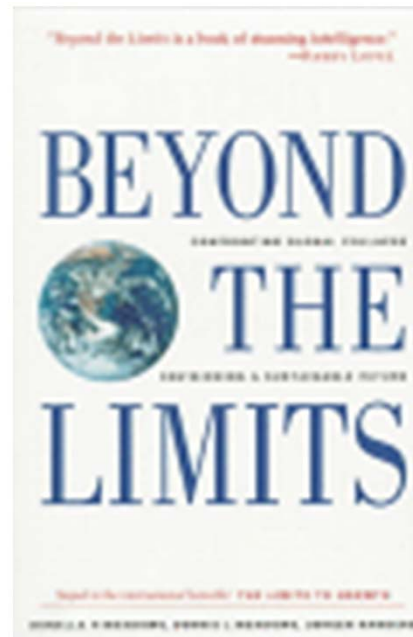
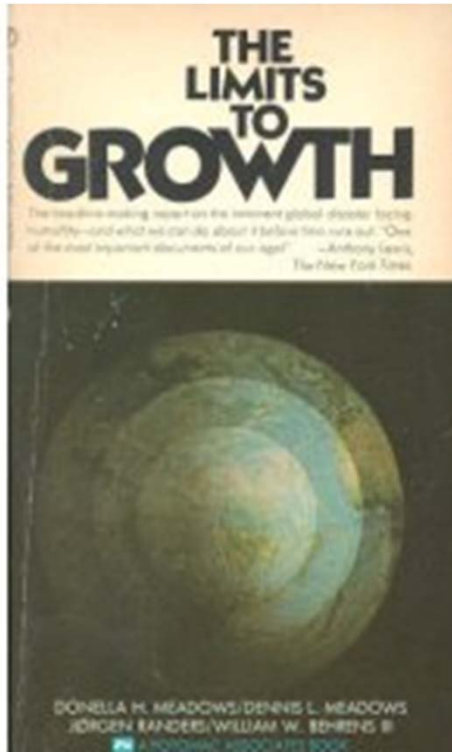


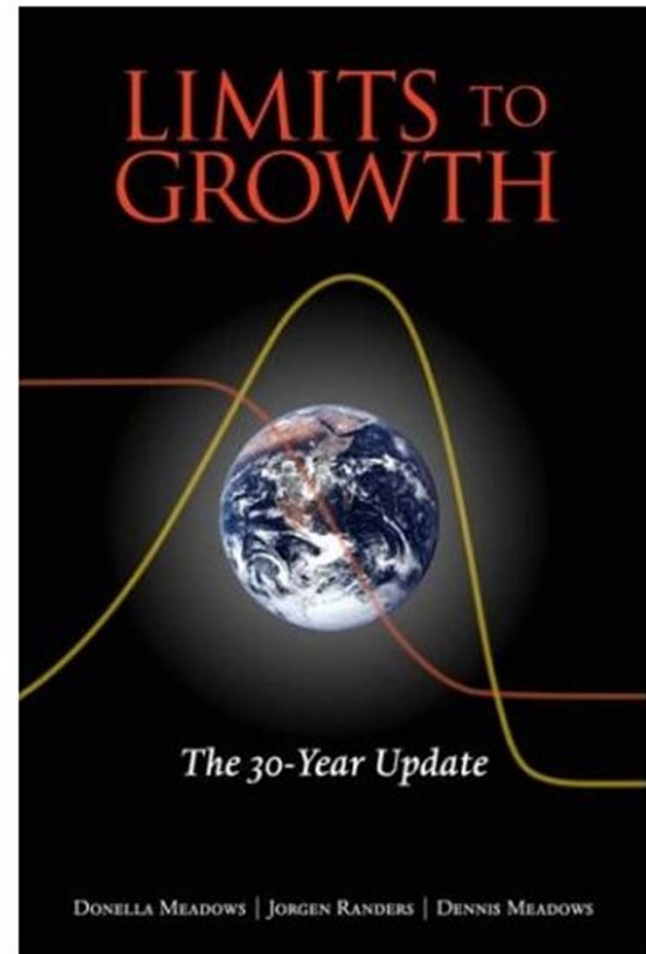
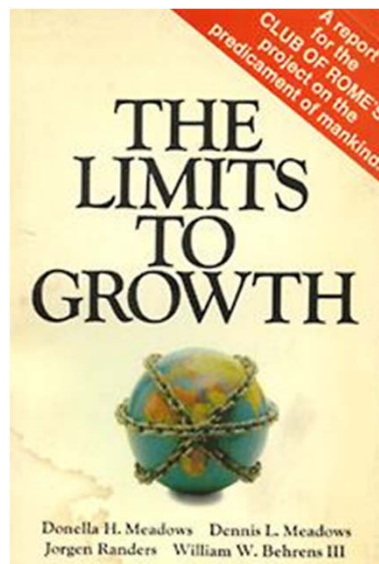
**2052 –
A Global Forecast
for the Next Forty Years**

Jorgen Randers
Professor
Center for Climate Strategy
Norwegian Business School BI

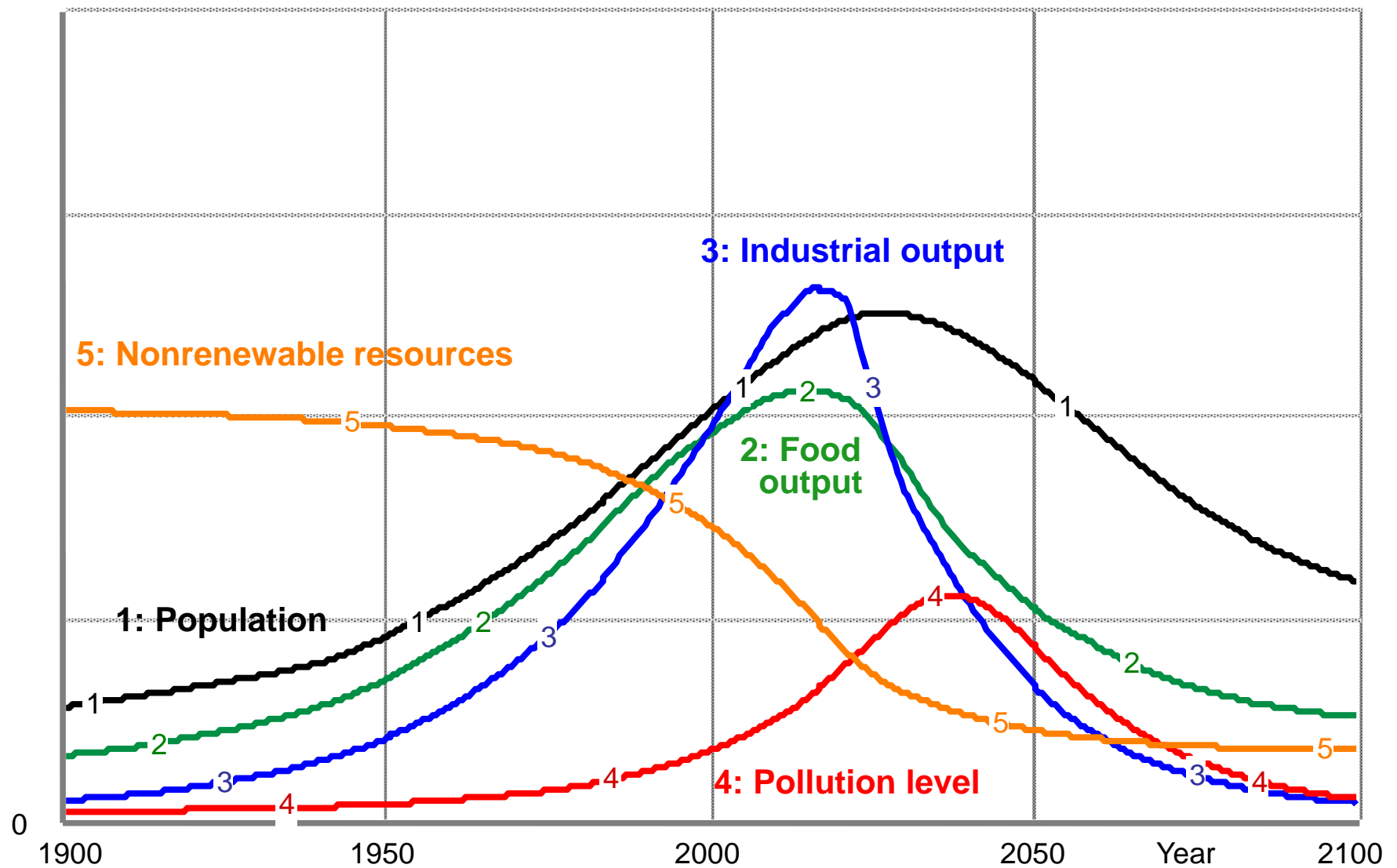
European Investment Bank
Luxembourg, November 20, 2013



