A Vision of Earth 2052 and its Implications for Decisions Today

Jørgen Randers, Professor
BI Norwegian Business School
Norway

http://www.concept.ntnu.no/english/

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BI CENTER FOR CLIMATE STRATEGY

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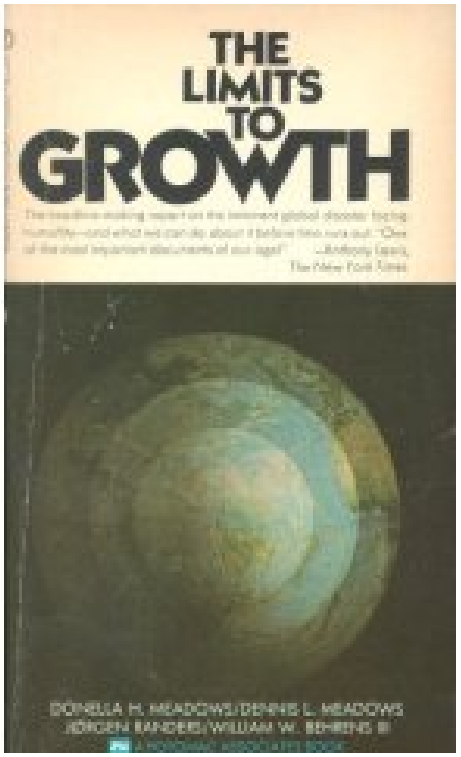
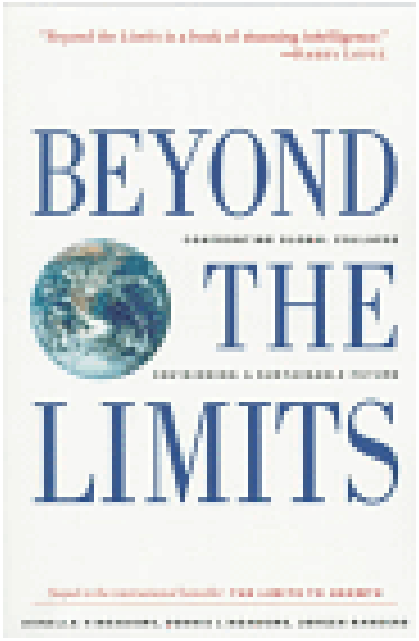
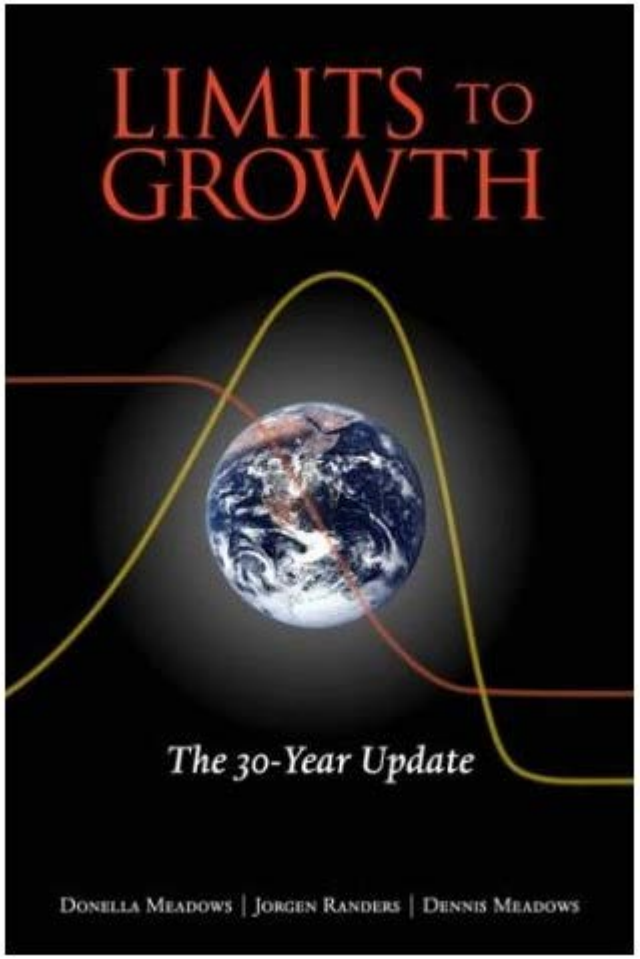
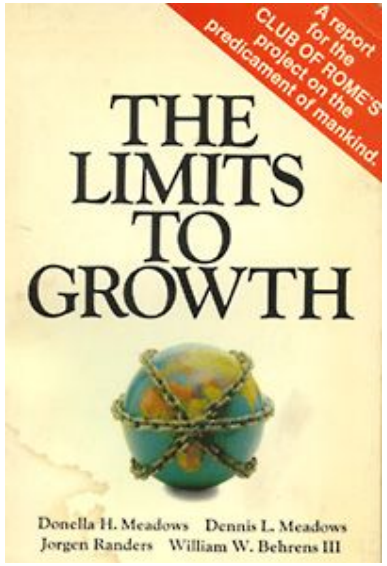


