand	8
Spain & Portugal	7
Ireland, Greece & Israel	6
Italy & Germany + 5	5
Indonesia, France, Turkey + 12	4
Brazil, Mexico, India, Pakistan, USA + 29	3

# Doubling real PCI took

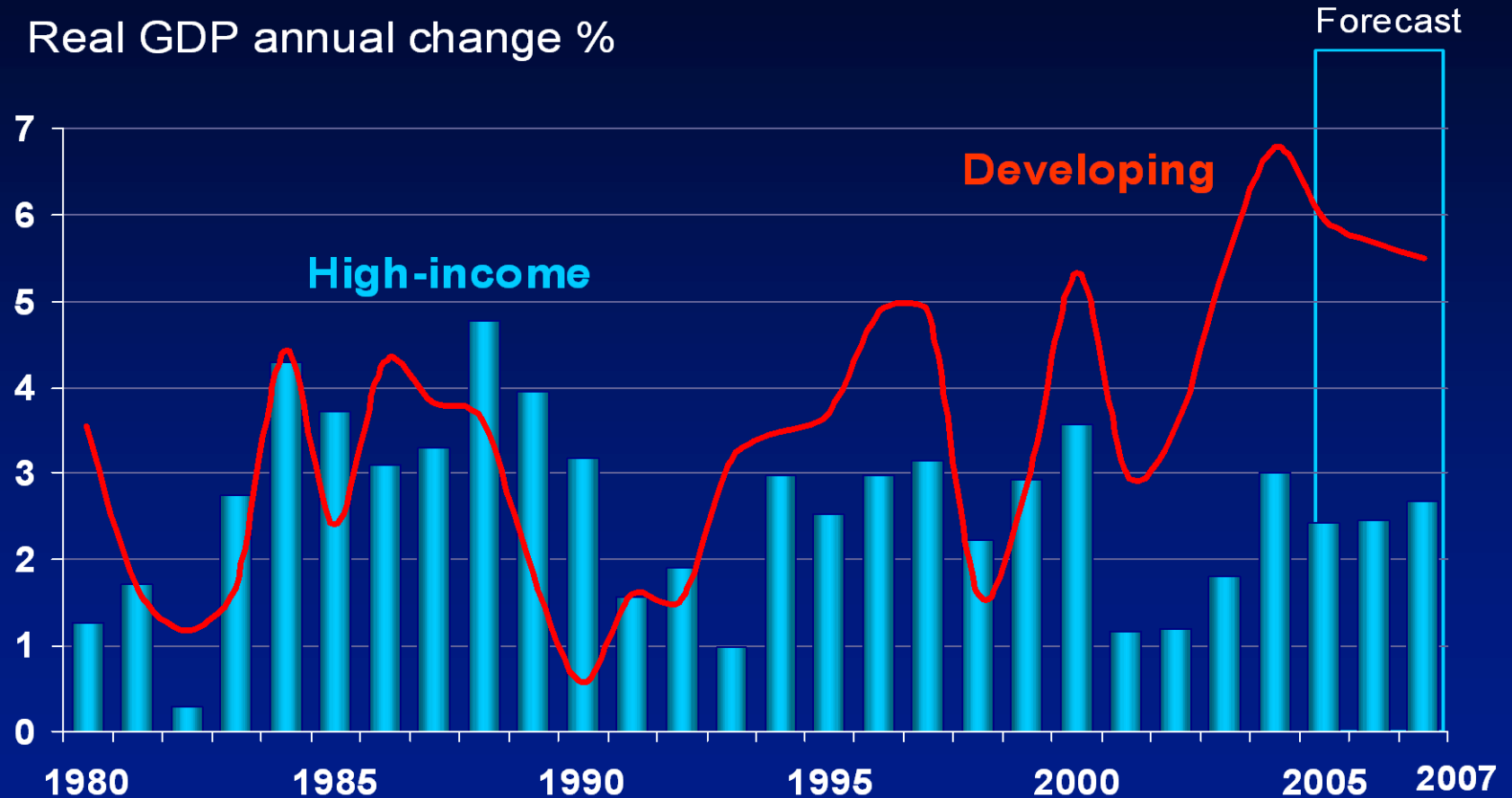
<b>UK</b>	<b>1780-1838</b>		<b>58 yrs</b>
<b>USA</b>	<b>1839-1886</b>		<b>47 yrs</b>
<b>Japan</b>	<b>1880-1920</b>		<b>40 yrs</b>
<b>World</b>	<b>1950-1973</b>		<b>23 yrs</b>
<b>India</b>	<b>1985-2001</b>		<b>16 yrs</b>
<b>China</b>	<b>1980-1992</b>		<b>12 yrs</b>
<b>Japan</b>	<b>1962-1971</b>		<b>9 yrs</b>
<b>Korea</b>	<b>1964-1971</b>		<b>7 yrs</b>

# Growth of China, India & World PCI 1000-2000 (Constant \$ PPP)



# Growth in developing countries is still strong

Real GDP annual change %







# Qualitative development

- Quality of products & services
- Freedom through democratization
- Human Rights
- Equality for Women
- Explosion of knowledge
- Spread of education
- Proliferation of skills
- Instantaneous global communication
- Faster, cheaper transportation
- Access to entertainment