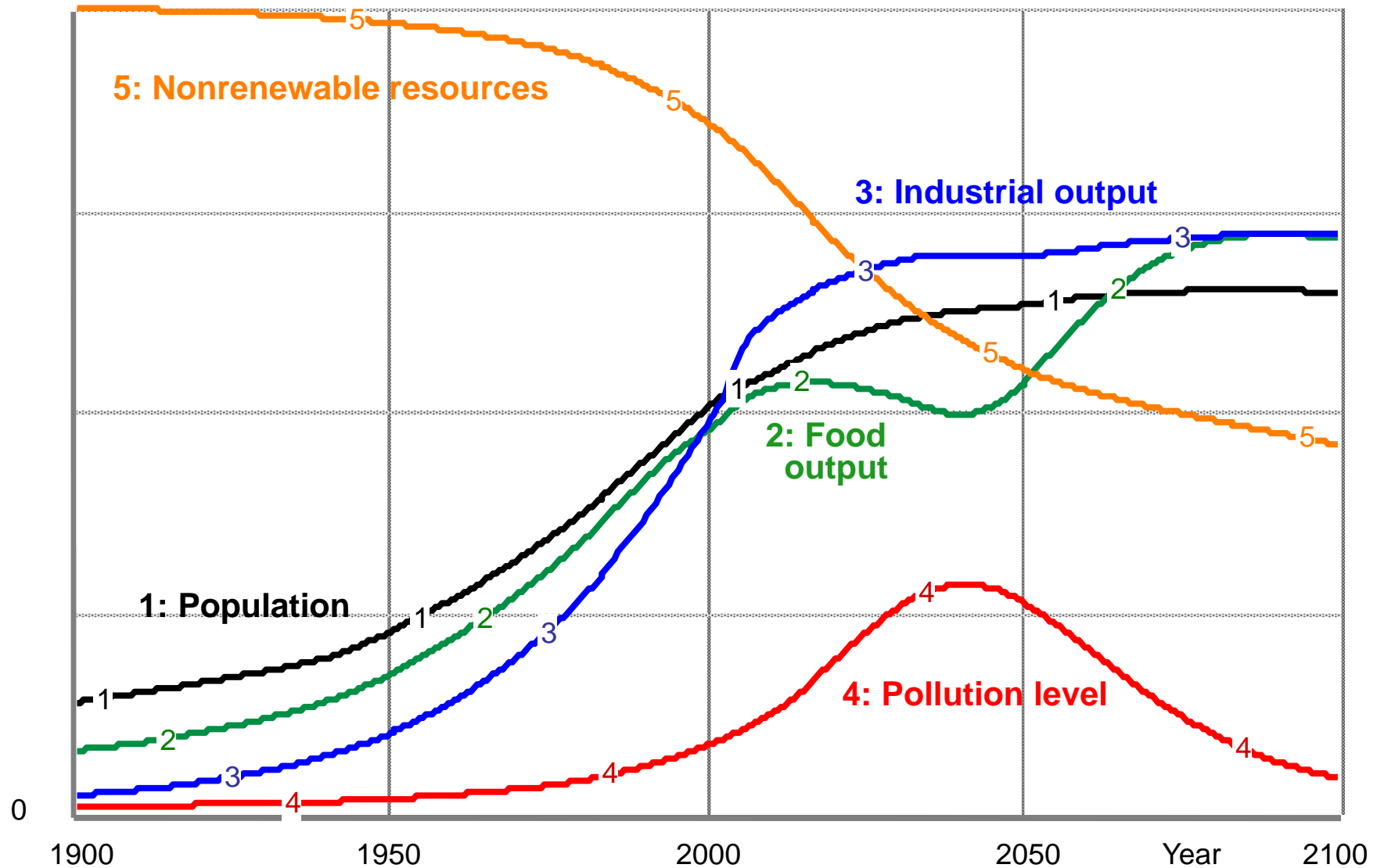
12 scenarios for the 21st century



Limits Scenario 1: Resource crisis



Limits Scenario 9: Sustainability



A Global Forecast
for the Next Forty Years

2052

Jorgen Randers

A REPORT TO THE CLUB OF ROME
COMMEMORATING THE 40TH ANNIVERSARY OF
The Limits to Growth

For all numerical data
and the forecast model,
consult
the book website
www.2052.info

EINE GLOBALE PROGNOSE
FÜR DIE NÄCHSTEN 40 JAHRE

2052

JORGEN RANDERS

Der neue Bericht an den Club of Rome
40 Jahre nach »Die Grenzen des Wachstums«

oekom

더 나은 미래는
쉬게 오지 않는다

A Global Forecast for the Next Forty Years
어떤 하루를 살고 있을까
요르겐 란더스 지음 | 김태훈 옮김



A GLOBAL FORECAST FOR
THE NEXT FORTY YEARS

2052

今後 40 年のグローバル予測

ヨルゲン・ランダース著
田中重太郎訳
竹中平蔵監修

A REPORT TO THE CLUB OF ROME
COMMEMORATING THE 40TH ANNIVERSARY OF
THE LIMITS TO GROWTH

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The five regions used in the 2052 forecast

Region	Population 2010 (billion people)	GDP 2010 (trillion \$ pr year)	GDP per person 2010 (1000 \$ pr person-year)
US	0,3	13	41
China	1,3	10	7
OECD-less-US (1)	0,7	22	30
BRISE (2)	2,4	14	6
ROW (3)	2,1	8	4
Sum world	6,9	67	10

(1) Old industrial world, including EU, Japan, Canada, Australia, New Zealand etc