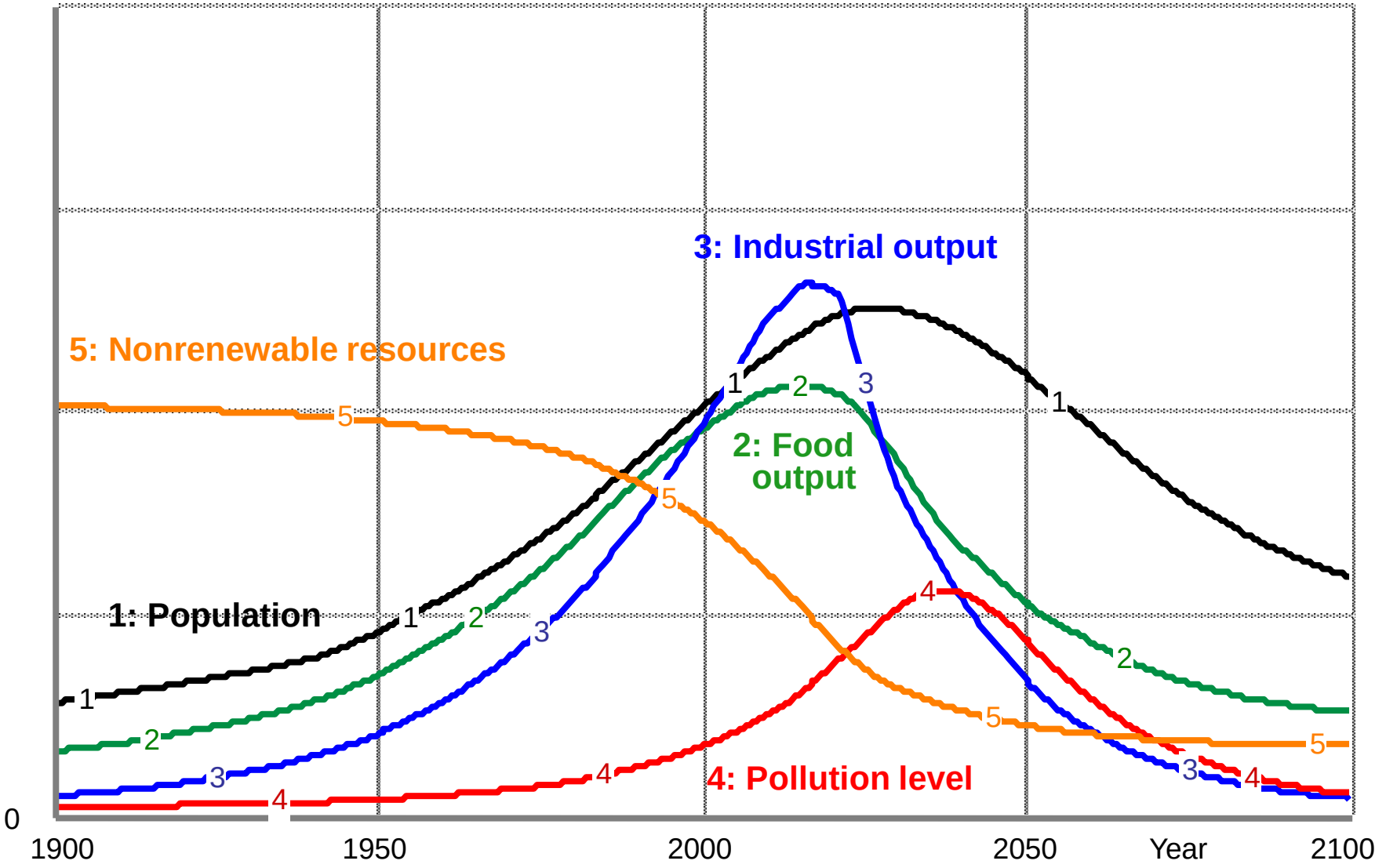


12 scenarios for the 21st century



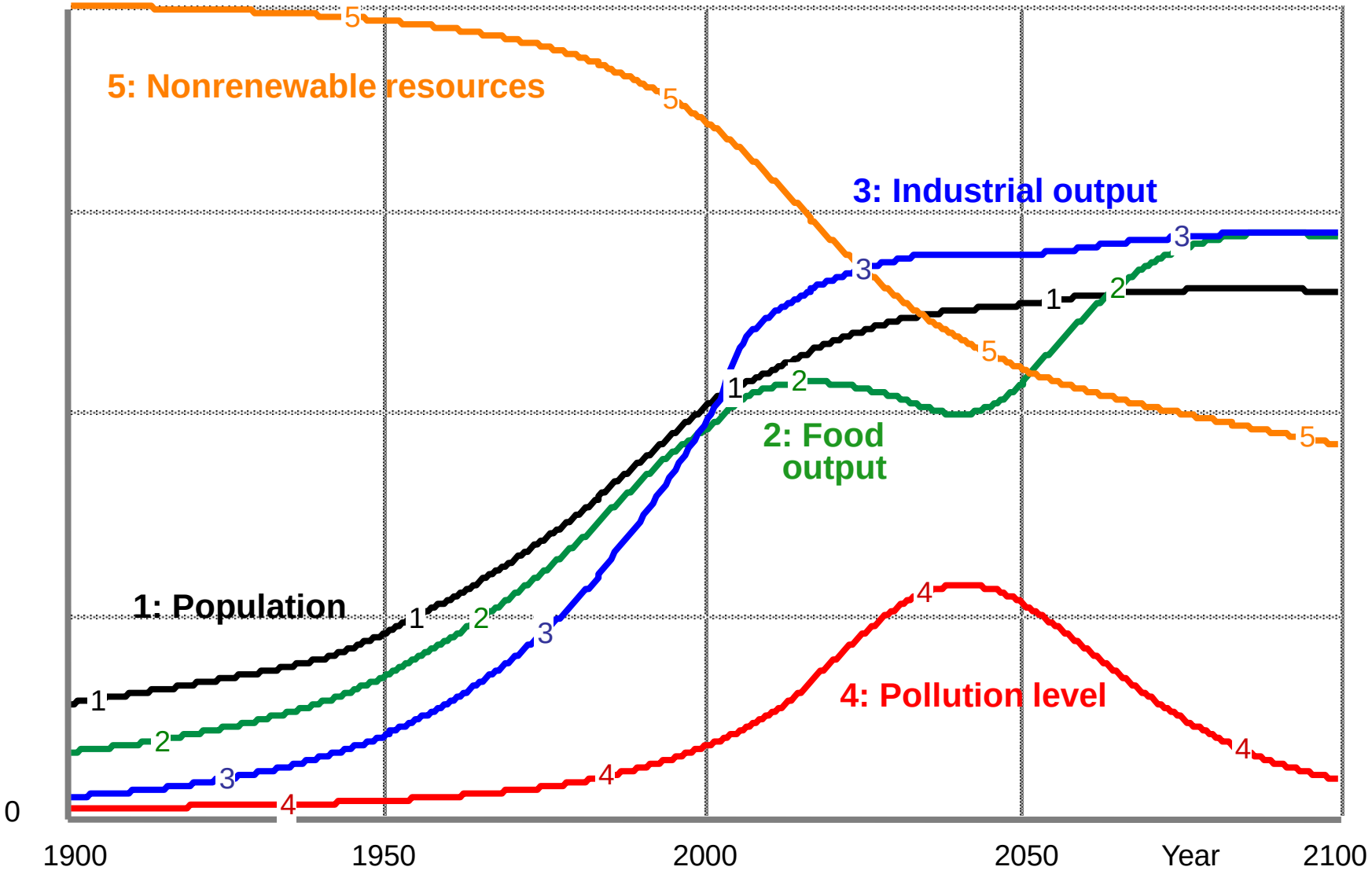


Limits Scenario 1: Resource crisis



Source: Meadows, Randers and Meadows, LTG 30 year update, 2004