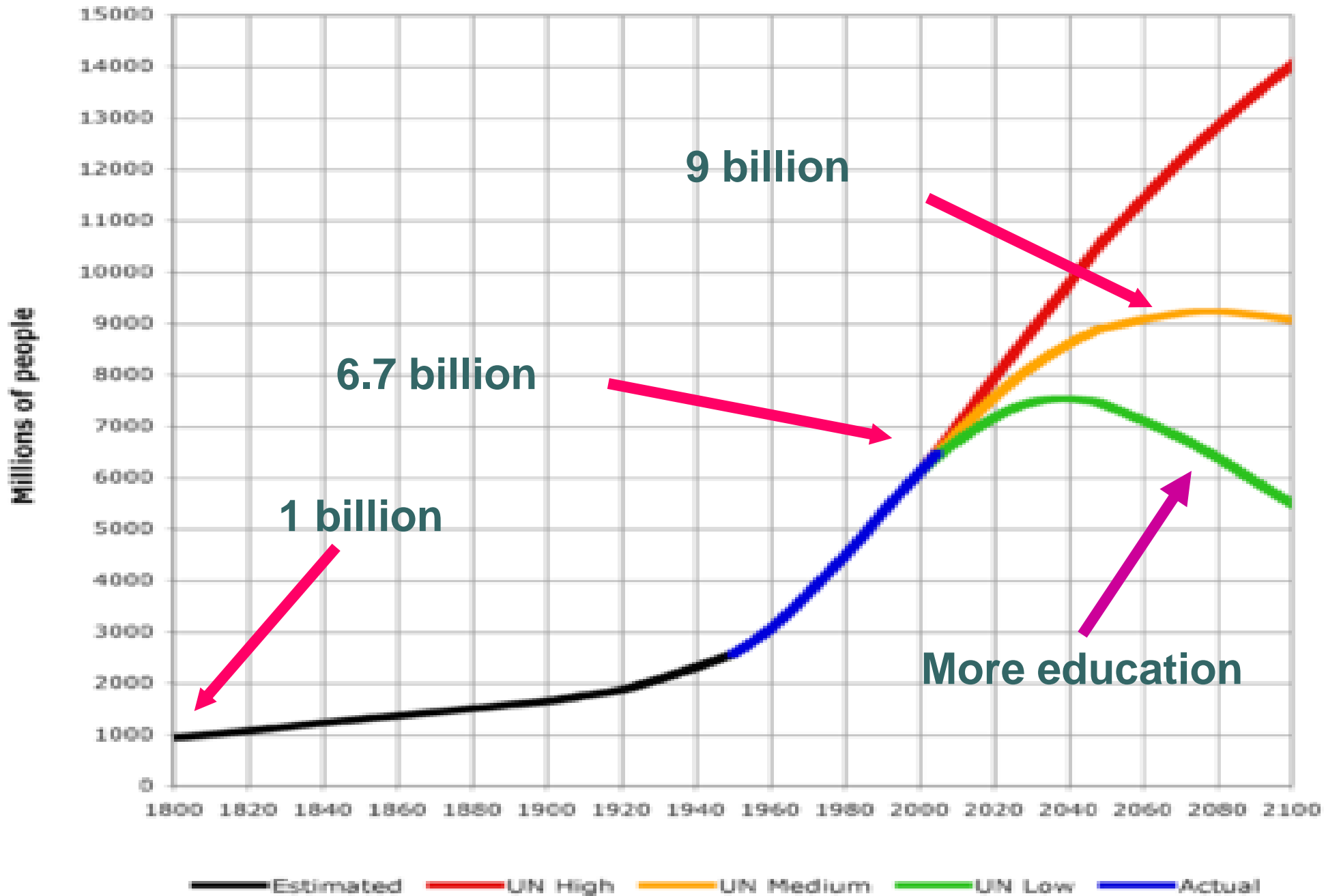


# Unanswered Questions

- How can we explain the unprecedented progress since 1950?
- What factors are responsible for accelerated development?
- Are high growth rates sustainable?
- What are the real limits to development?
- What is the source of the repeated crises & threats to human development?
- Why is it that every time we solve one problem, we seem to create another one?
- If the world's response to crisis is inadequate, are we capable of a different response? If so, how would we define it?
- Do we as leaders of thought act differently in our own lives?



