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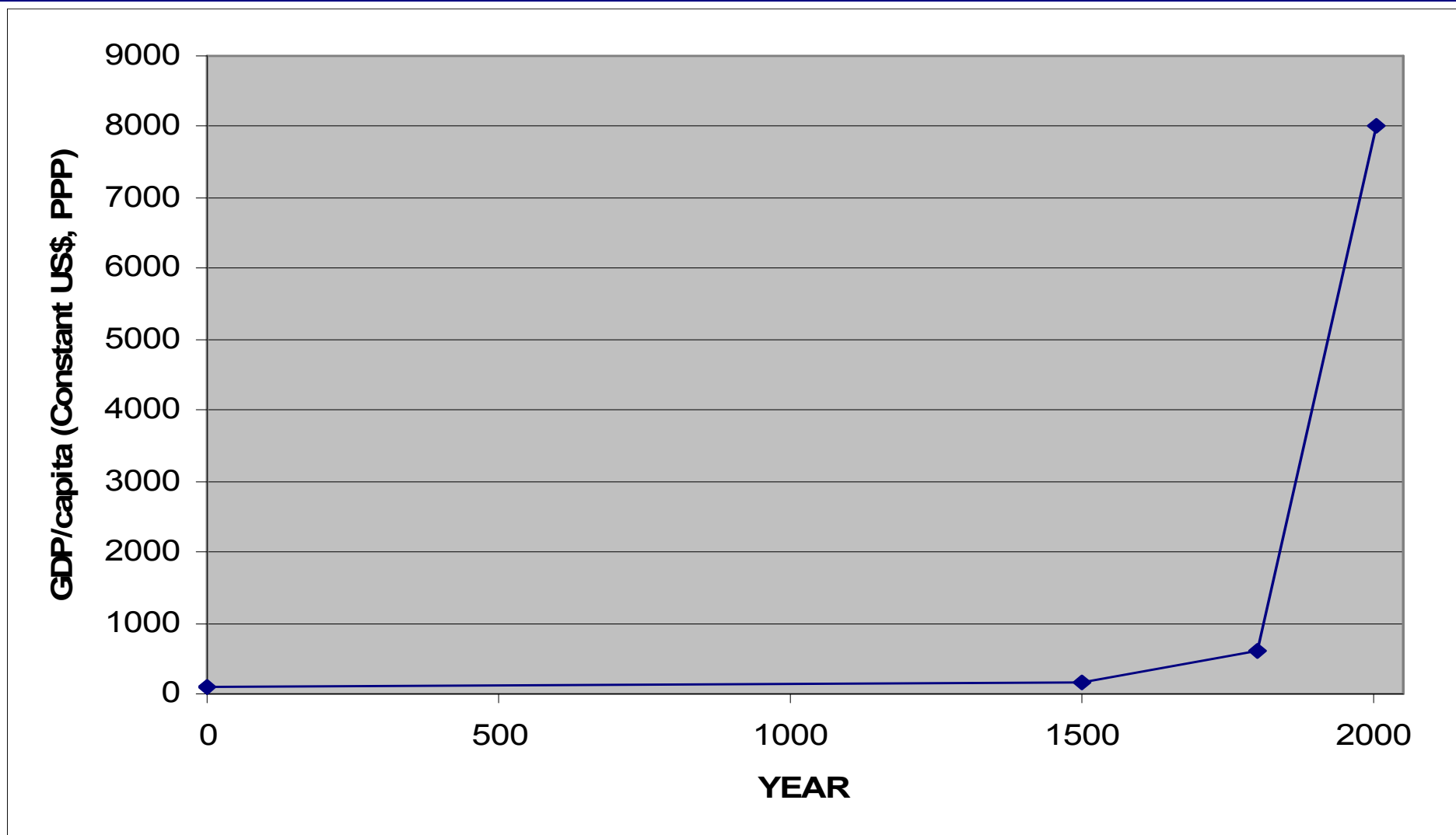
# Wealth, Health and the Environment

*Julian Morris*

Director, International Policy Network

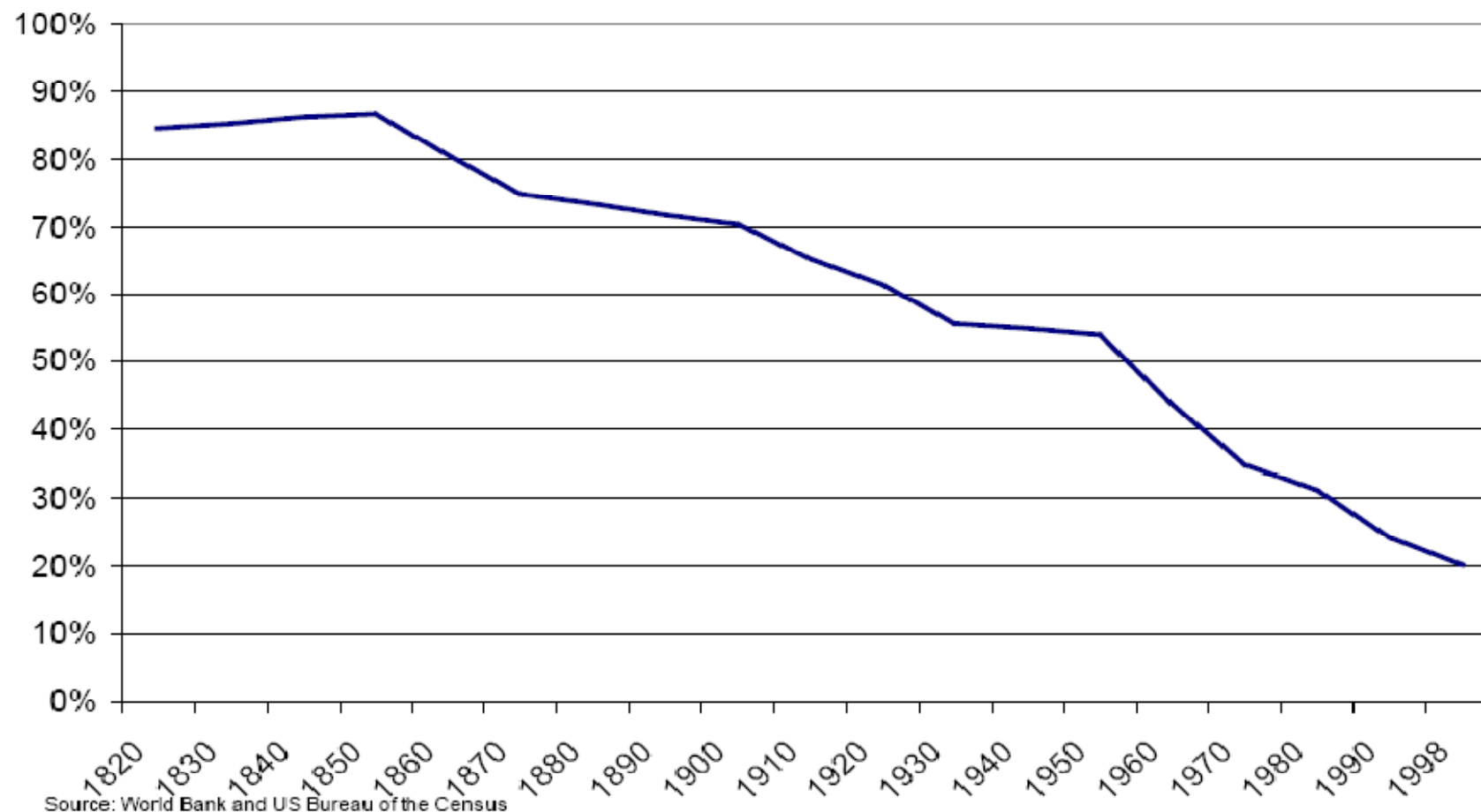
Visiting Professor, University of Buckingham