(2) Brazil, Russia, India, South Africa and the ten biggest emerging economies

(3) The remaining ca 140 countries of the world

World population will peak in 2040

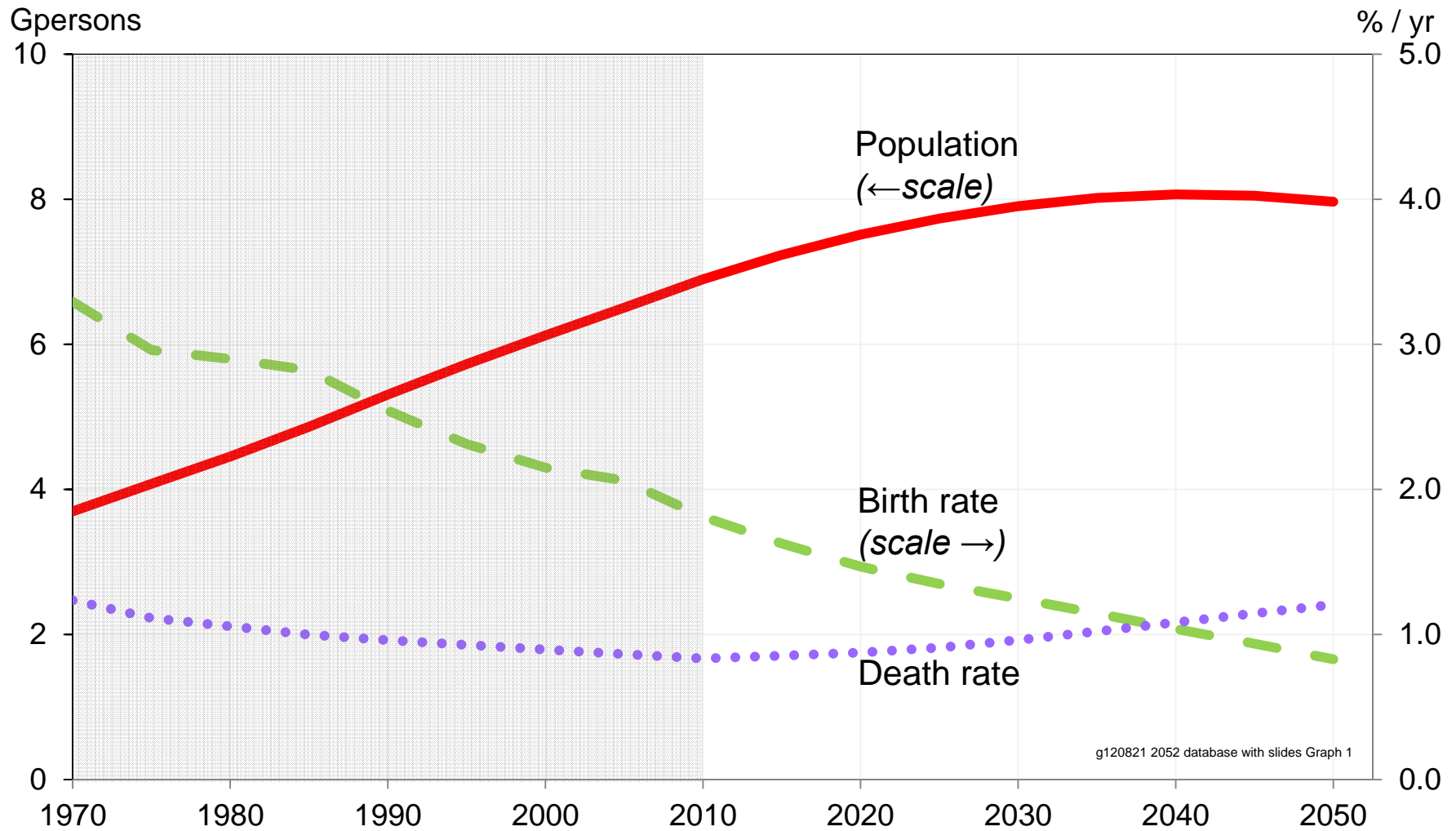


Figure 4-1 Population – World 1970 to 2050

World GDP growth will slow down

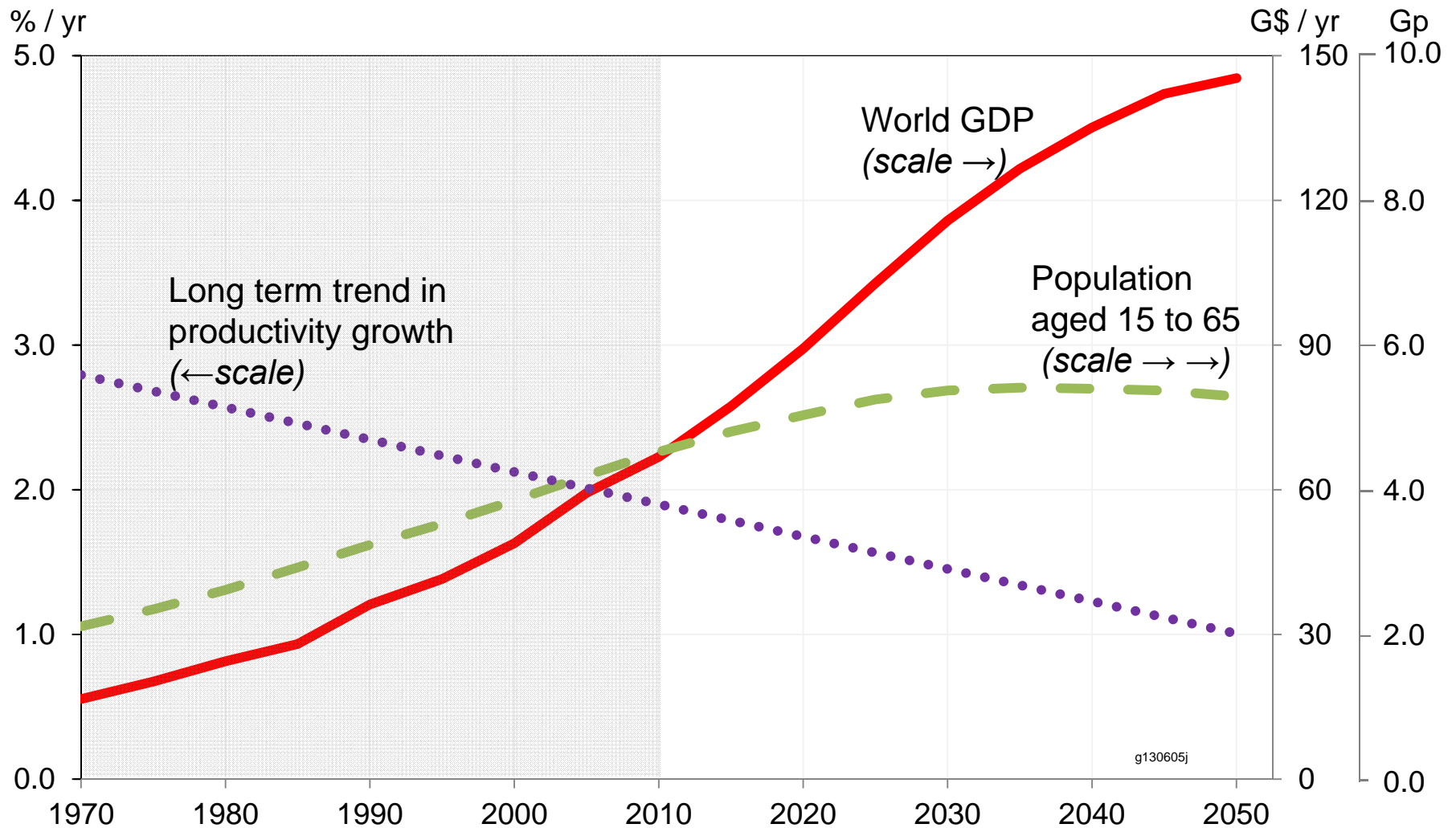


Figure 4-3b: Gross Domestic product – World 1970 to 2050
 Definition: GDP = Population aged 15 to 65 years multiplied with Gross labour productivity