# Limits to Development





# Limits to Development

Viewing development as a physical process, the limits are apparent

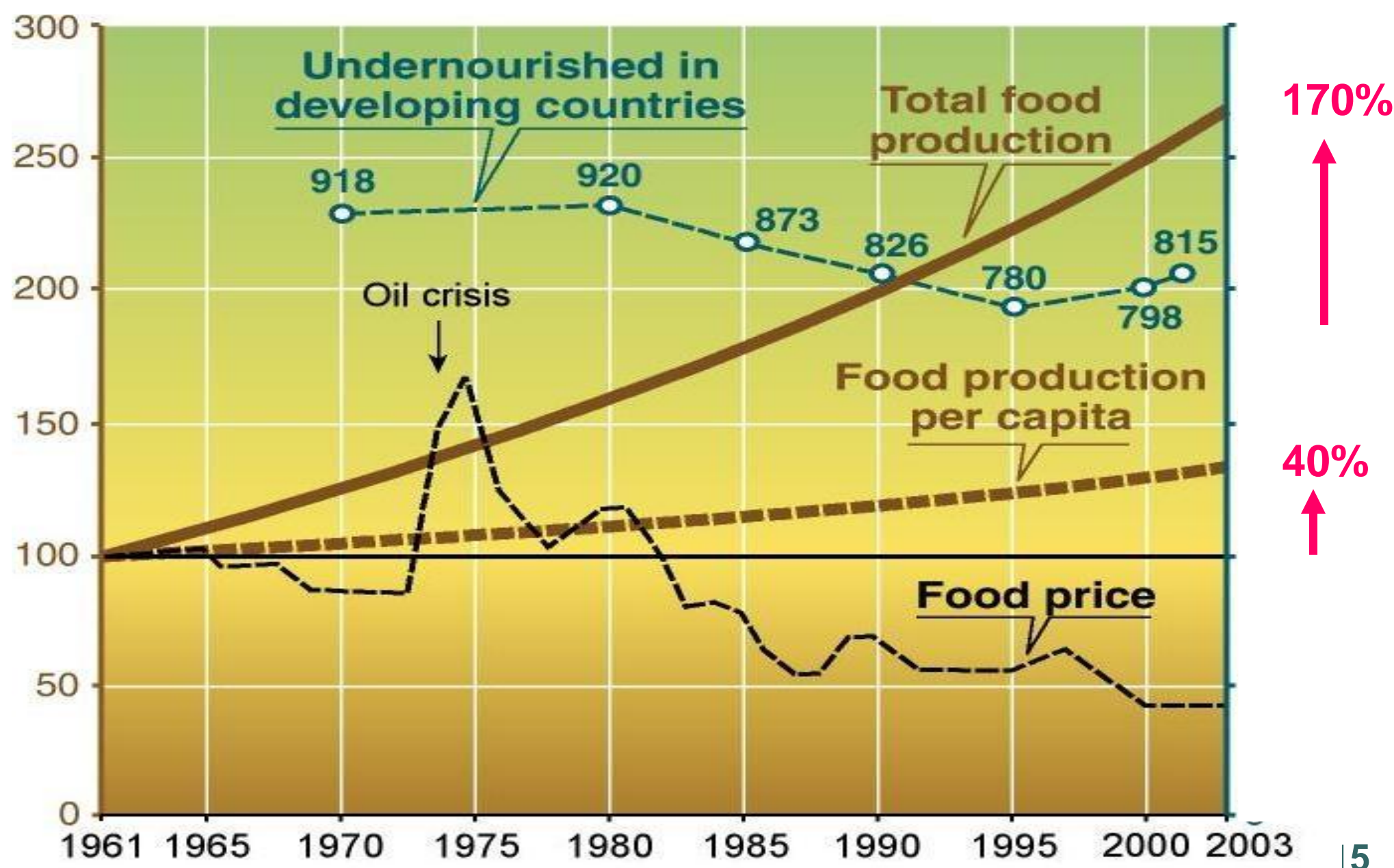
- Land
  - Food
  - Water
  - Energy
  - Pollution
  - Climate Change
- } **Malthus on Population**



# Population Explosion

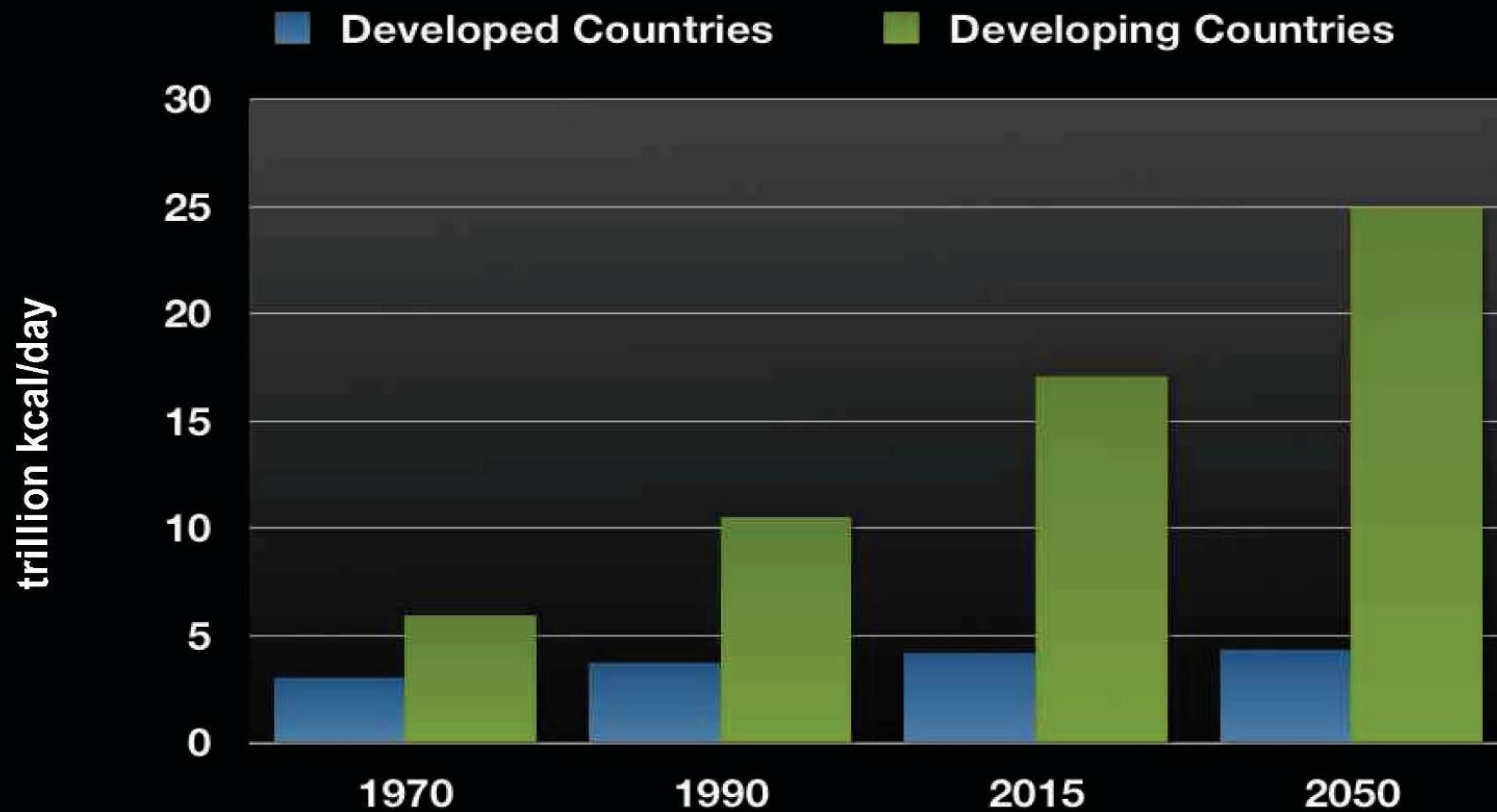
- Result of rapid unidimensional advances in medical & agricultural technology
  - Saved 100 million lives in India b/n 1950-1980
- Malthus did not conceive of
  - Birth Control
  - Green Revolution
  - Impact of education & income on birth rates
- Problems created in one way are often solved in another way