# Economic Growth

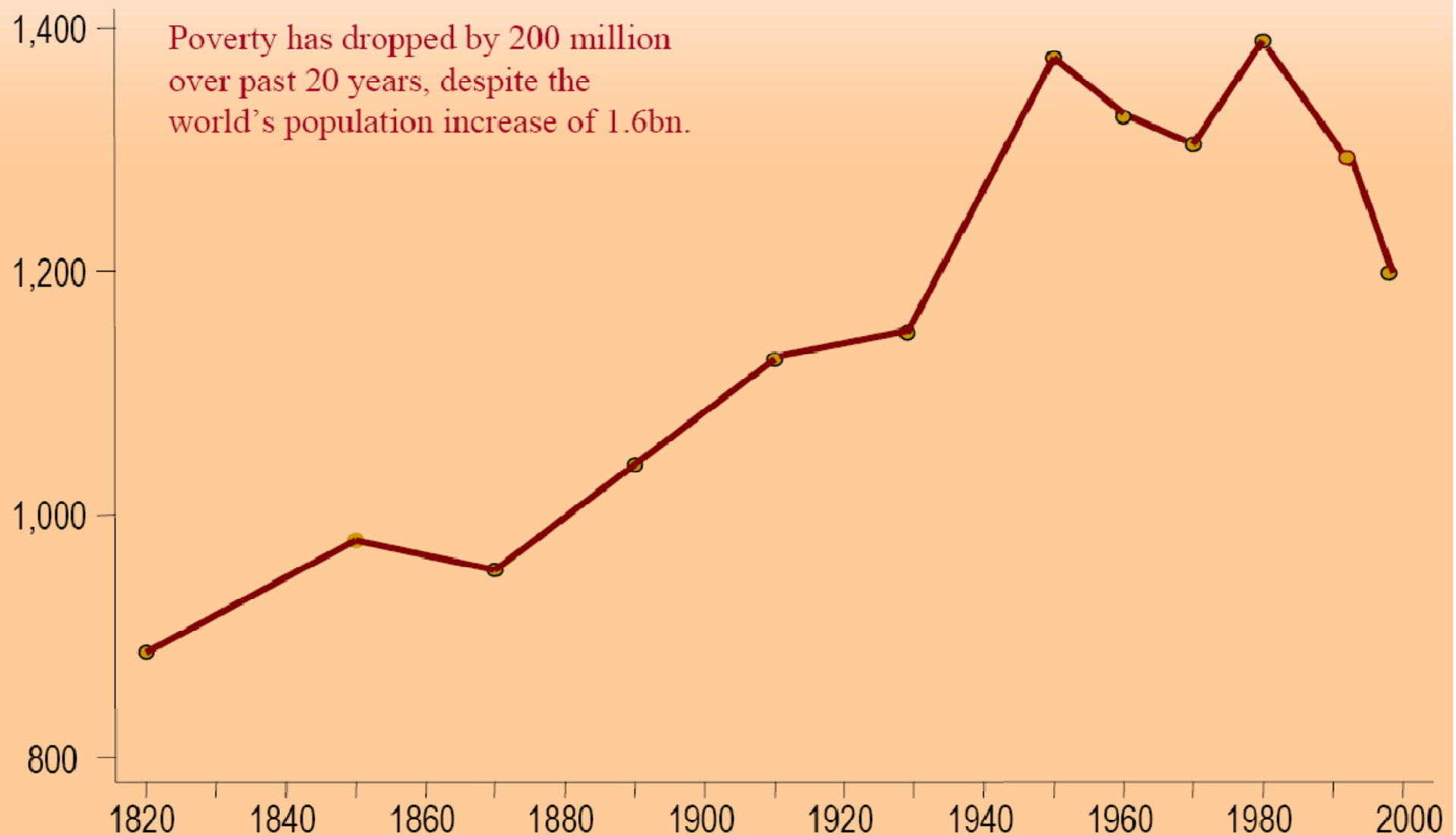


# Proportion of Poor Falling Continuously

PROPORTION OF PEOPLE LIVING ON A DOLLAR A DAY IN WORLD POPULATION, 1820-1998

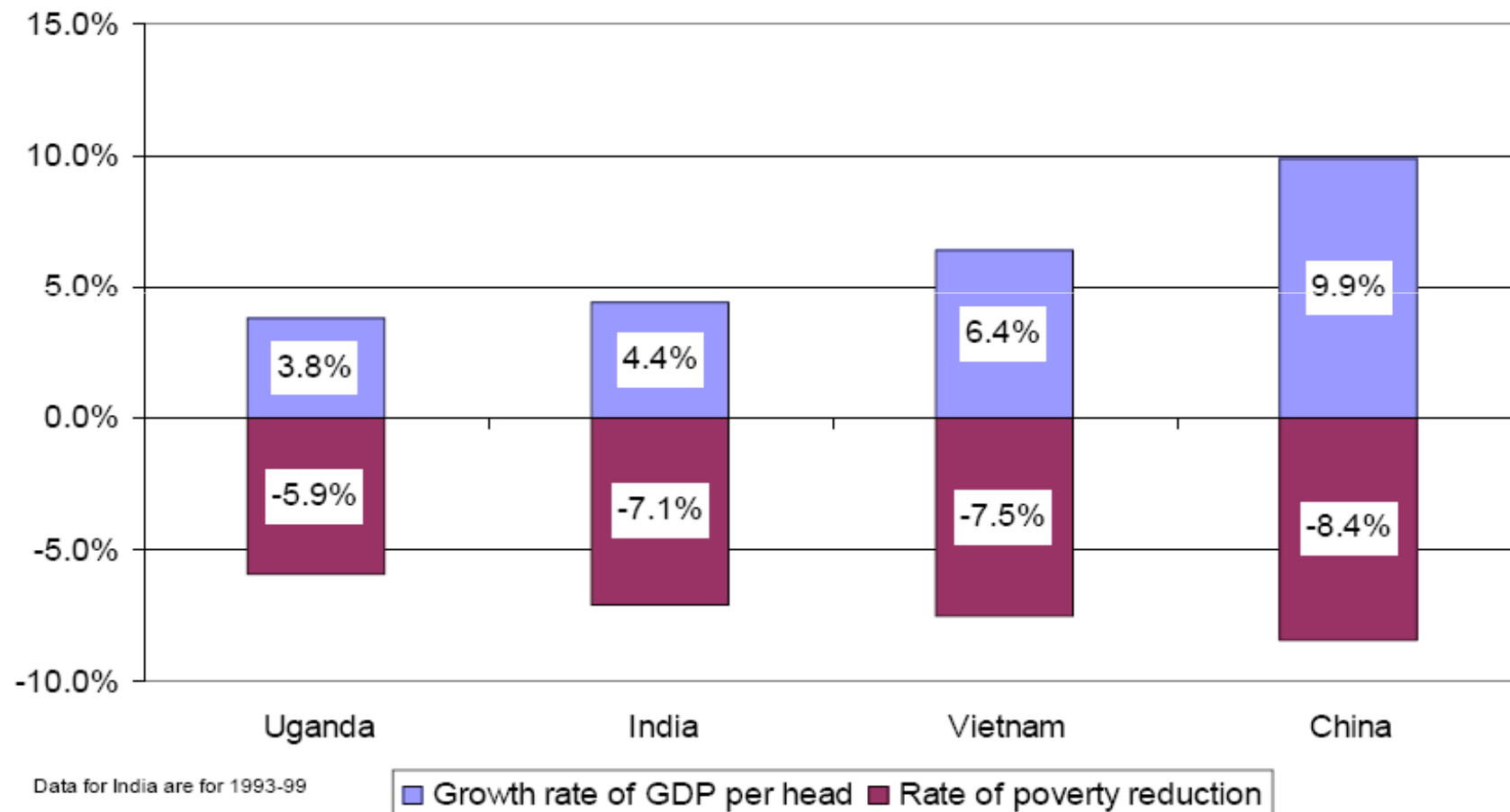


# Absolute Poverty Rose but is Now Falling

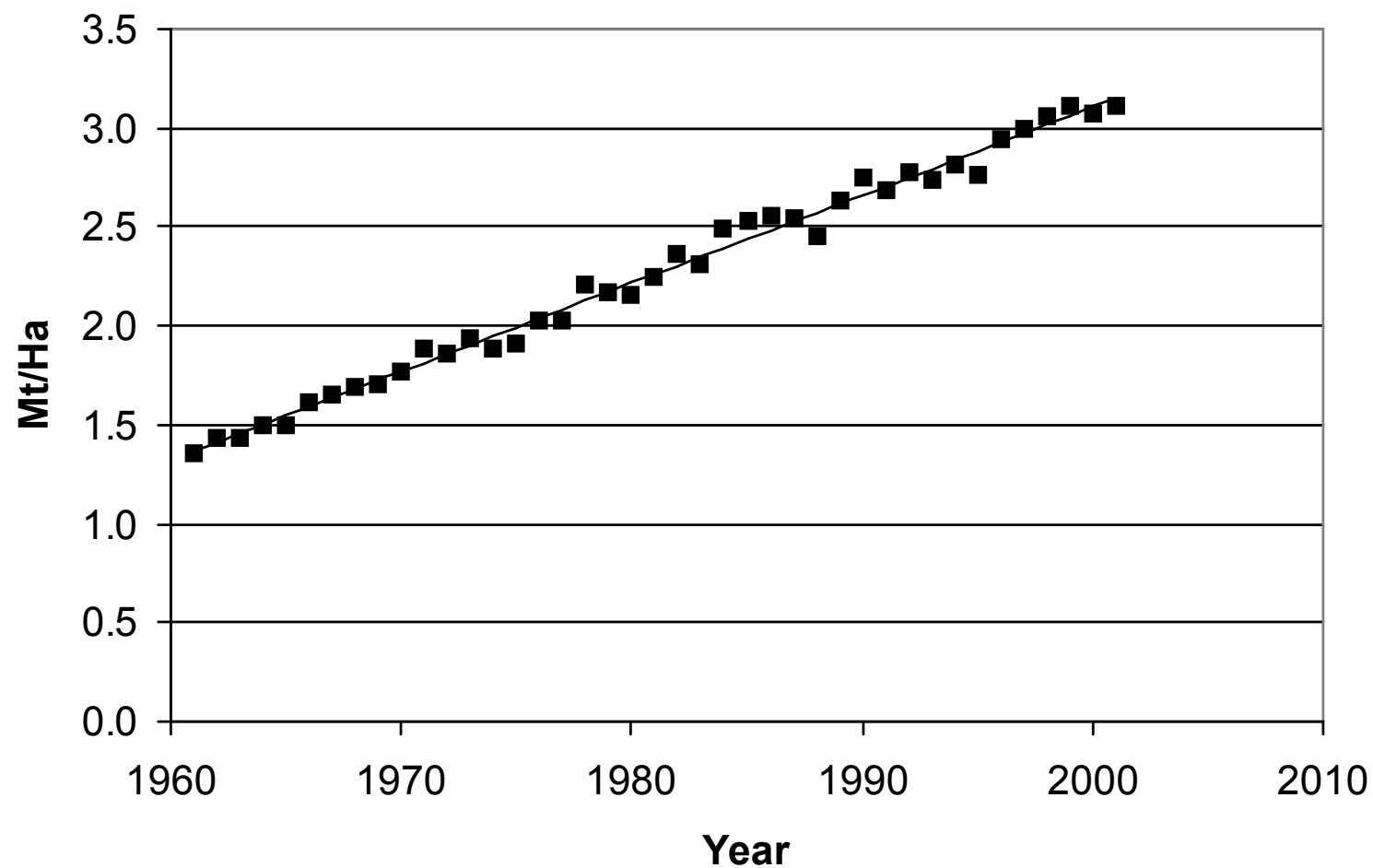


# More Rapid Growth = > Greater Poverty Reduction

**GDP GROWTH AND POVERTY REDUCTION**  
(1992-98, per cent a year)

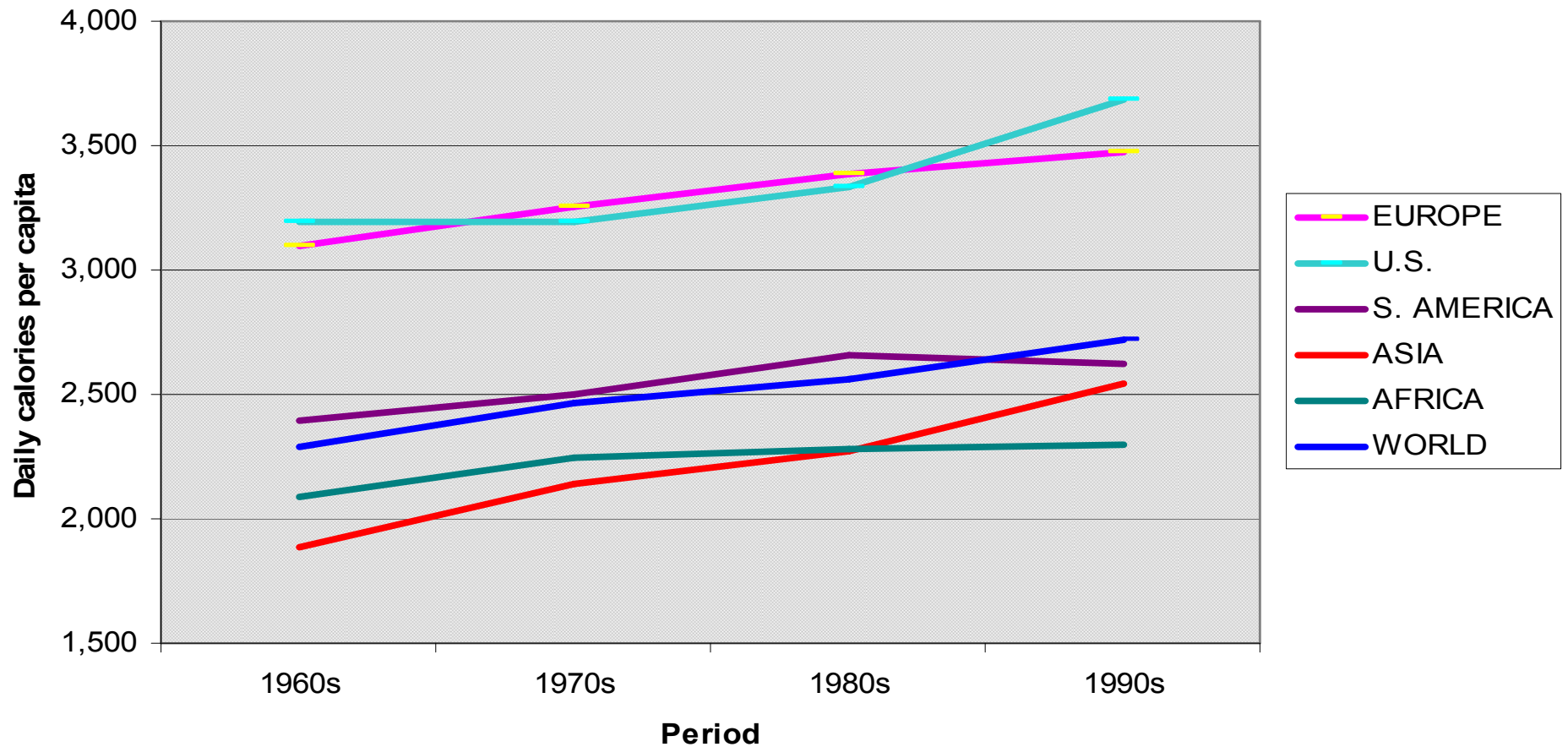