Global consumption will peak in 2045

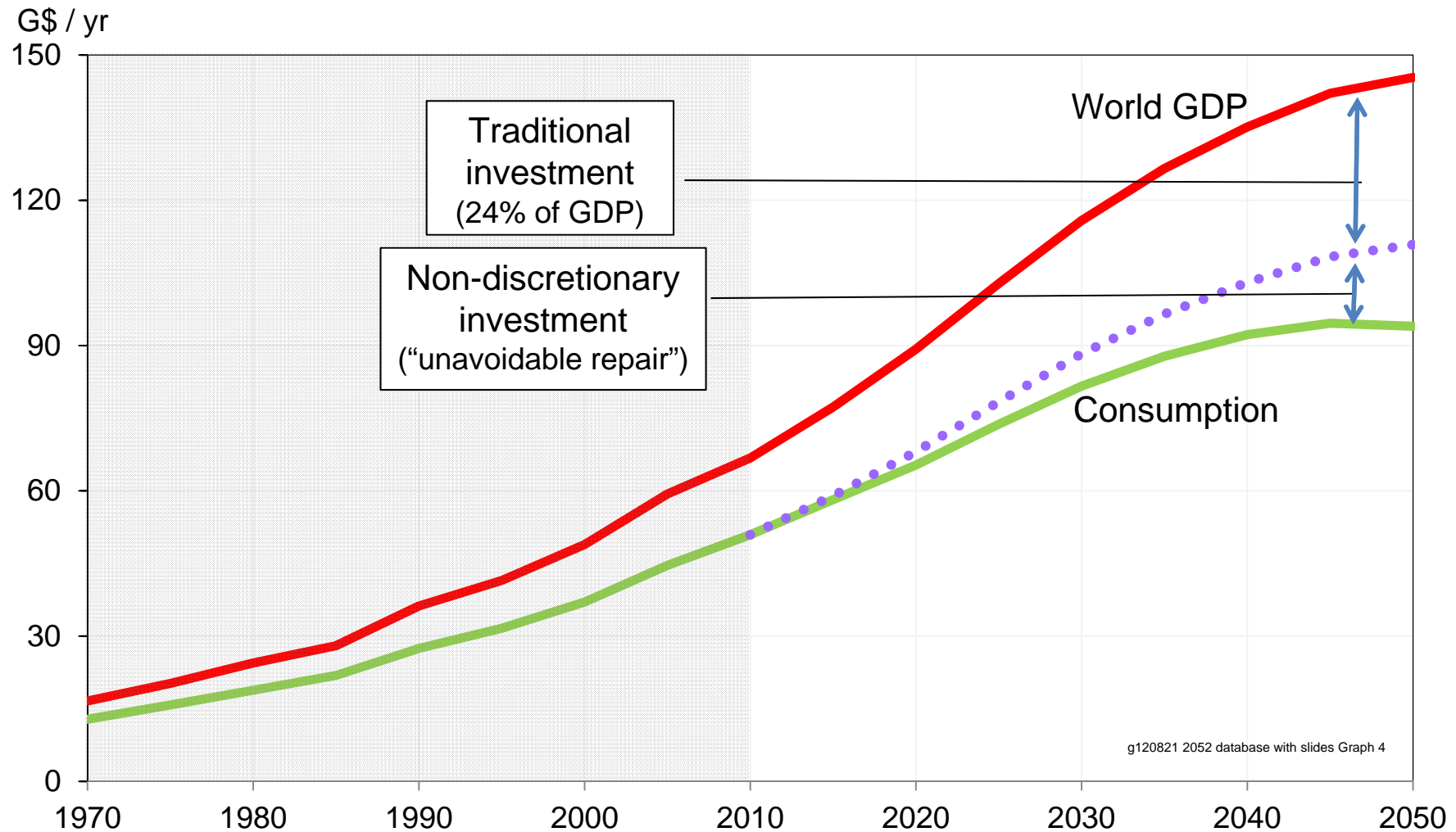


Figure 4-4: Production, Consumption and Investment – World 1970 to 2050

Energy use will peak in 2040

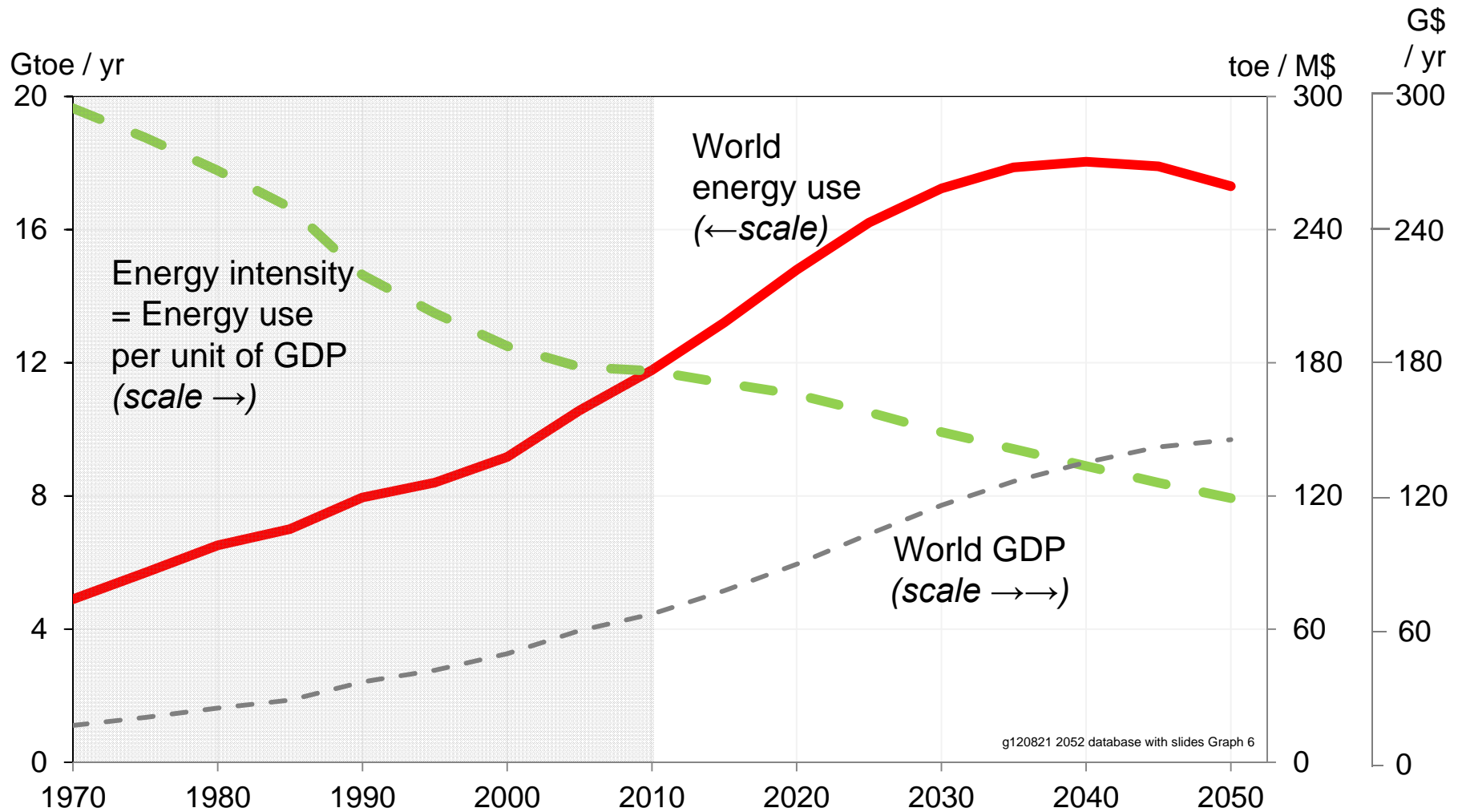