# World Food Production Index 1961-2003



Sources: FAOSTATS, SOFI, Millennium Ecosystem Assessment

# The Food Challenge Remains Food Demand





# Comparative Tomato Yields

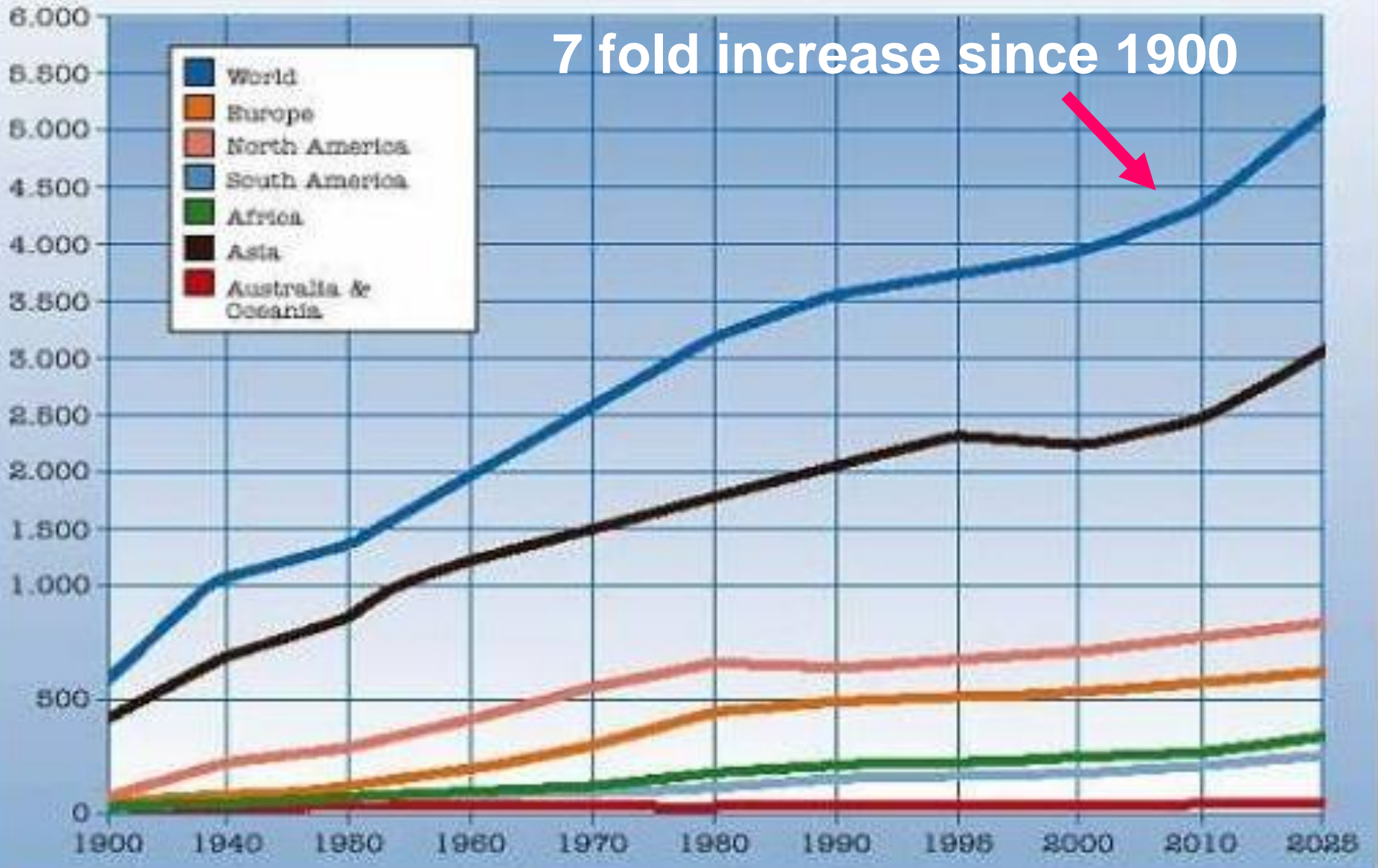
tons per acre



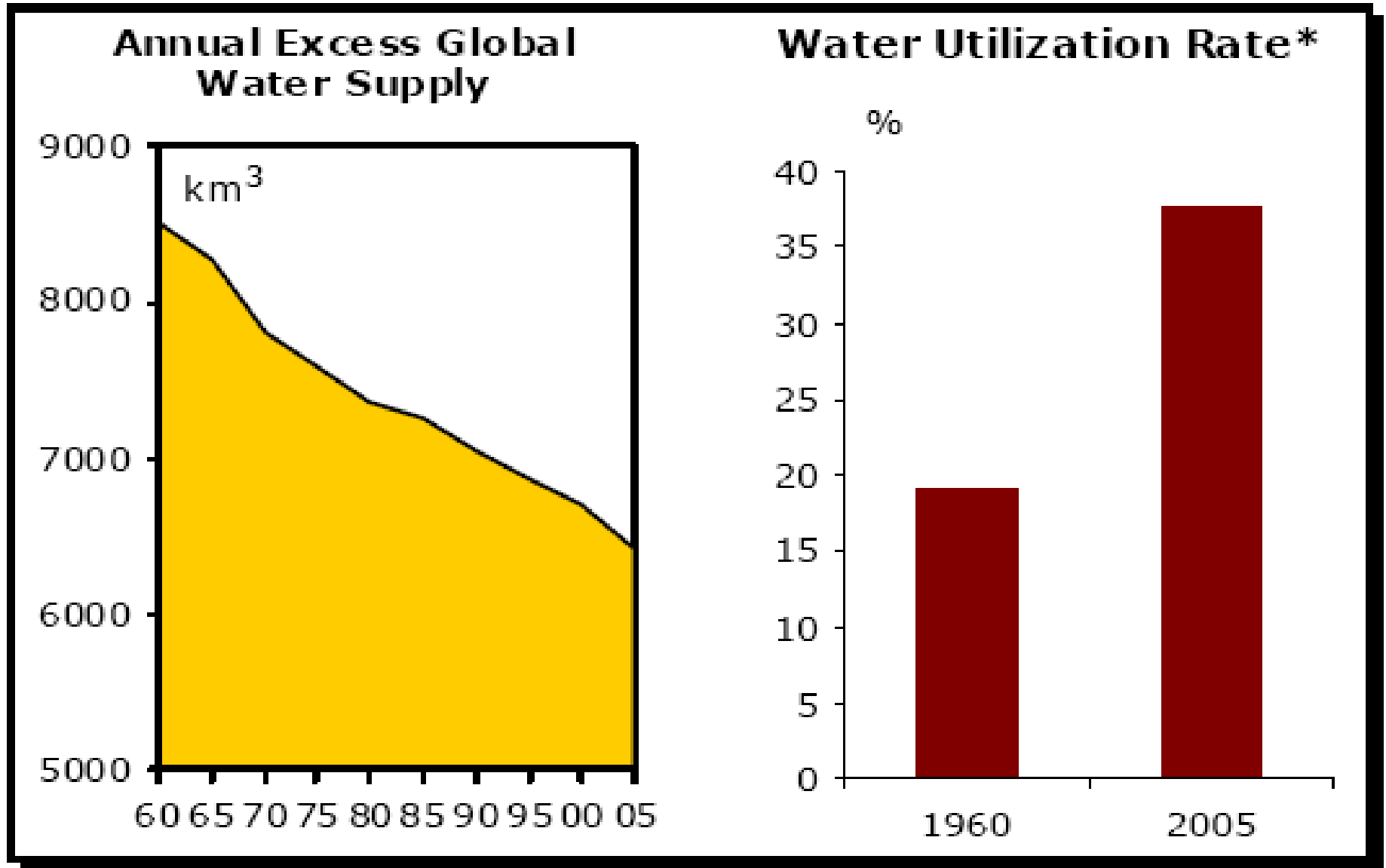
- **California avg** **40**
- **California high** **60**
- **India** **10**
- **S. India high** **38**

# Global Water Consumption 1900 - 2025

(by region, in billion m<sup>3</sup> per year)