Limits Scenario 9: Sustainability



Source: Meadows, Randers and Meadows, LTG 30 year update, 2004

For all details, go to www.2052.info

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

Source: Jorgen Randers, *2052*, Chelsea Green, Vermont, 2012

World population will peak in 2040

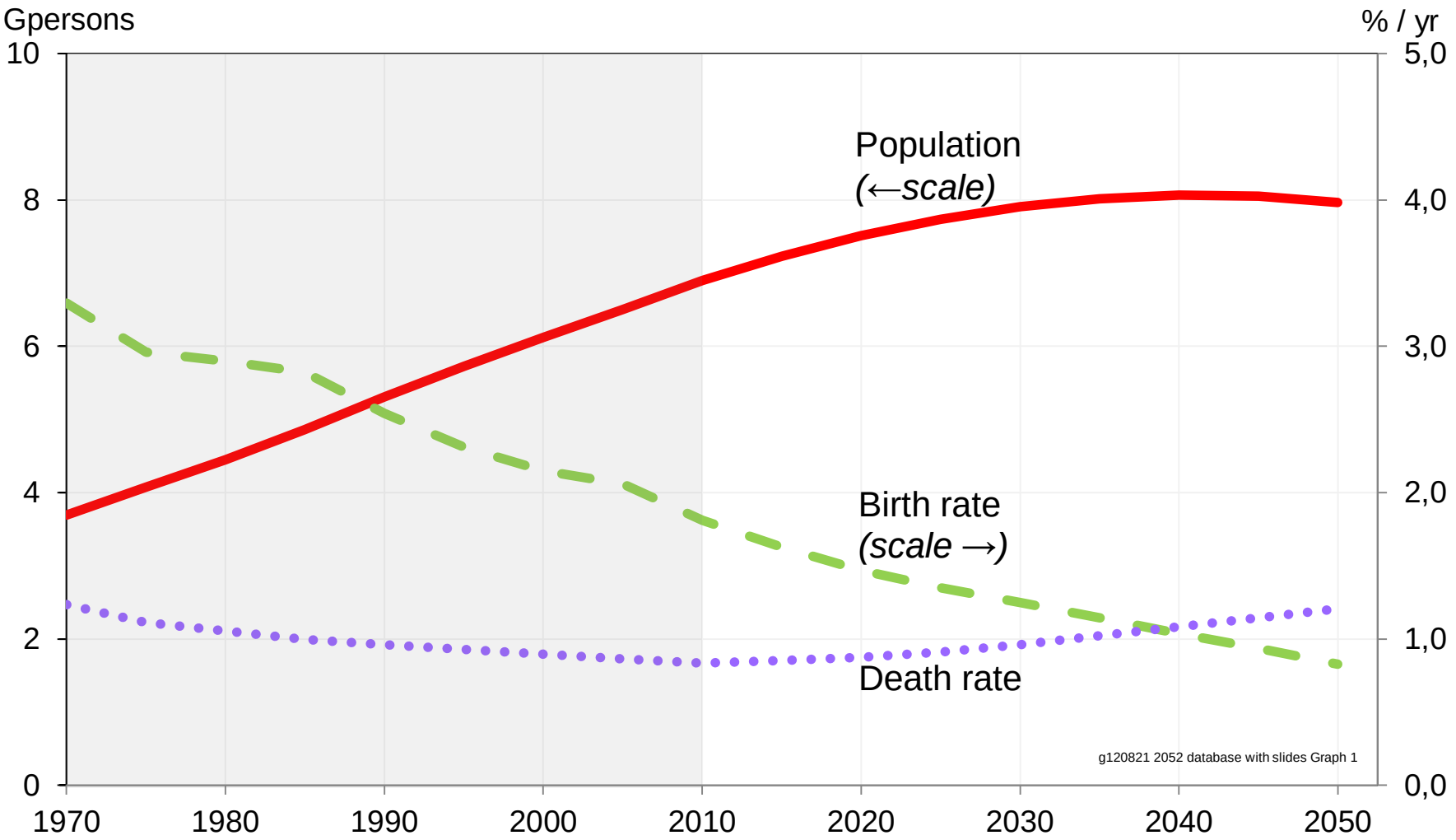


Figure 4-1 Population – World 1970 to 2050

World GDP growth will slow down