Figure 5-1: Energy Use – World 1970 to 2050

Fossil fuel use will peak around 2030

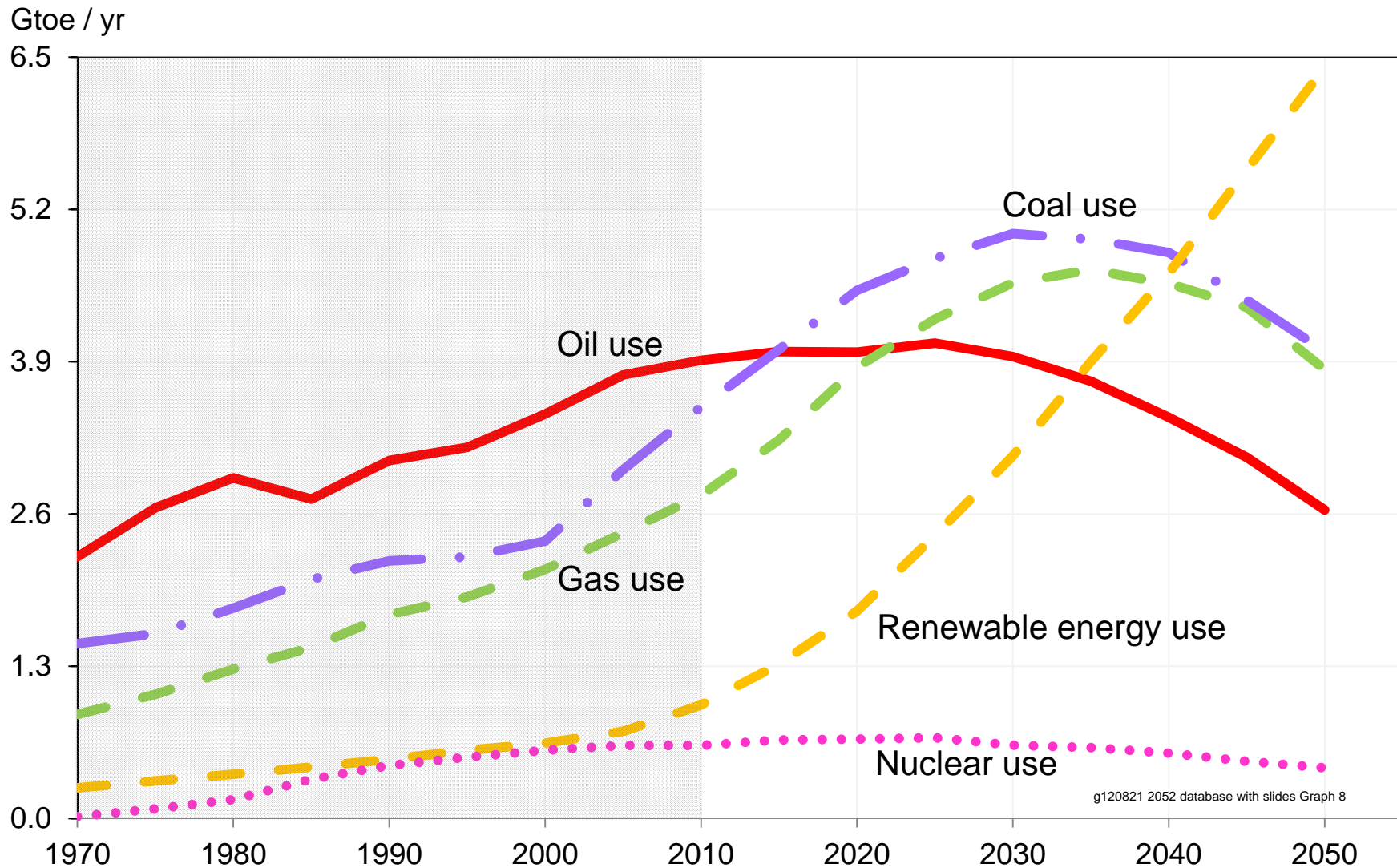


Figure 5-2: Energy Uses – World 1970 to 2052

World CO₂ emissions will peak in 2030

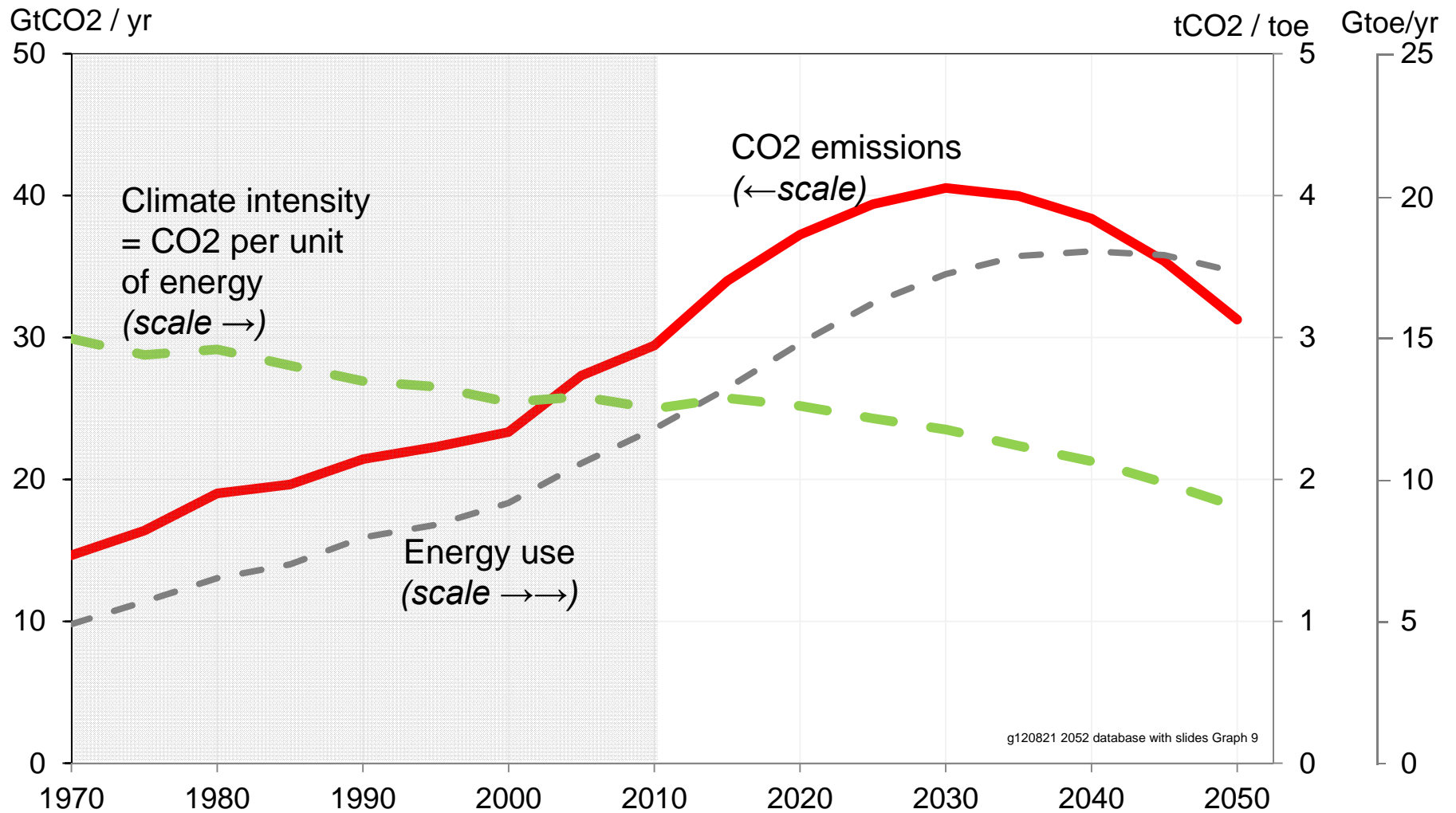