# Improvements in Cereal Yields ...



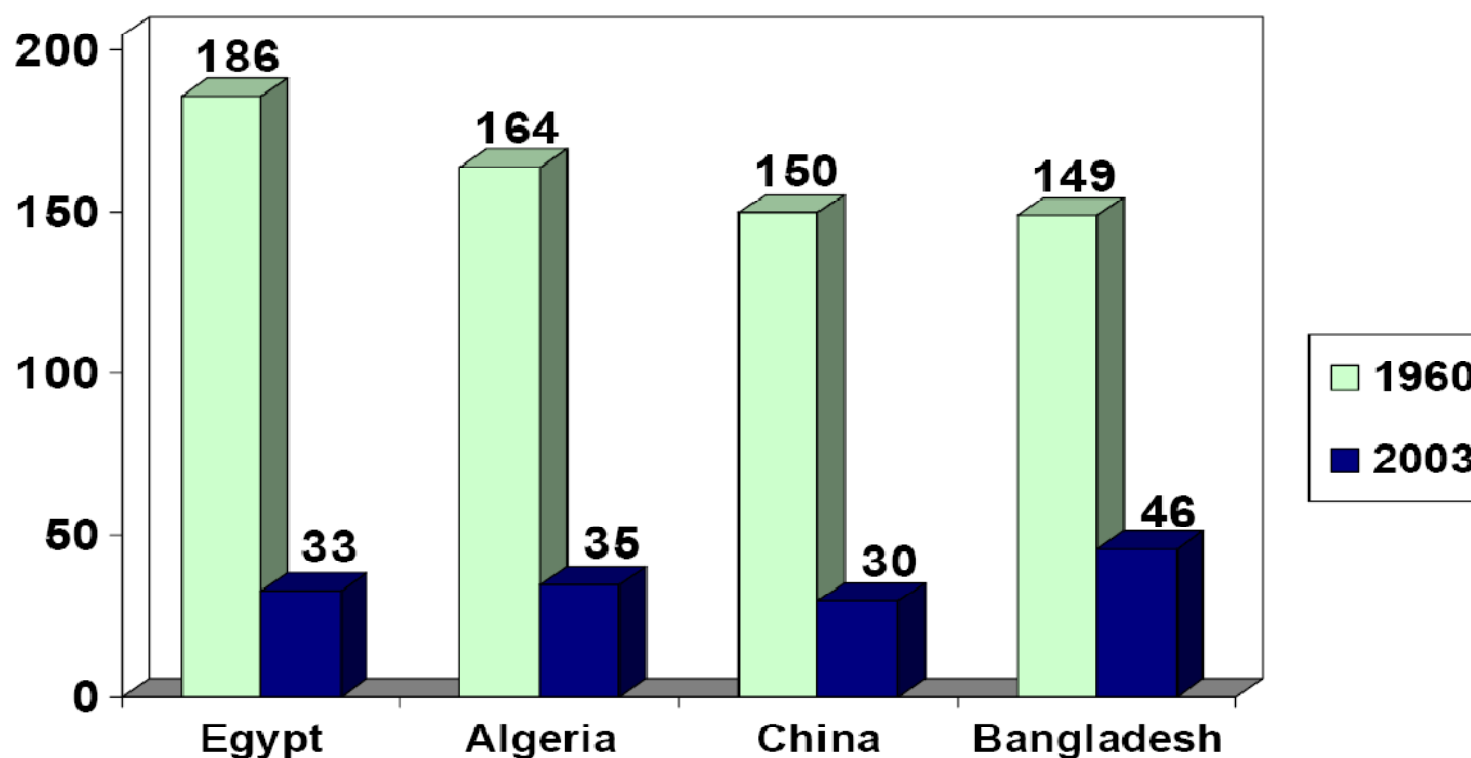
# ... Lead to Better Nutrition

Daily Calorific Intake by Region 1960 - 2000



# Technology, Trade and Health

**Infant Mortality**  
(deaths per 1,000 live births)

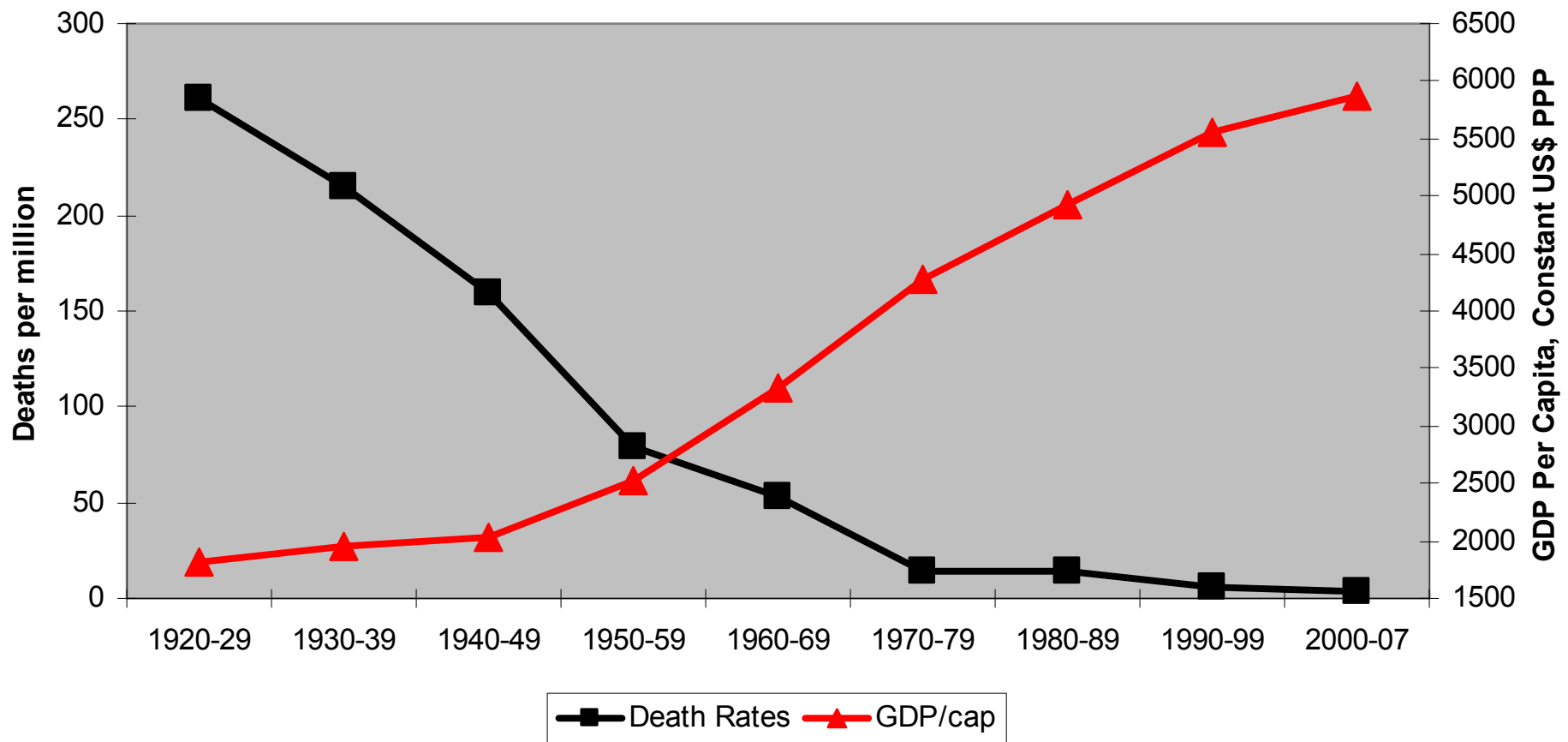


Source: World Bank World Development Indicators



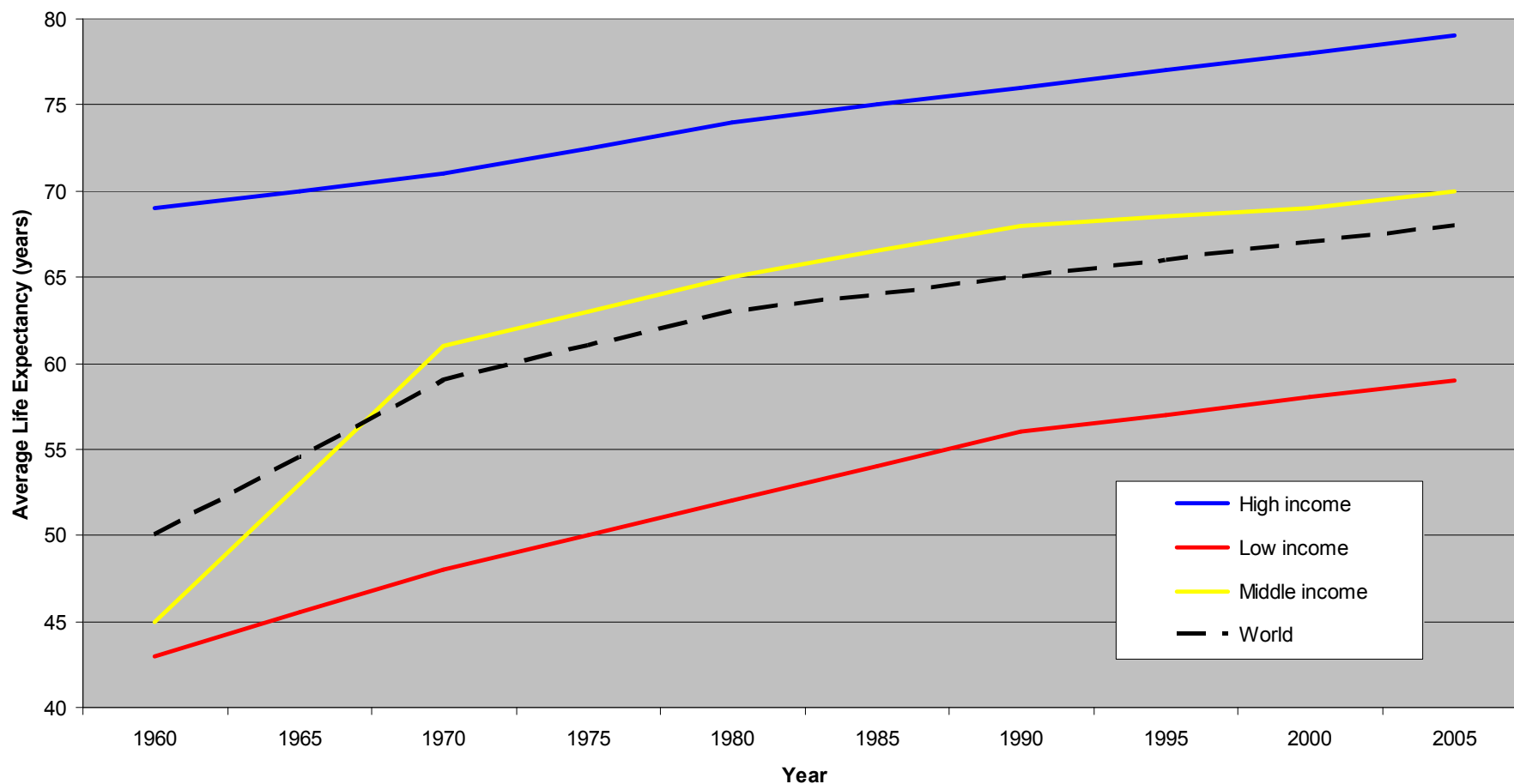
# As GDP Rises, Deaths from Natural Disasters Fall