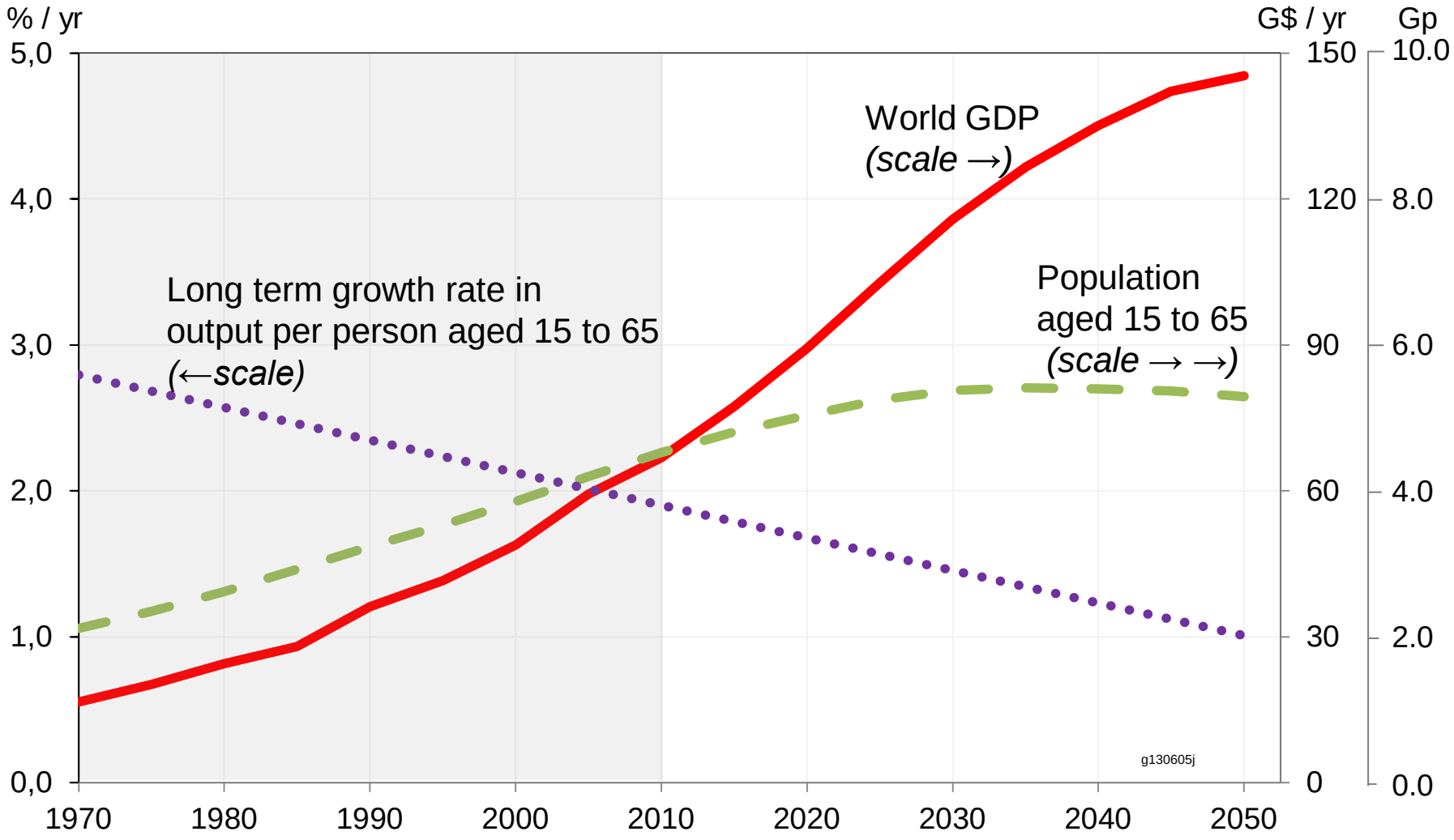


Figure 4-3b: Gross Domestic product – World 1970 to 2050
Definition: GDP = Population aged 15 to 65 years multiplied with Output per member of potential workforce