Figure 5-3: CO₂ Emissions from Energy Use – World 1970 to 2050.

Temperature will pass +2 degrees C in 2052

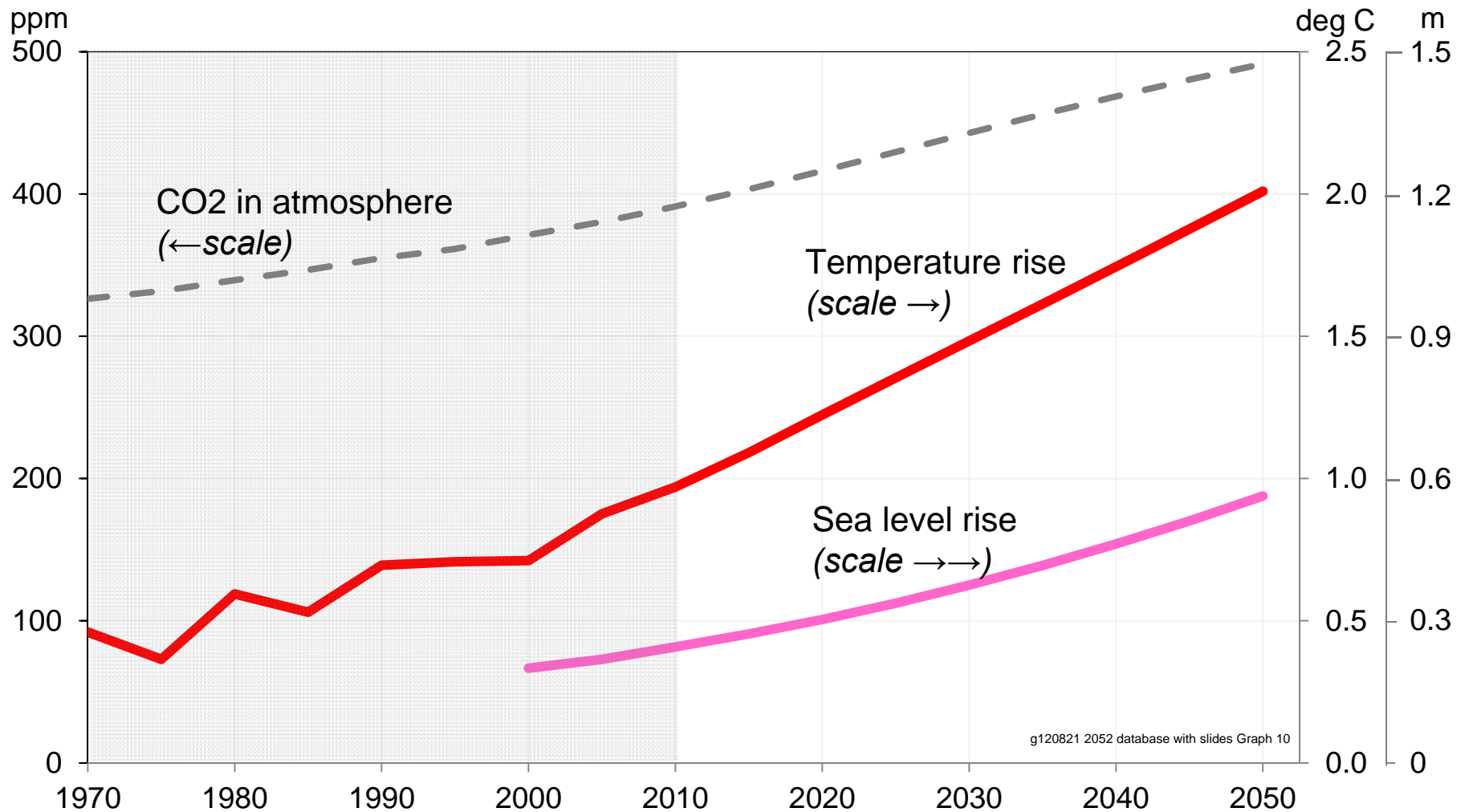


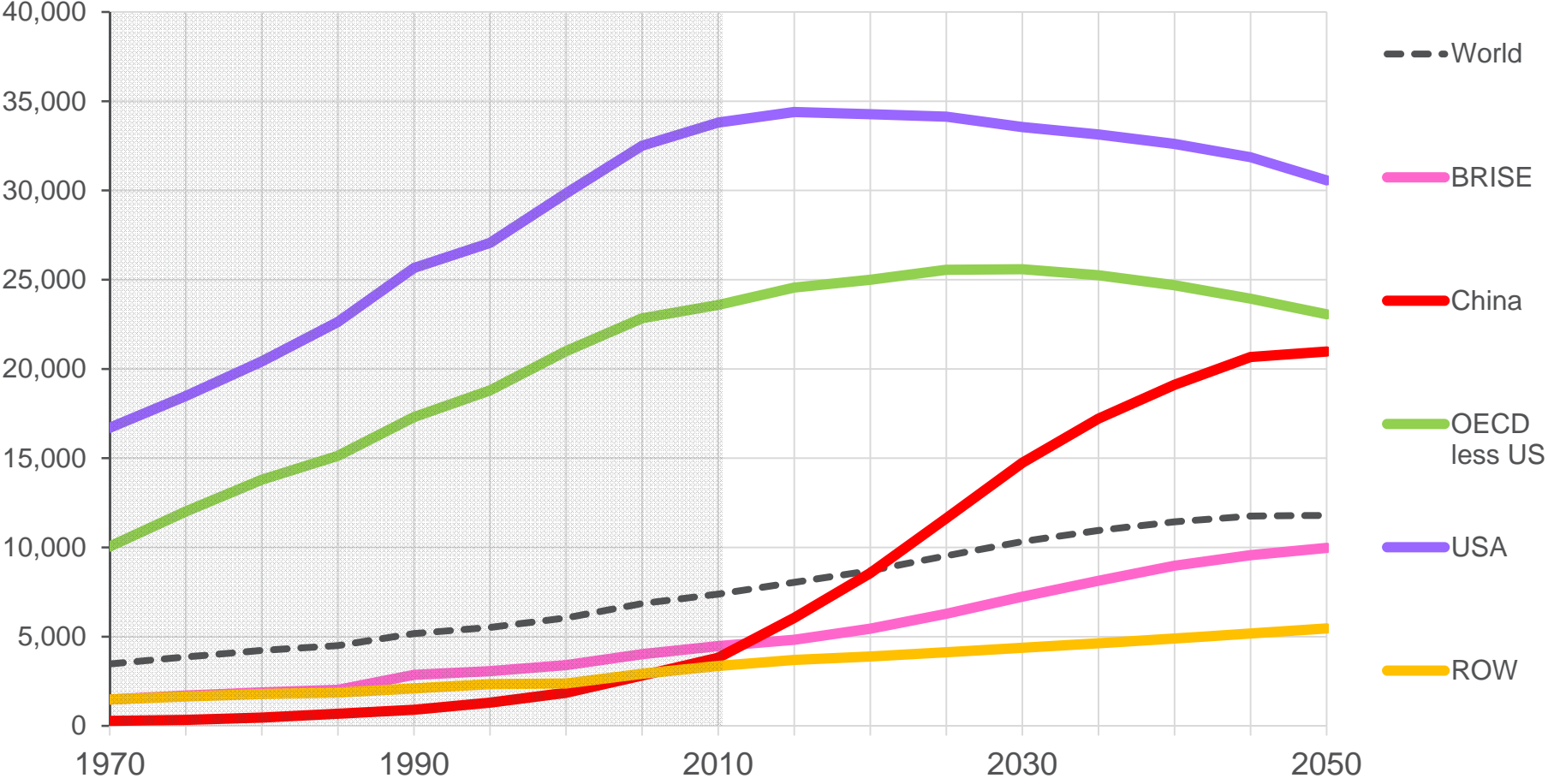
Figure 5-4: Climate Change – World 1970 to 2050