Death Rates from Extreme Weather Events and GDP per capita, 1920 - 2007

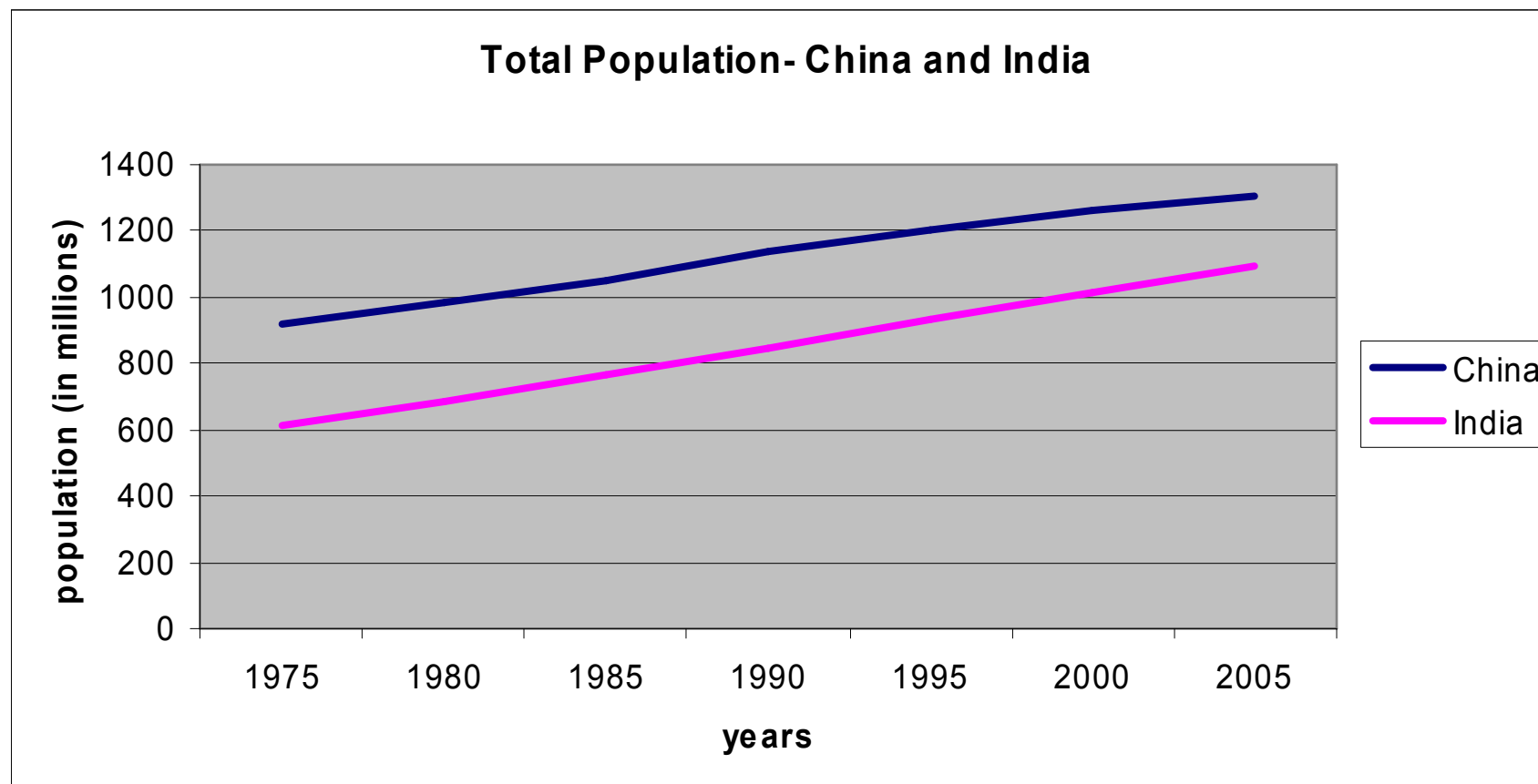


# => Rising Life Expectancy

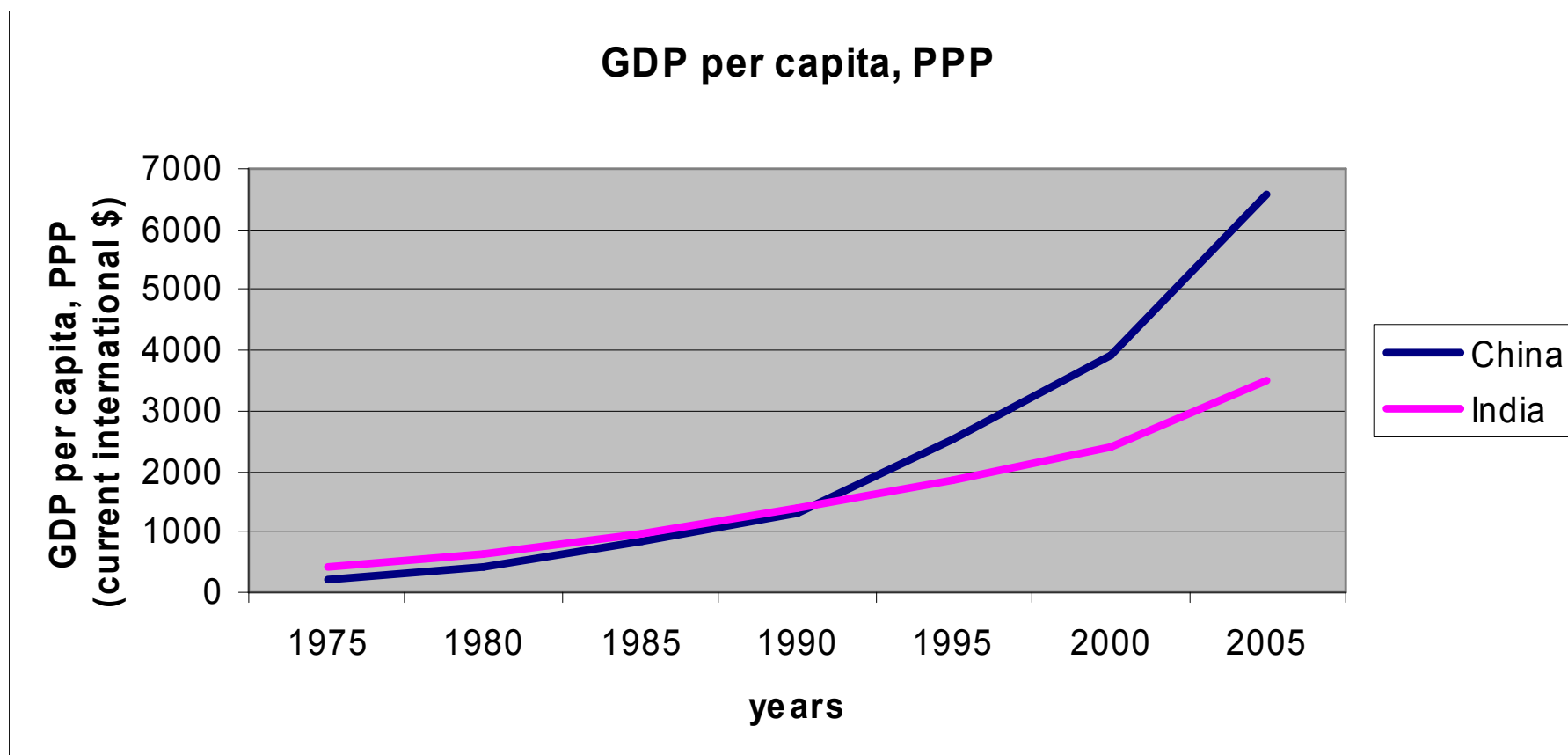
life Expectancy at Birth 1960 - 2005



# India and China: Demographic Change

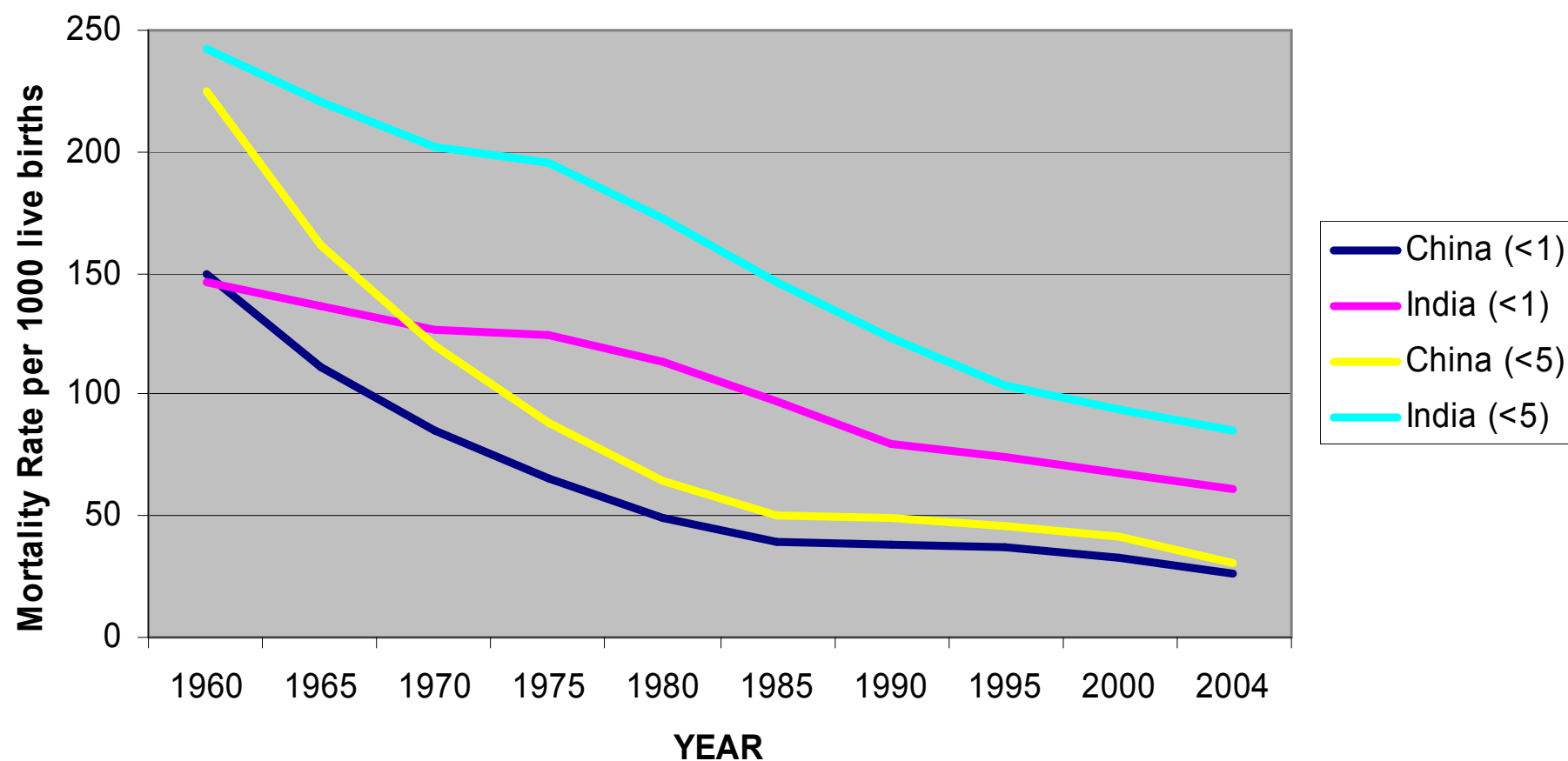


# Economic Growth



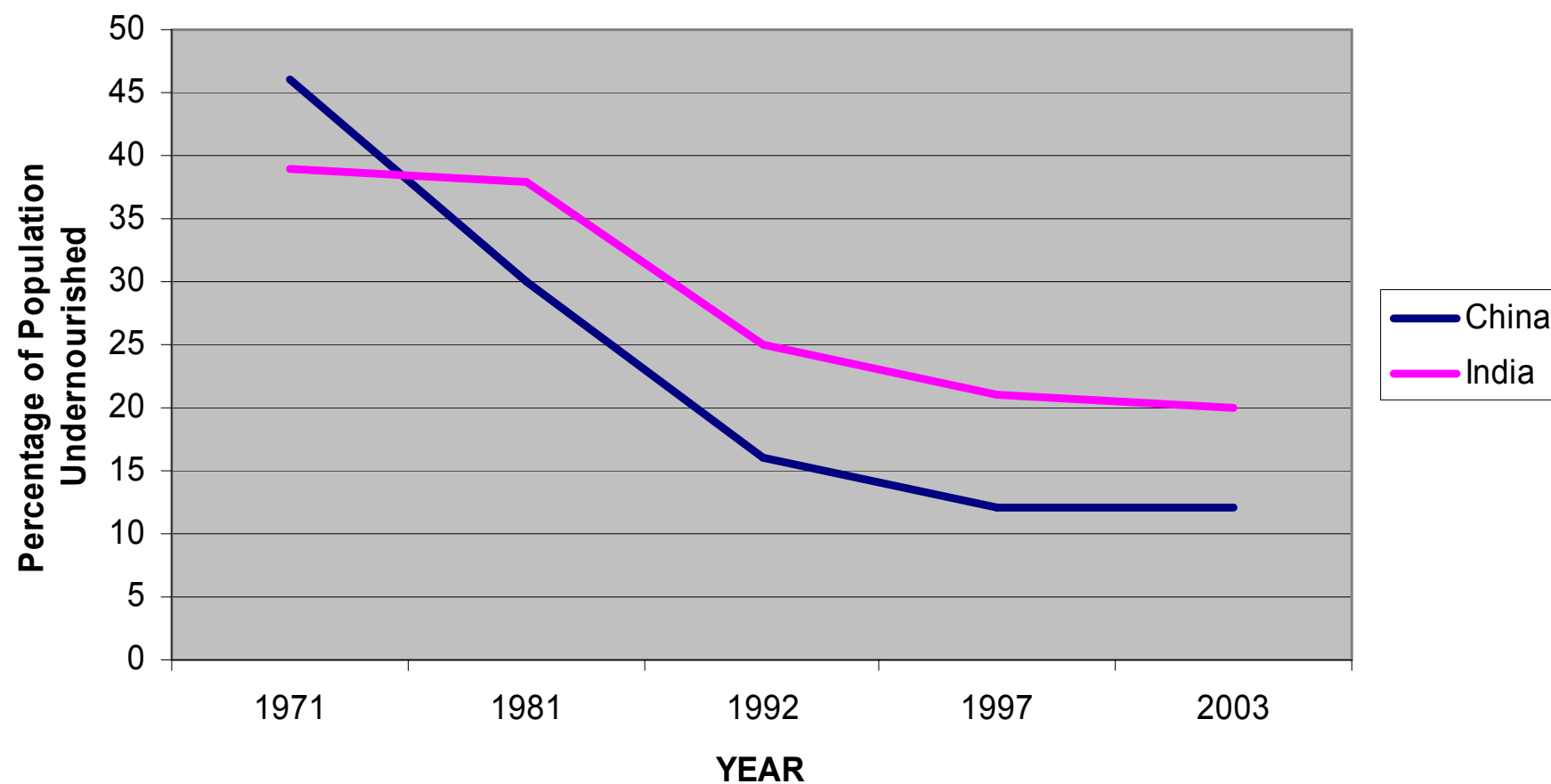
# Infant and Child Mortality

Infant and Child Mortality 1960 - 2004



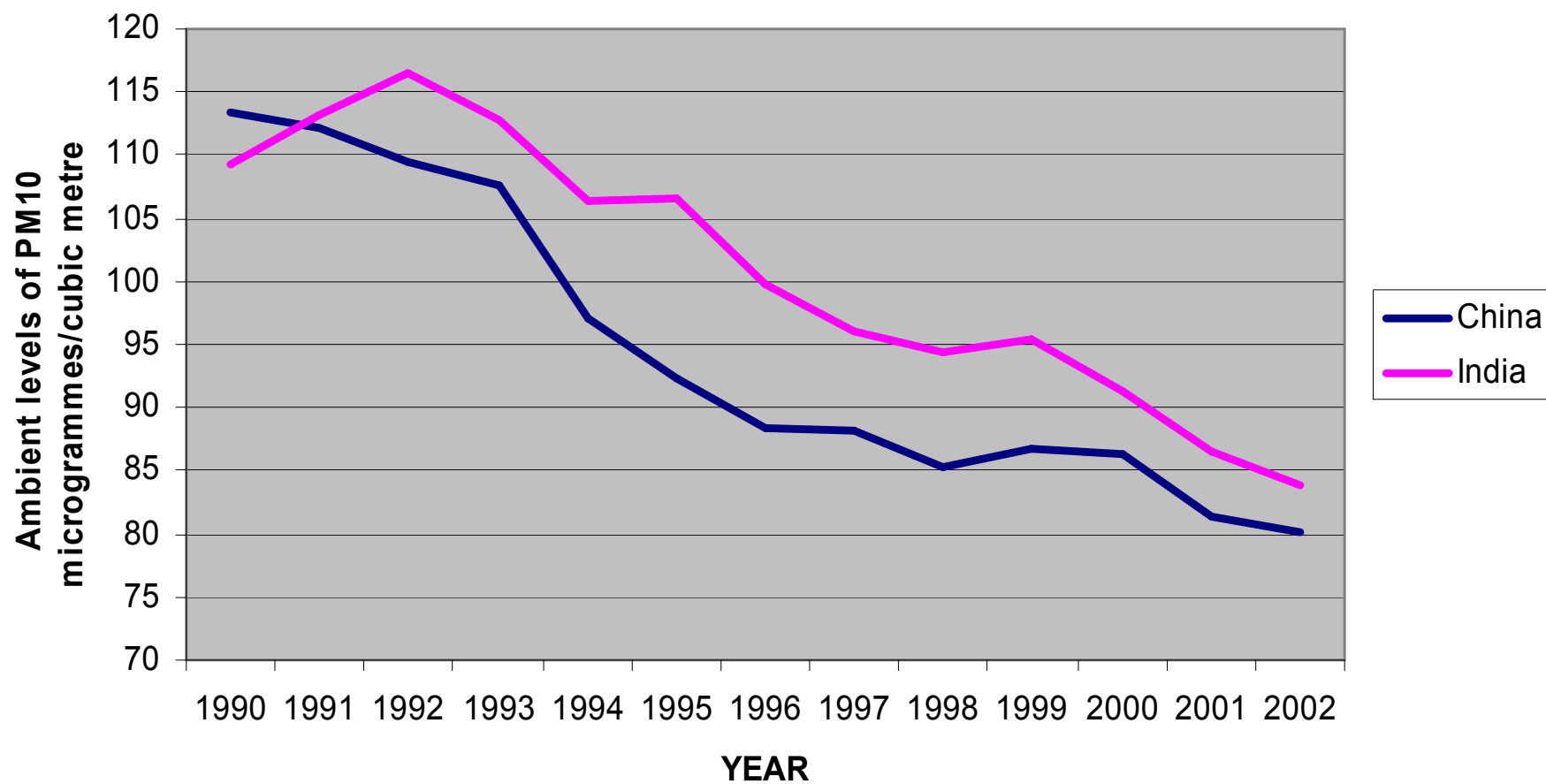
# Malnutrition

Malnutrition in China, India: 1971 - 2003