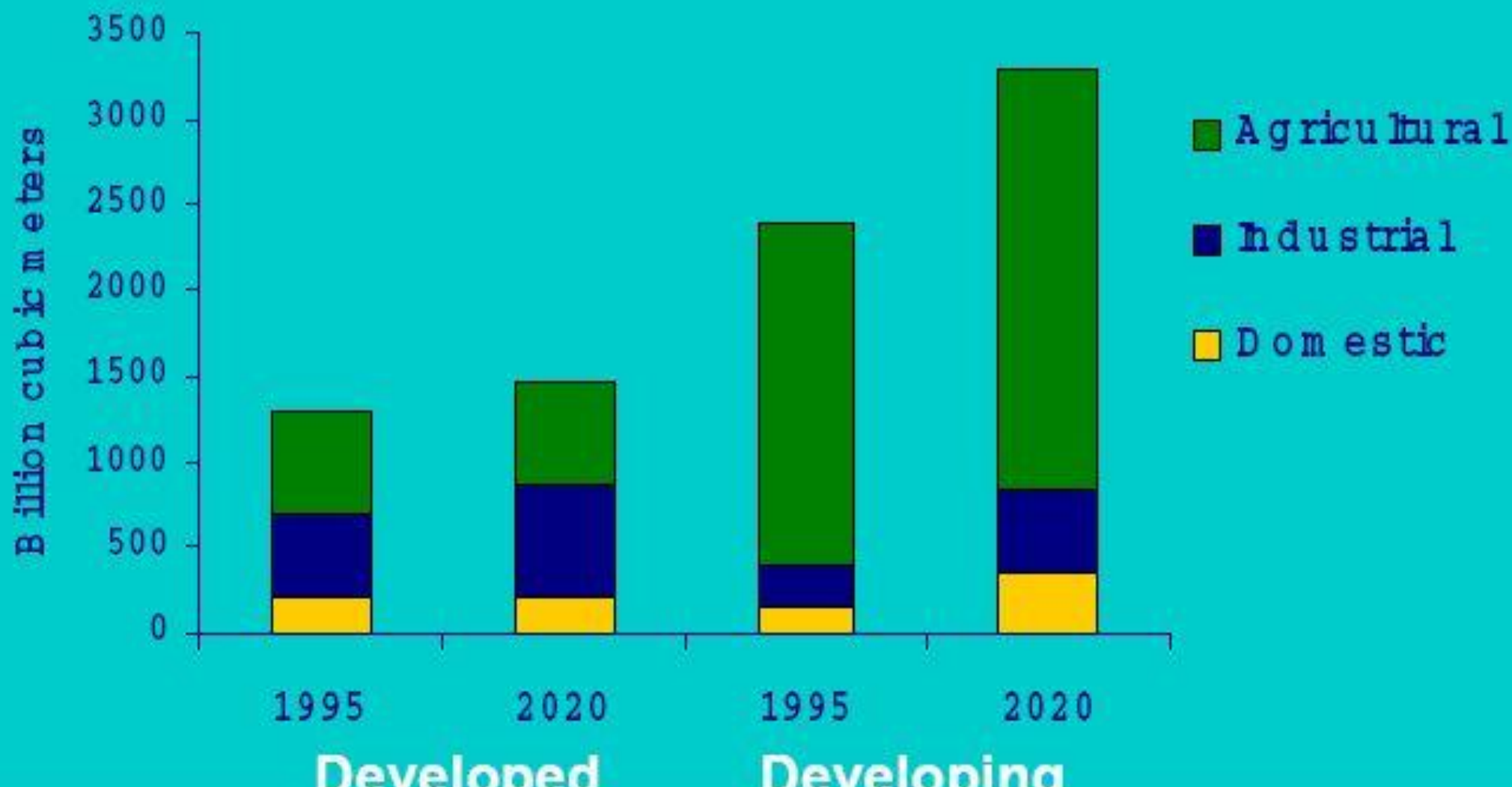


# Falling Excess Water Supply



*\*Actual Withdrawal as a % of Total Renewable Water Supply  
Source: FAO CIRCWMM*

# Growing Demand for Water







# Scope for Water Conservation

- 80% of water in India is consumed for agriculture
- Water productivity in agriculture is extremely low
- California farmer produces 35 x more cotton/liter of H<sub>2</sub>O
- Furrow irrigation reduces water consumption 50-70%
- Deep chiseling can 2x yields & half water usage
- RWH can replenish 10 yrs consumption in one year
- Normally takes 1000 liters of water per kg of vegetables, but Dutch have done it with 1.4 liters.