Source: Jorgen Randers, ***2052***, Chelsea Green, Vermont, 2012

Global consumption will peak in 2045

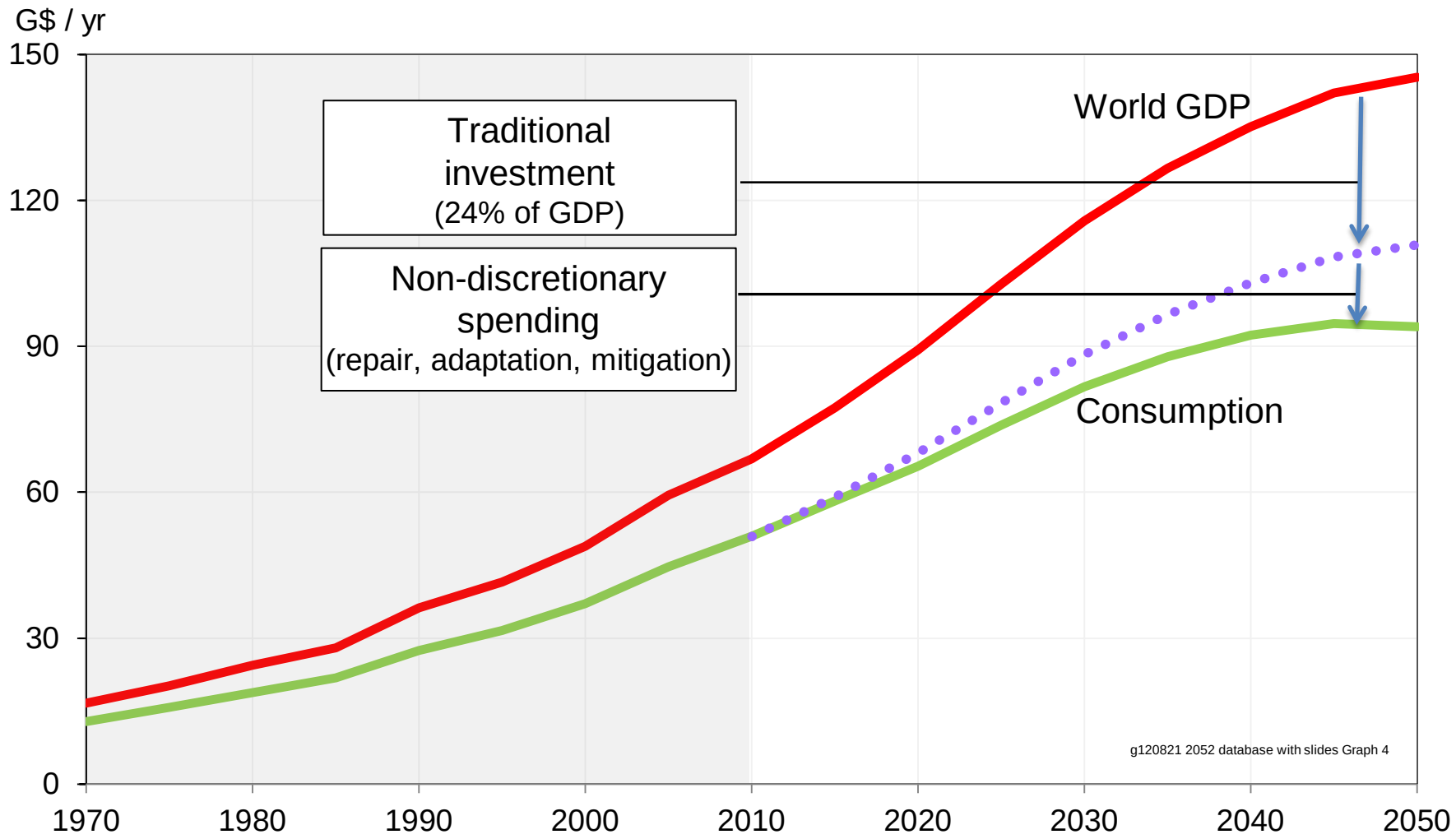


Figure 4-4: Production, Consumption