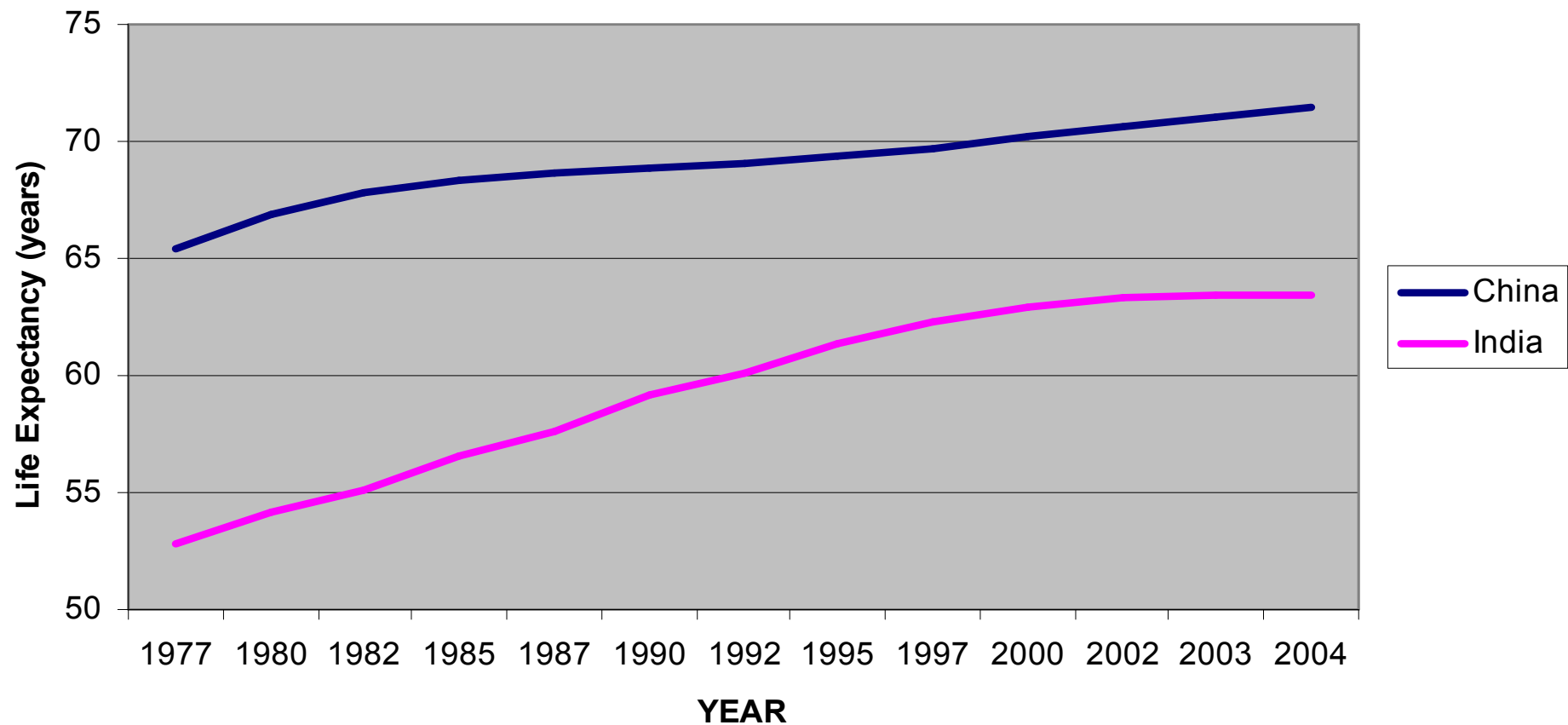
# Falling Pollution

Particulate Pollution in India, China -- 1990 - 2002



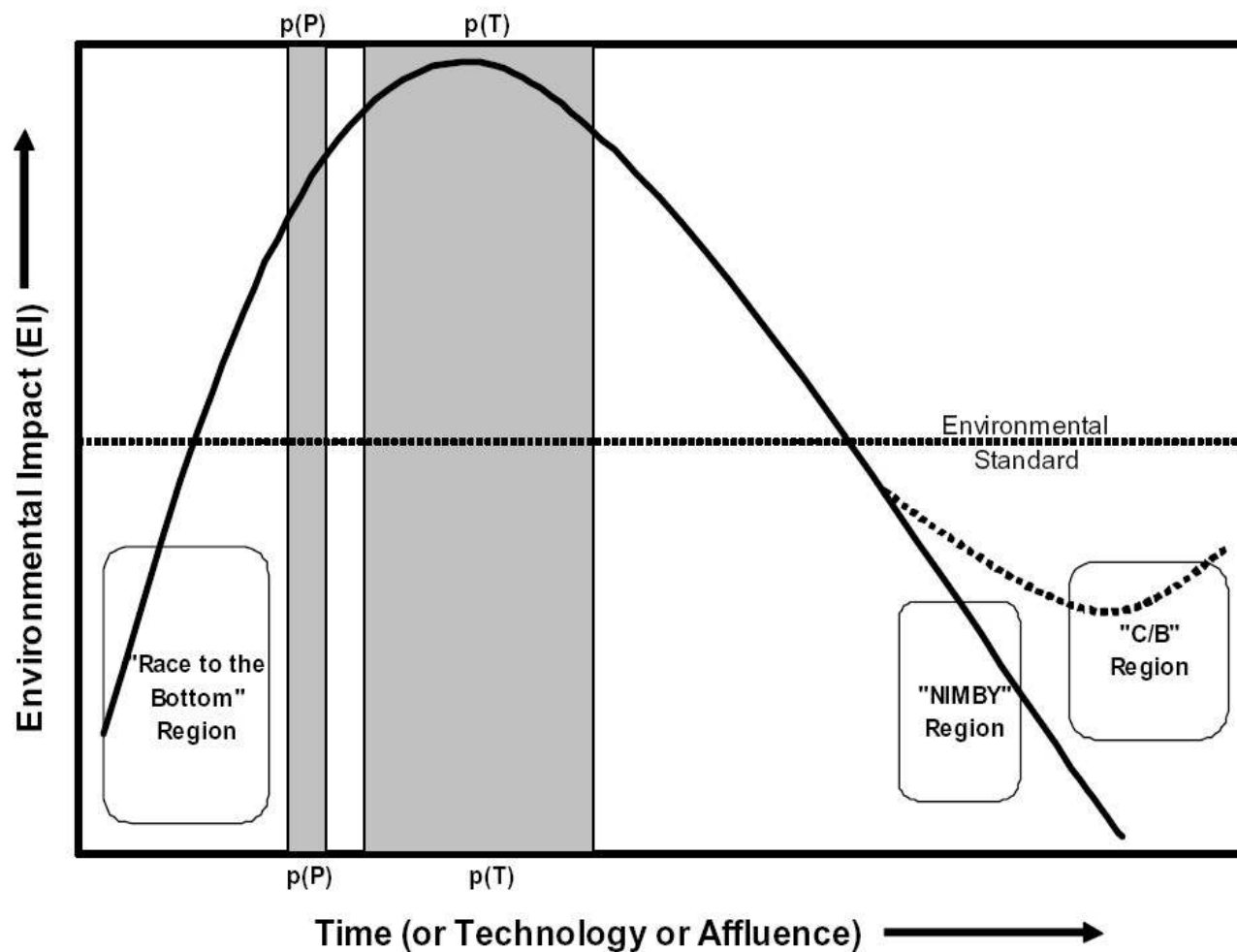
# Life Expectancy at Birth

Life Expectancy at Birth, India, China 1977 - 2004





# The Environmental Transition (ET)



# The Institutional Foundations of the ET



**Secure property**

**Insecure property**

## **Secure property:**

Low enforcement costs

Incentives to invest in improvements

Business loans securitized against property