# Tomato with furrows in TN



Improved technology consumed 1/3<sup>rd</sup> of the water  
Achieved 3.2 x higher yield (38 tons)  
10-fold increase in water productivity

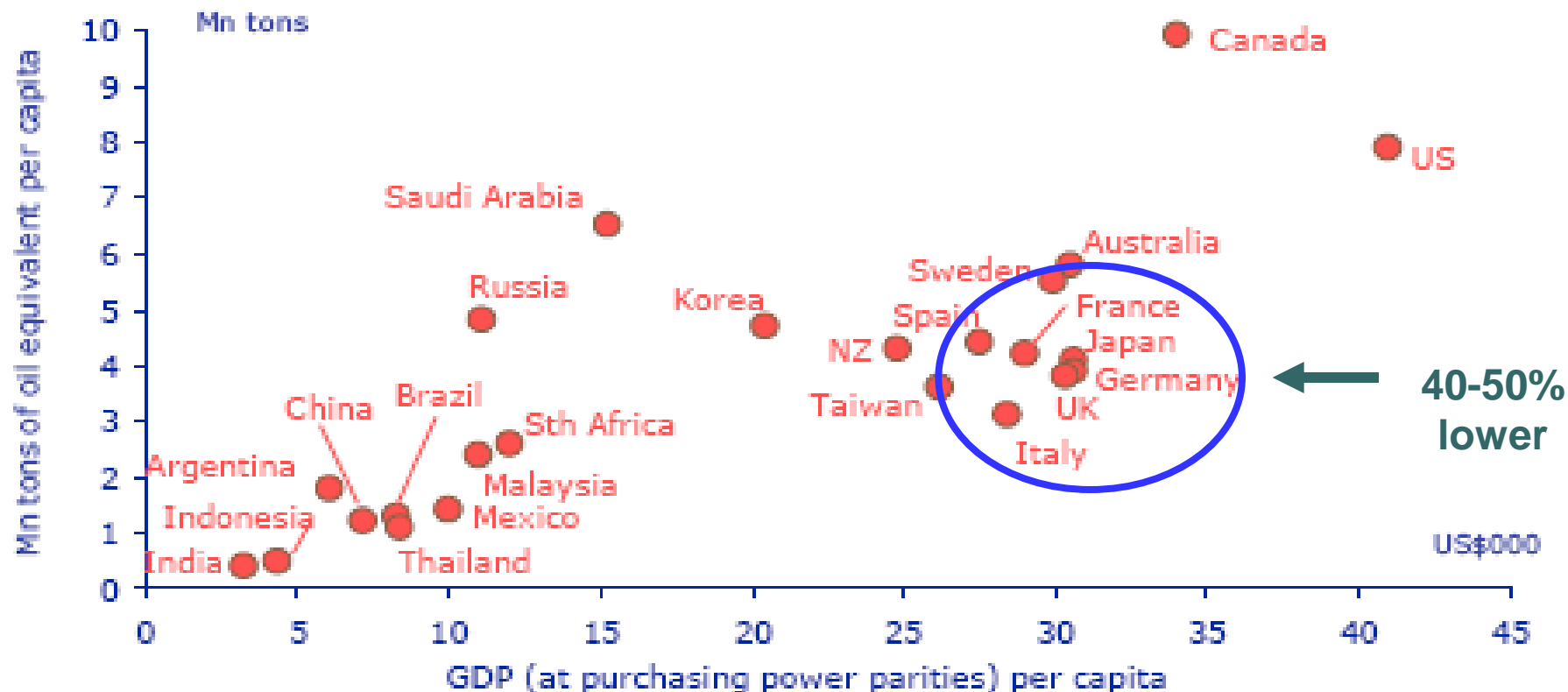


# Coal Problem

- **William Stanley Jevons 1835-82**
- **In 1865 UK led the world in GDP and per capita income & produced 60% of the world's coal output.**
- **Jevons foresaw severe coal shortages**
- **Recommended mass emigration to USA & Australia**
- **UK coal consumption is now**
  - **10% of the peak level in 1913**
  - **25% of the level in 1975**
  - **7% of total UK energy**