and Investment – World 1970 to 2050

World energy use will peak in 2040

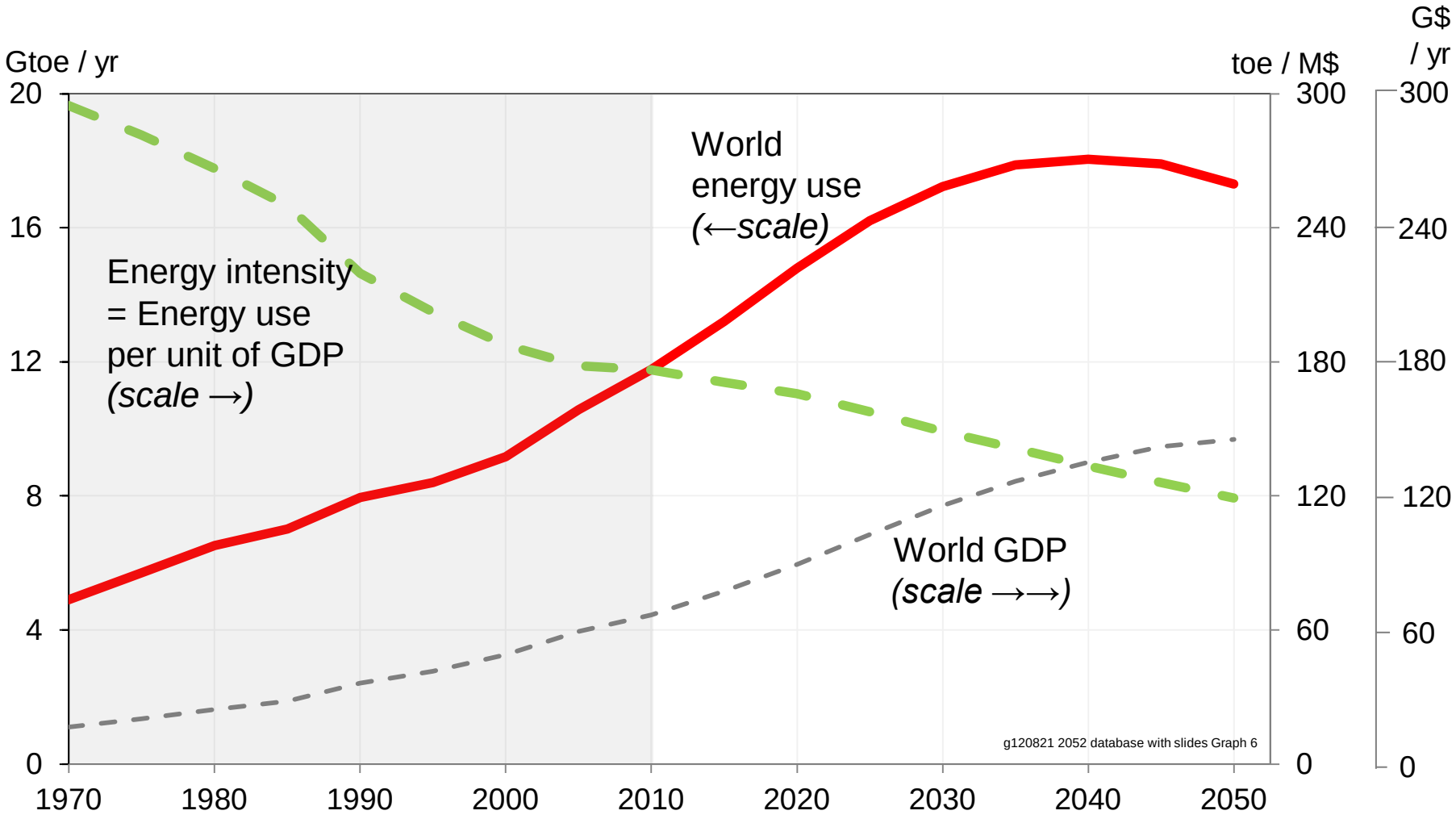


Figure 5-1: Energy Use – World 1970 to 2050