## **Insecure property:**

High enforcement costs

Lack of incentive or ability to invest in improvements

High cost of unsecured loans

# property rights + contracts + rule of law =

⇒ enable trade ...

⇒ surpluses can be exchanged ...

⇒ competition ...

⇒ innovation ..

- Better, more efficient, cleaner products

- Higher productivity and increased output

⇒ better health outcomes

⇒ less environmental impact

- Directly

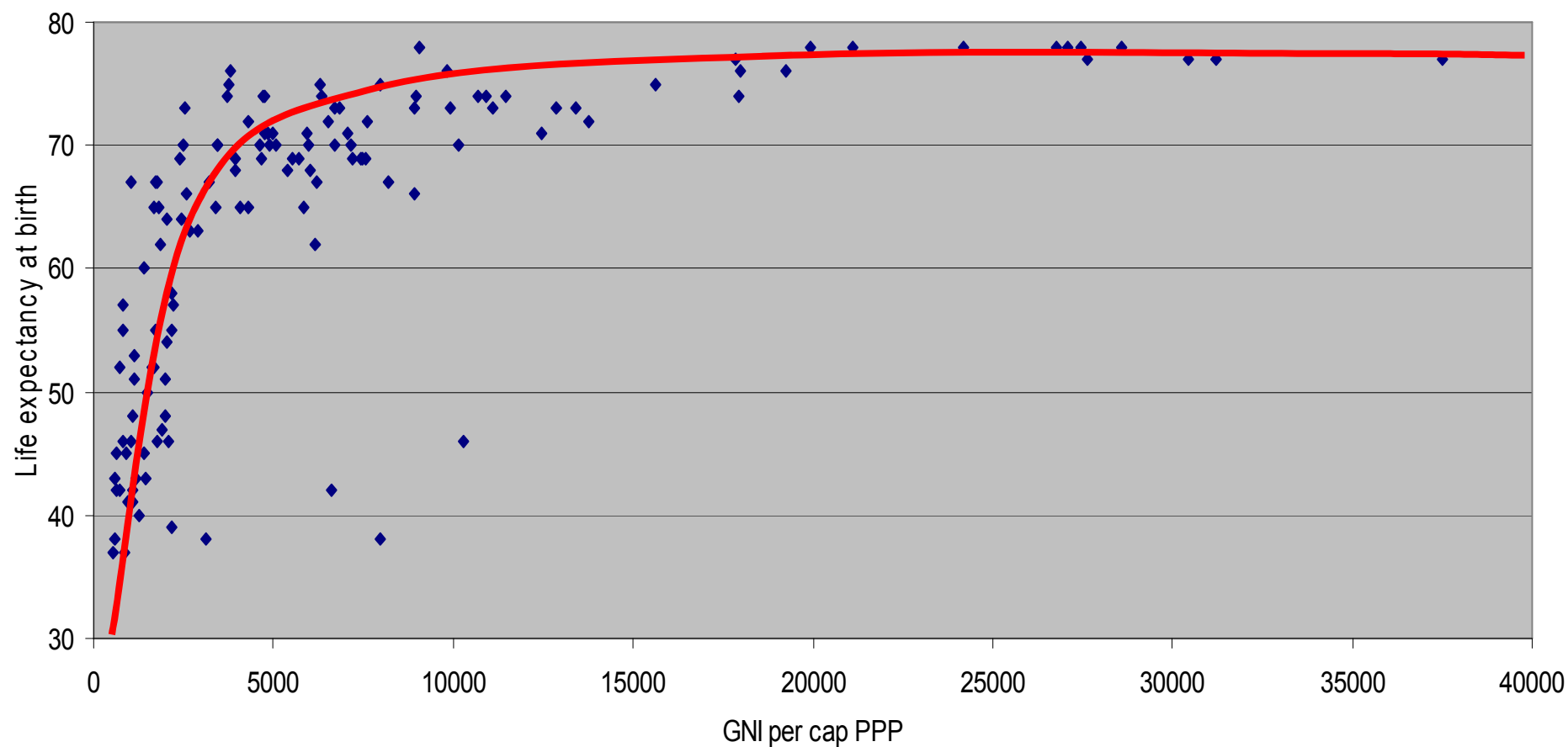
- And through demand for higher env. quality