# Developing country energy consumption will rise faster than incomes for the next few decades

## Primary energy consumption and GDP per capita, 2005

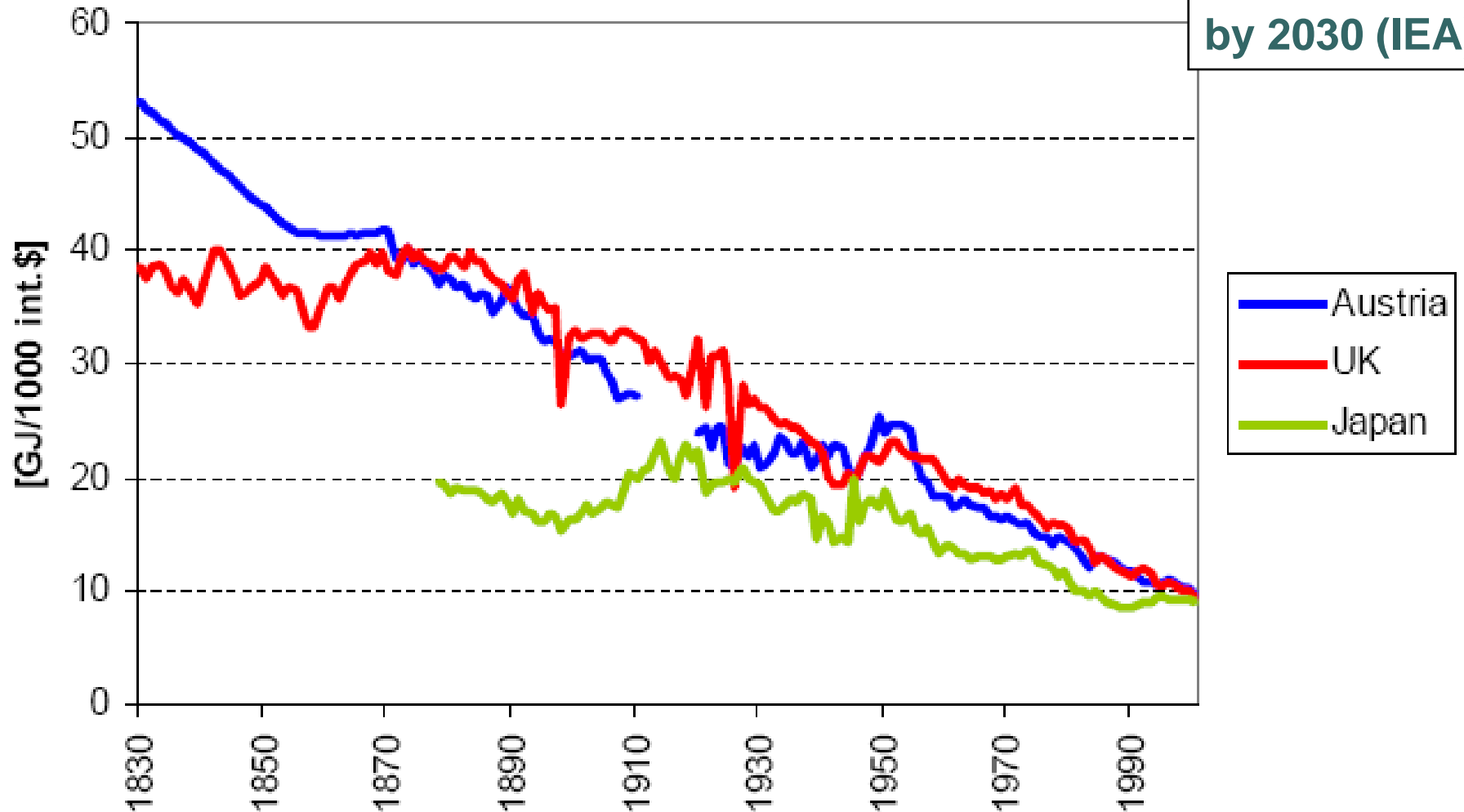


Sources: BP Statistical Review of World Energy 2005; IMF World Economic Outlook September 2006; Economics@ANZ.



# Decrease in energy intensity 1830-2000 (GJ primary energy use / \$ GDP)

Constant PPP \$



Global energy intensity to decline 50% by 2030 (IEA)

- Austria
- UK
- Japan



# McKinsey Energy Studies

- Investment in energy efficiency can half the growth in global energy demand, equivalent to \$900 billion in savings a year from 2020.



# Resources



# What is a resource?

- Resources are inputs for carrying out any activity.
- Mind discovering a use for anything creates a resource.
- Resources make other resources more productive.



# Silicon

- Sand
- Bricks
- Cement
- Glass
- Transistors
- Fiber optics
- Integrated circuits