Discussion of the 2052 forecast

- 1.** Growth in population and GDP will slow “by itself” – because of human decision making, not because of planetary constraints
- 2.** But growth will not slow fast enough to avoid a climate crisis
- 3.** There will be enough resources – including energy, water and food – to cover demand (which is not the same as need)
- 4.** There will be more poverty – both in the rich and the poor world

There will be huge regional differences

After-tax income per person
(in 2005 PPP \$ per person-year)



Main conclusions from the 2052 forecast

♣ World population and economy will grow more slowly towards 2052 than most people expect
- but still fast enough to trigger a climate crisis

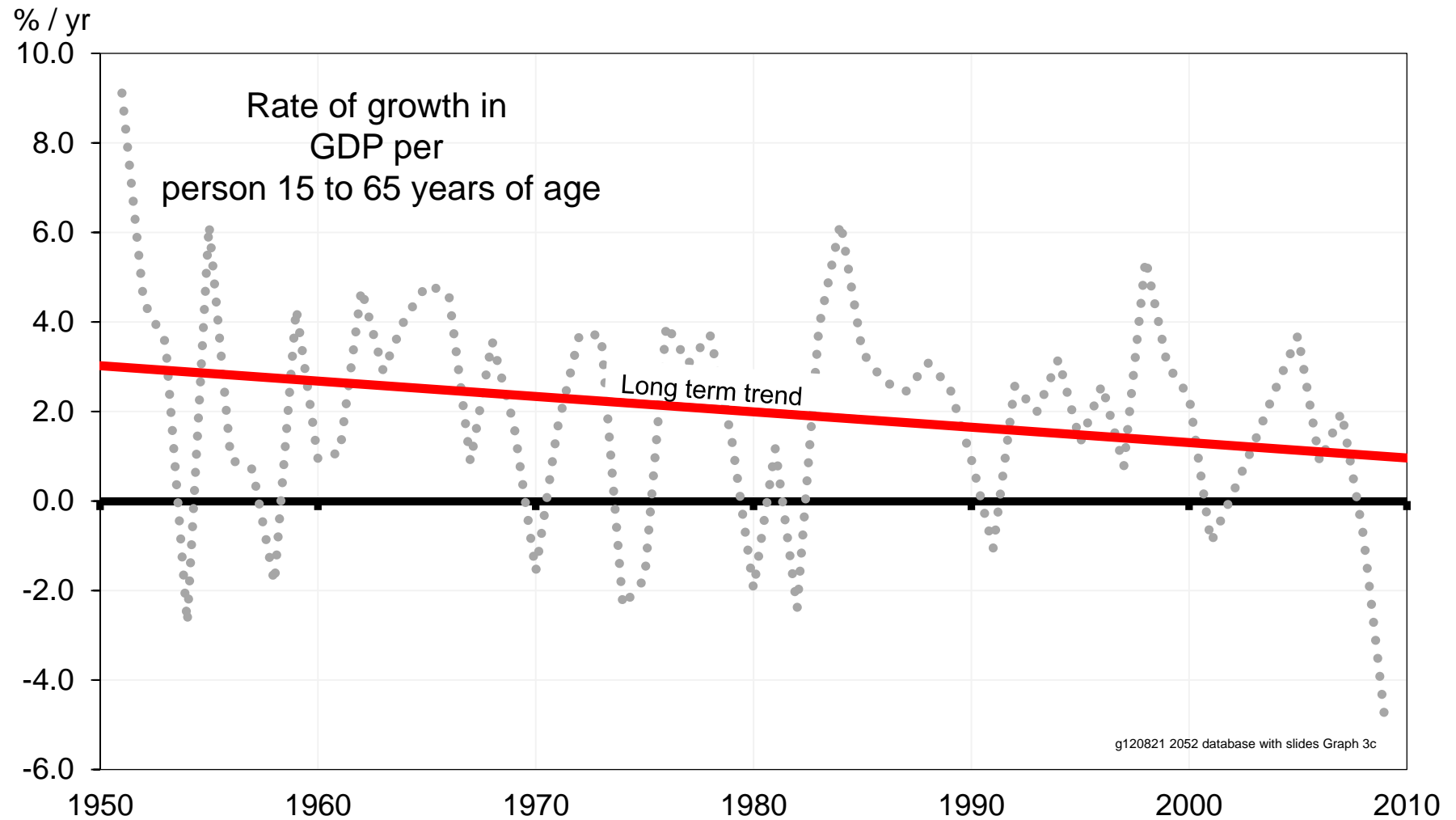
♣ Consumption will stagnate because world society will have to spend ever more on repair and adaptation

♣ The short-term nature of man
- reflected in the short term focus of democracy and capitalism -
is the root cause of this development

What does this mean for the EIB?

- 1. Slow GDP growth in Europe for decades – also in the rest of the industrialised world**
- 2. Continuing increase in the amount of repair and adaptation work – leading to reduced consumption growth**