but it's not all a

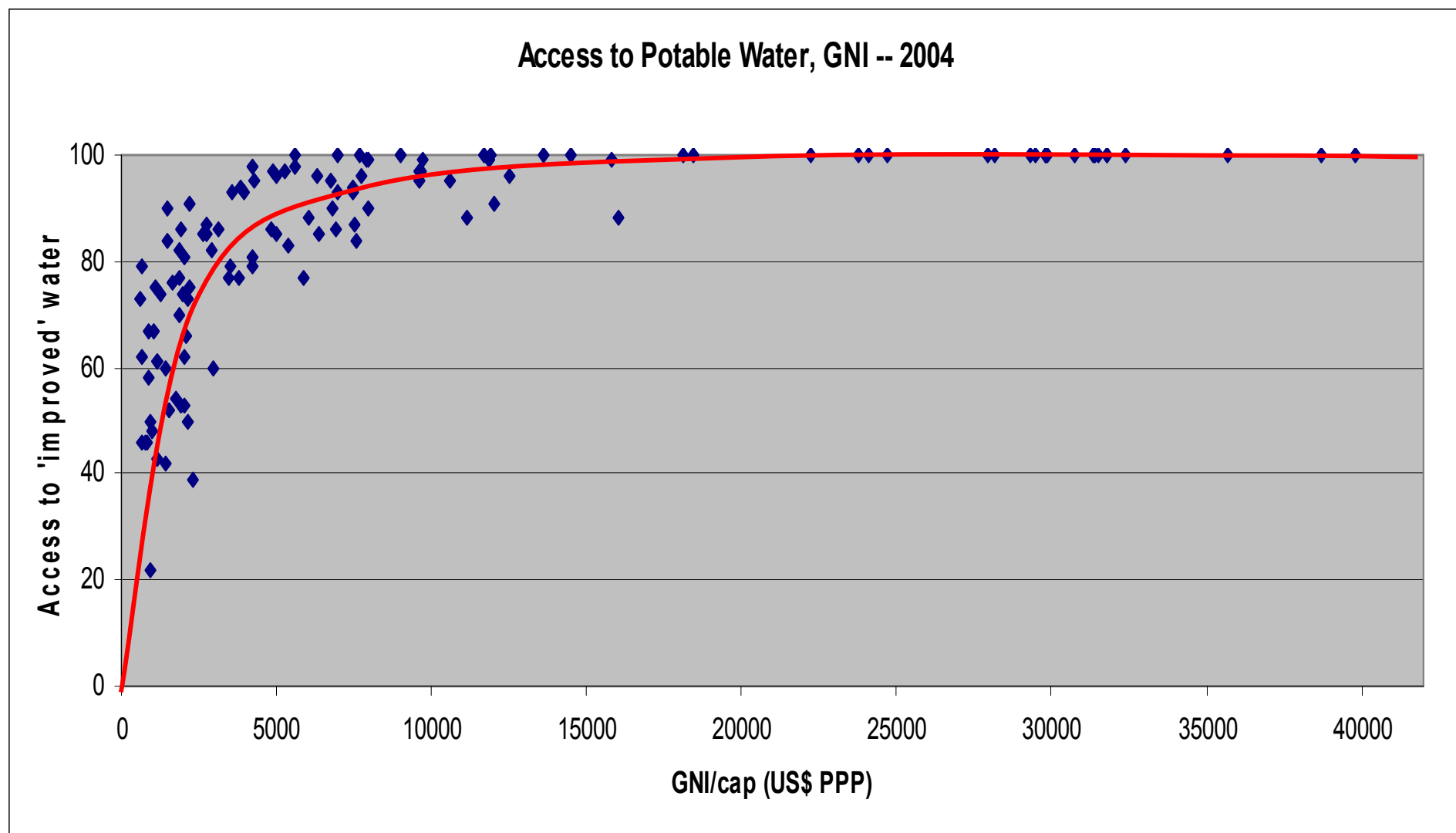


# Wealthier is Healthier

life expectancy at birth and GNI/cap (PPP) - 2003

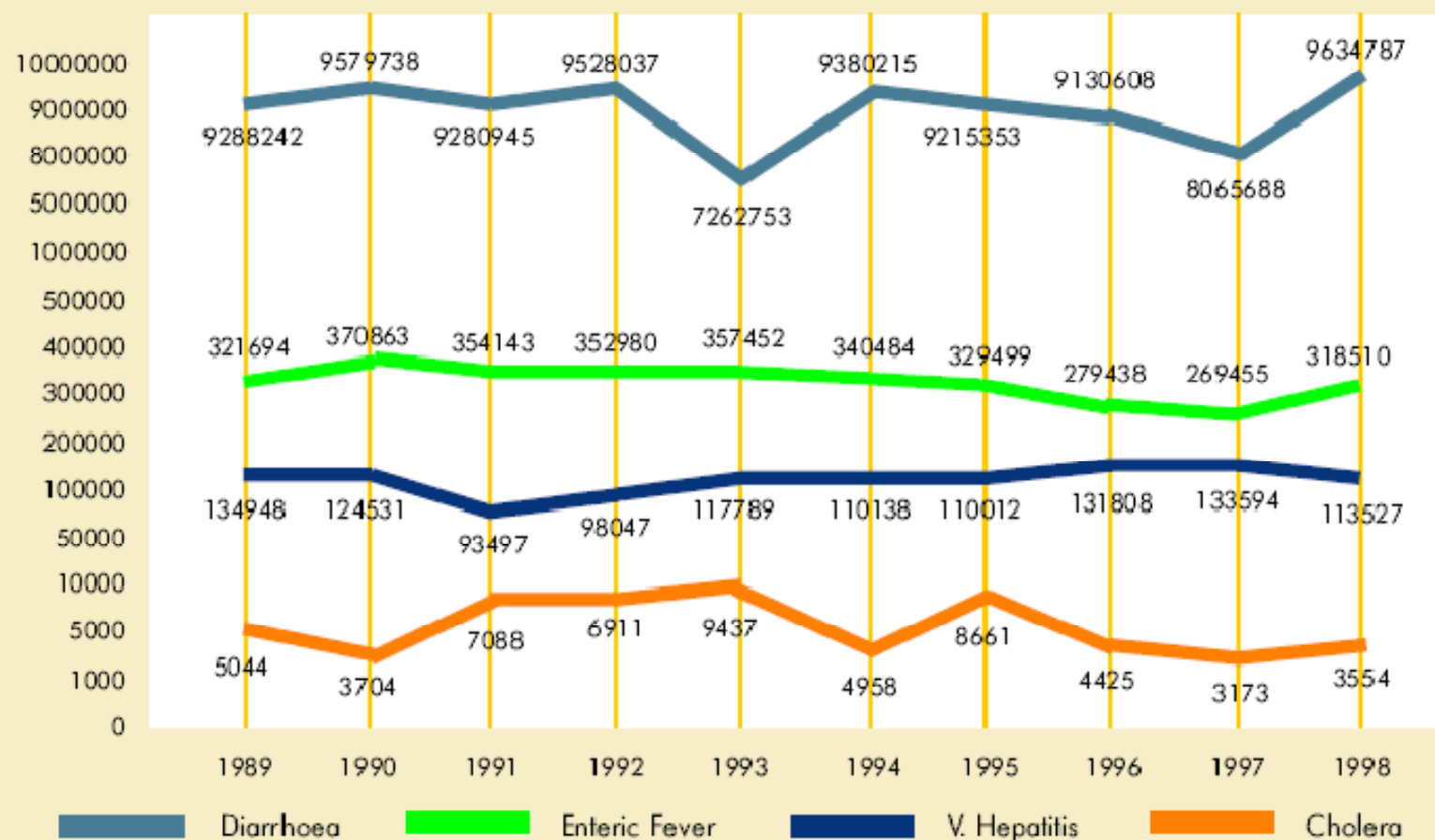


# Wealth and Access to Potable Water



# Water-borne diseases in India

FIG 6: REPORTED MORBIDITY ON SELECT WATER BORNE DISEASES



Source: Central Bureau of Health Intelligence

# Water Problems in China

- Groundwater badly depleted
- Surface water in North overused:
  - Yellow River has run dry every year since 1985
  - In 1997, it failed to reach the ocean for 226 days
- Widespread water pollution has affected the whole country:
  - 50% of rivers polluted
  - 24% so contaminated no longer usable.
- 300 million people in countryside lack safe drinking water
- Two-thirds of Chinese cities experience water shortages
- Severe water pollution has shut down urban water systems



# Solutions to Water Problems

- Private ownership of water
  - water harvesters of Gujarat
  - informal water providers in Delhi
  - Chile (increased supply to poor)
  - Argentina (improved health outcomes for poorest)
- Removal of government restrictions
  - Currently prevent development of formal markets, (enforceable contracts, widespread reputation, etc.)
- Civil liability for pollution
  - Riparian rights
  - ACA in UK

# Air Pollution – Global Disease Burden (2000)

	<b>Deaths (thousands)</b>	<b>Years of life lost per death</b>	<b>Millions of lost life years</b>
ALRI	1020	30	30.6
COPD	590	6.5	3.8
Lung Cancer	10	8.8	0.1
<b>Total Indoor</b>	<b>1620</b>	<b>21.6</b>	<b>35.0</b>
<i>Total Outdoor</i>	<i>804</i>	<i>8</i>	<i>6.4</i>

## Annual Deaths from IAP (2000)

<b>Region</b>	<b>Under 5 years (Thousands)</b>	<b>Total (Thousands)</b>
<b>India</b>	290	420
<b>China</b>	50	420
<b>World</b>	910	1,600

# Indoor Air Pollution in India

More than two thirds of the Indian population relies on “biomass” fuels.