# Physical Resources

- Land
- Water
- Minerals
- Coal
- Oil

**Non-renewable – finite, scarce**

- Solar
- Wind
- Geothermal
- Hydrogen

**Renewable – Abundant**

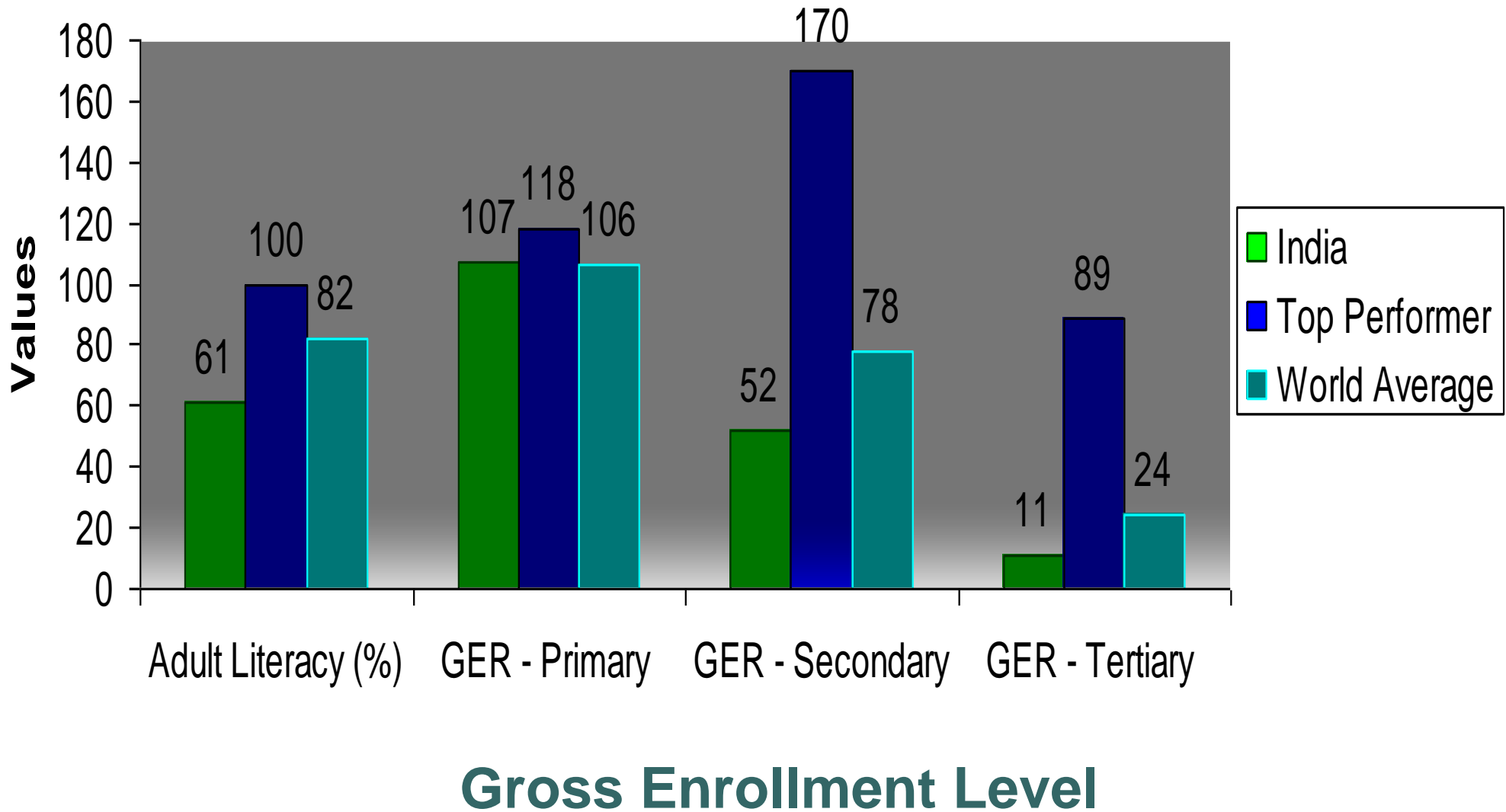


# Social or Organizational Resources

## **Organizations multiply human productivity**

- Language
- Law
- Markets
- Money
- Media
- Green Revolution
- **Education**

## Gap in Education - India Vs Higher countries - 2004







# Mental Resources

- Technology
- Information
- Knowledge
- Creativity

*“Unlike material resources, information & knowledge are not lost when you give them away.”* Harlan Cleveland



# Internet as Mental Organization

- Internet multiplies human capabilities & extends social organization 1000-fold
  - Global social networking
  - Global access to information
  - Global free communication
  - Global transactions
- The potential impact on productivity of resources & quality of life is incalculable



# Psychological Resources

- Rising expectations
- Skills & capacities
- Culture
- Values
- Trust



# Theory of Resources

- Vast potential to increase resource productivity & decrease resource consumption (waste)
- Non-physical resources enhance productivity of physical resources
- Non-material resources become increasingly important at higher levels of development
- Non-material resources are essentially unlimited in potential
- Human beings are the only real resource

● ● ● | Does the requirement of the sustainable world imply limit to growth and development?

- Creative capacity of human beings implies a possibility of a continuous increase of human capital and social capital and of increasing freedom and number of options.
- The greatest obstacles are individual and social inner limits - psychological, cultural and political. “The most valuable assets humankind can count on..to stop the decline and to prepare for the future are to be found in the still untapped resources of comprehension, vision and creativity..inherent in every human being.”

A. Peccei, Agenda for the End of the Century



# Why do humans create problems?

- We learn by trial & error – “evolving from unconsciousness & ignorance to knowledge”
- Our approach to knowledge is fragmented & compartmentalized, focused on the part, not the whole
- We know more about the world around us, than about ourselves. We are unconscious of the process of how we learn, change and develop
- Our motive for learning is largely personal & self-interested, rather than objective and rational
- We are ourselves products of nature’s evolution which is subconscious. Can we become conscious of the process of social evolution by which we change?



# New Paradigm

“We need a totally new paradigm for solving problems through knowledge without creating other problems in the process.”

Pushpa Bhargava



# Conclusions

- Development challenges & threats come to make us more conscious
- Humanity evolves by becoming more conscious & developing more effective social organization
- The increasing rates of development are due to a progressive evolution of mental consciousness
- The threat of climate change compels us to accelerate that evolution of consciousness & to evolve effective social organization at the global level





# Need for a theory of social evolution

“Thinking on development is the greatest intellectual challenge of the coming years.”

**Boutros Boutros Ghali**