Slowing growth in total productivity - USA



Fertility decline in EU-15 – 1950 to 2010

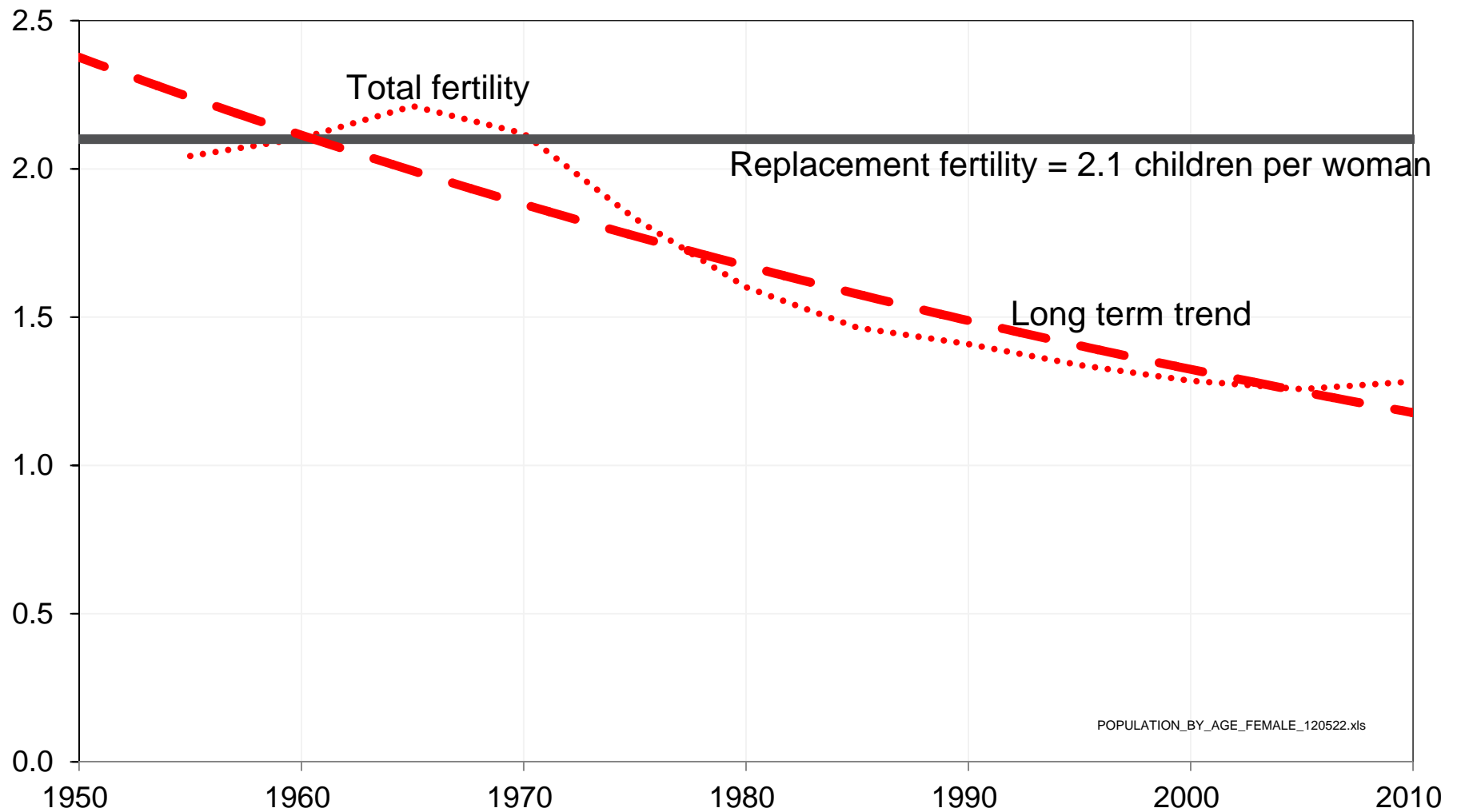
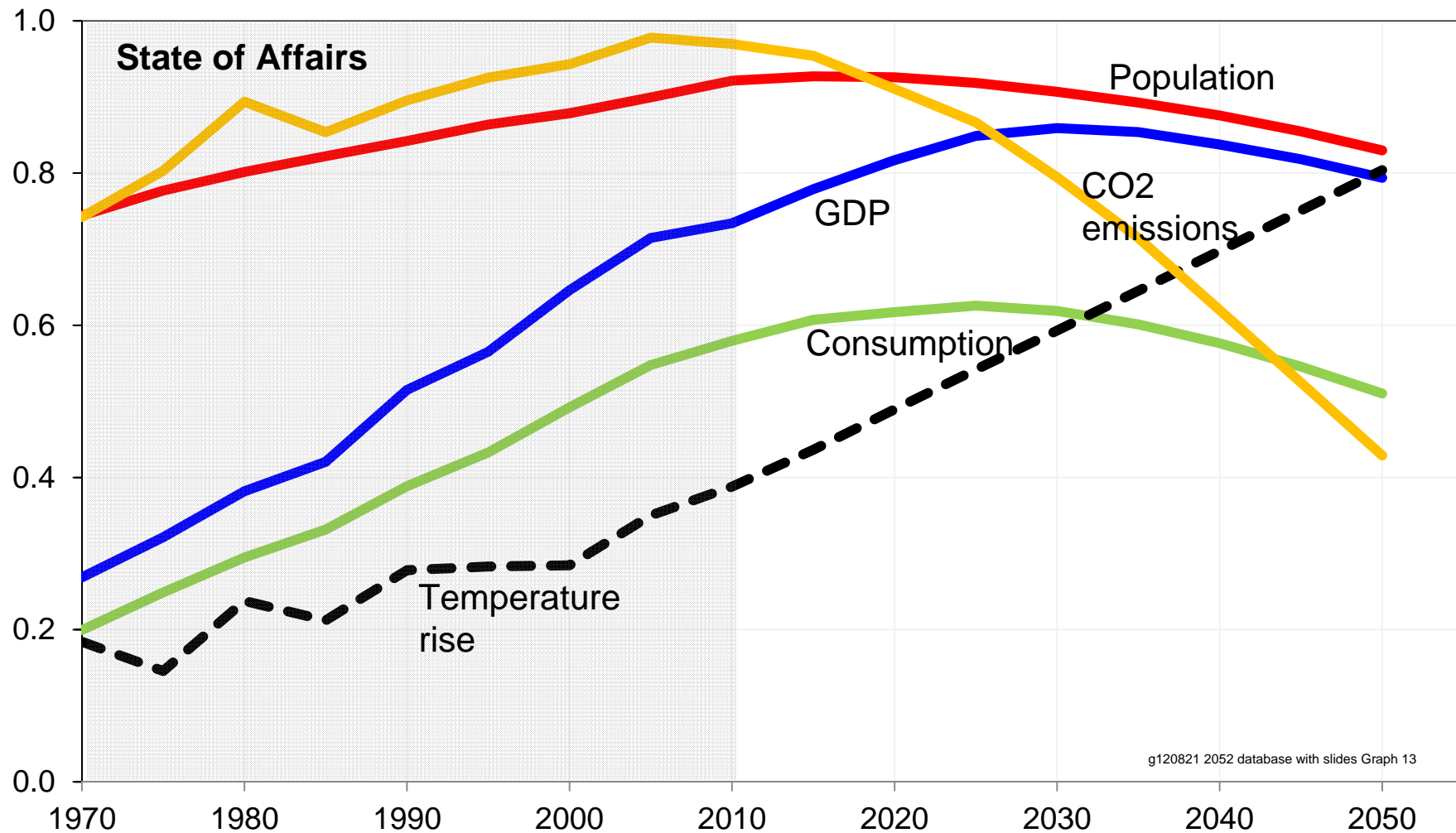


Figure A4-1 Total Fertility – EU15 1950 to 2010

Definition: Total fertility = Number of children per woman during reproductive age

OECD outside the US – 1970 to 2050



g120821 2052 database with slides Graph 13

Max values **0.8 Gp**, **30 G\$/yr**, **7 GtCO₂/yr**, **30 G\$/yr**, **2.5 deg C**

Figure 8-1_o: Past and future OECD-less-US – State of Affairs – 1970 to 2050

What should the EIB do?

- 1.** The EIB should work to increase human well-being in a world with constant GDP and declining population
- 2.** The EIB should help establish “repair and adaptation packages” financed with newly printed money

Time to turn!