Sources: *Indian Council of Medical Research & Census of India 2001*



# Why poor access to clean fuels in India?



Government interference:

Control of electricity supplies  
(ownership or regulation)

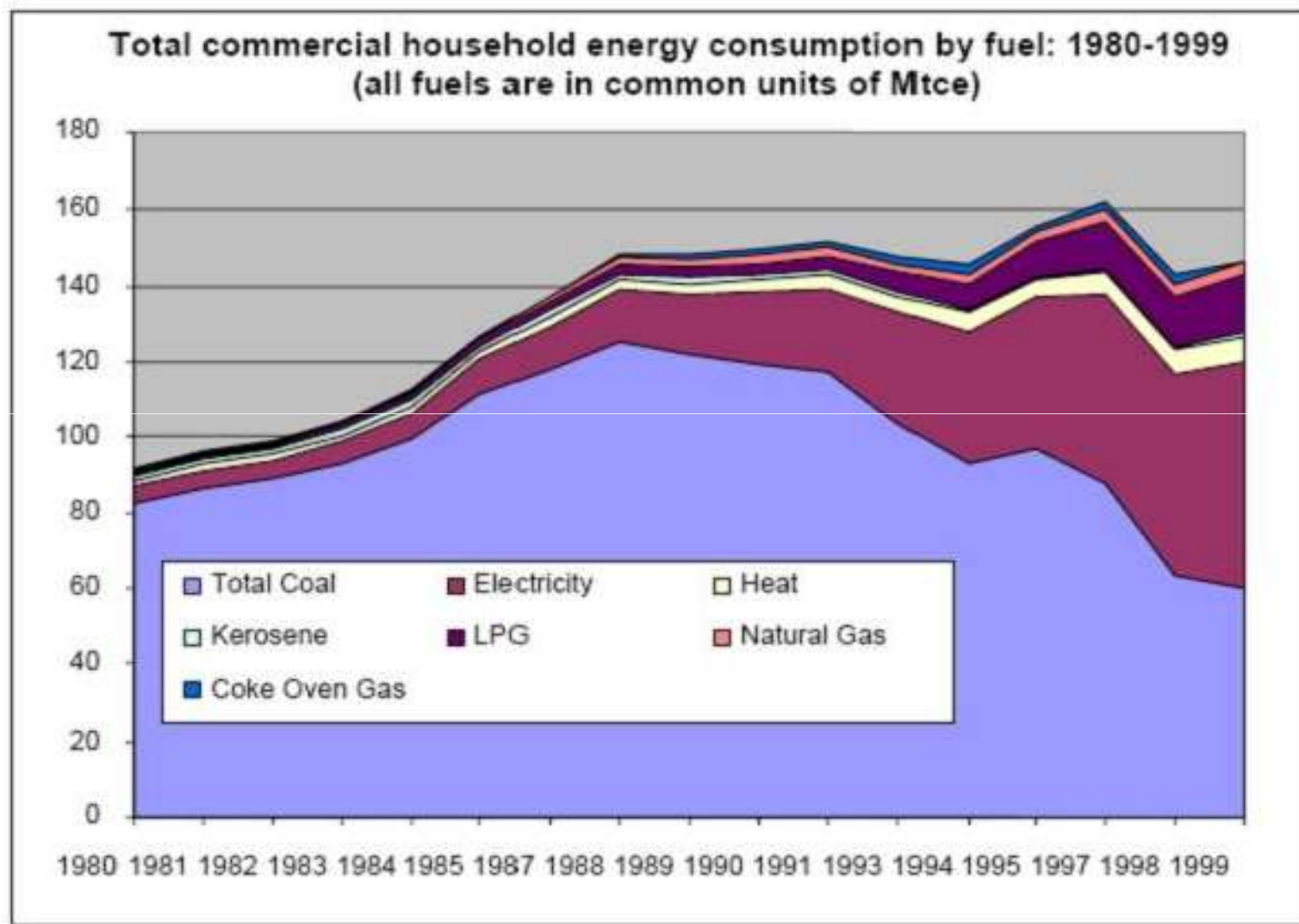
Restrictions on development of  
gas pipelines

Regulation of domestic use of  
gas (govt. monopoly on sale of  
gas 'regulators' for stoves)

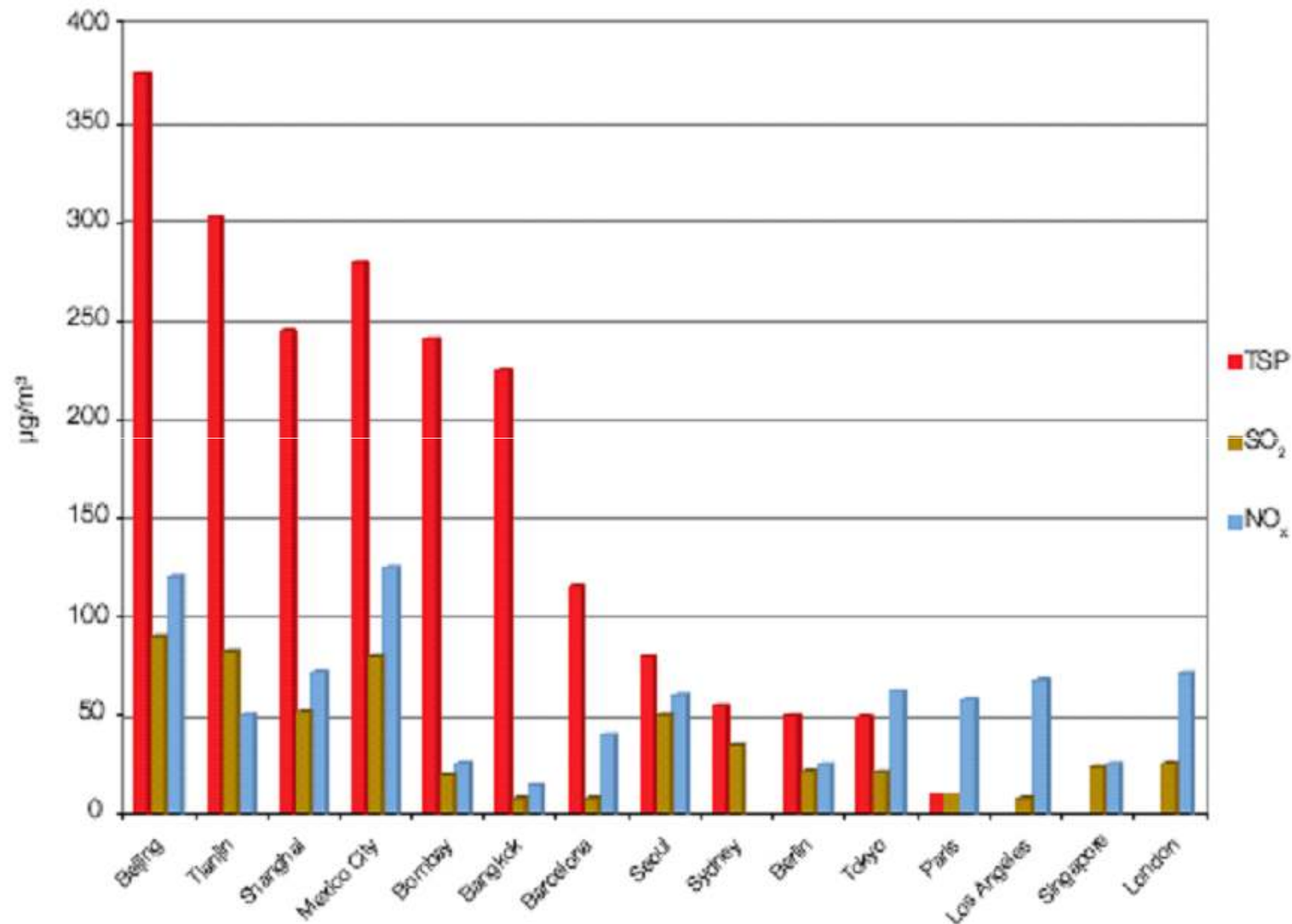
Demand-side constraints (again related to govt. intervention):

lack of capital; weak property rights; govt. restrictions on  
business).

# China's IAP has been falling...

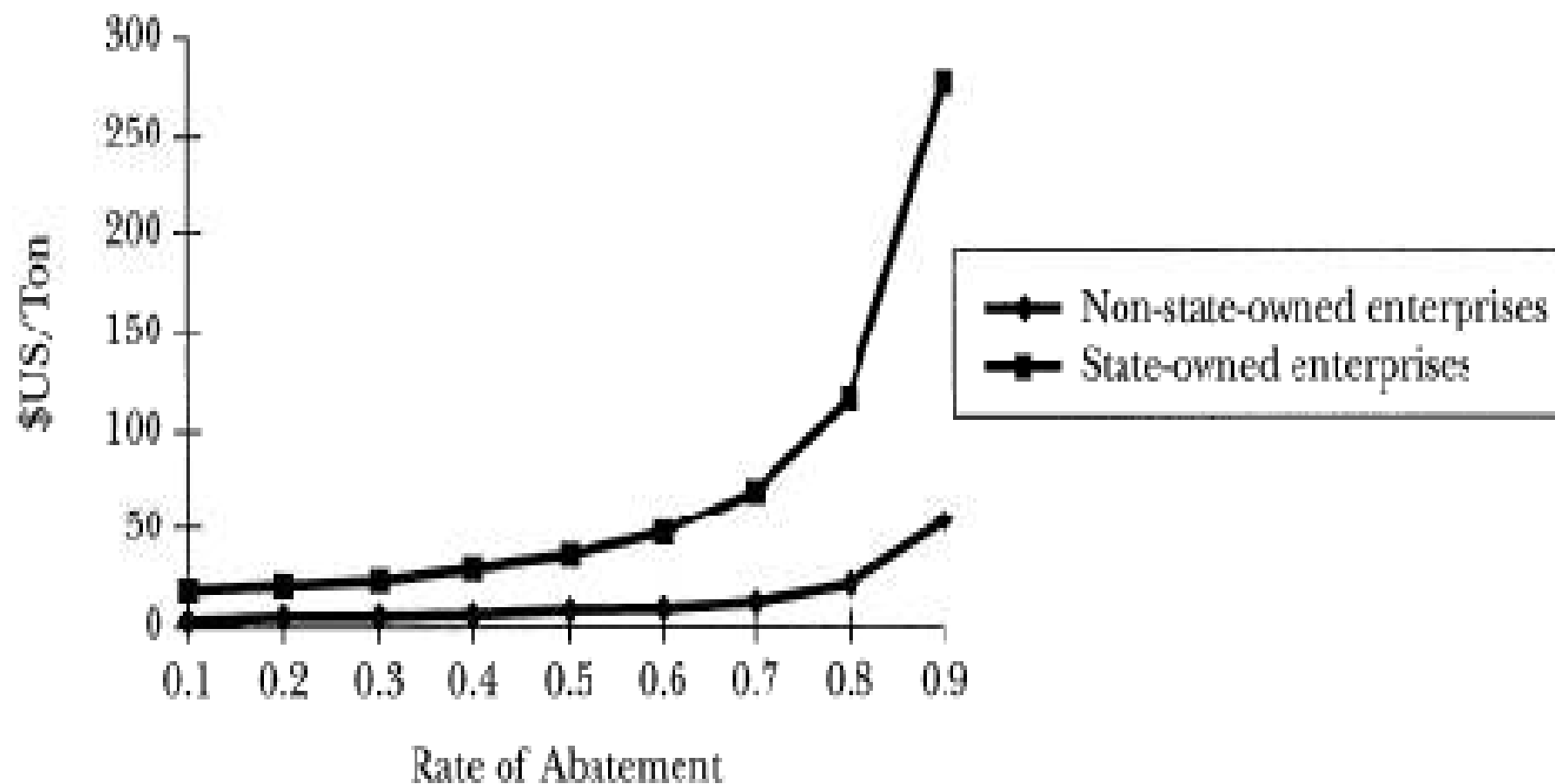


# But ambient air pollution still a problem ...



# ... and here's why

## Sulfur Dioxide Marginal Abatement Costs: Large Chinese Factories





# Conclusions

- Access to environmental amenities (clean air, clean water) tend to be enhanced by economic development
- But the institutions governing environmental amenities must be flexible and responsive
- Private ownership is inherently more flexible and responsive than state ownership
- Reputation and civil liability are more flexible and responsive than statutory regulations – especially when criminal and regulatory controls are in the hands of a corrupt elite

# thank you

please feel free to contact me:

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