World use of fossil fuels will peak around 2030

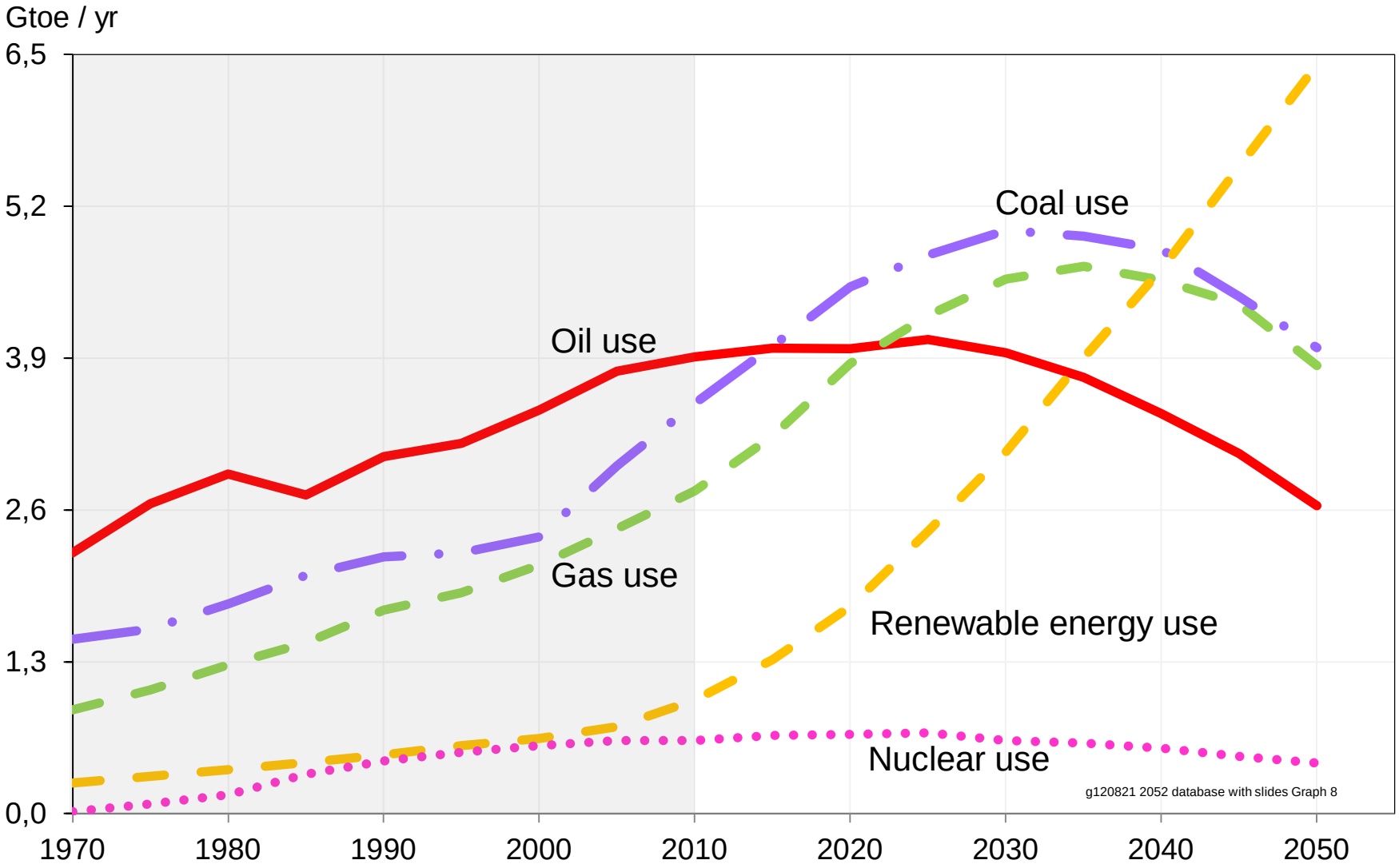


Figure 5-2: Energy Uses – World 1970 to 2052

World CO_2 emissions will peak in 2030

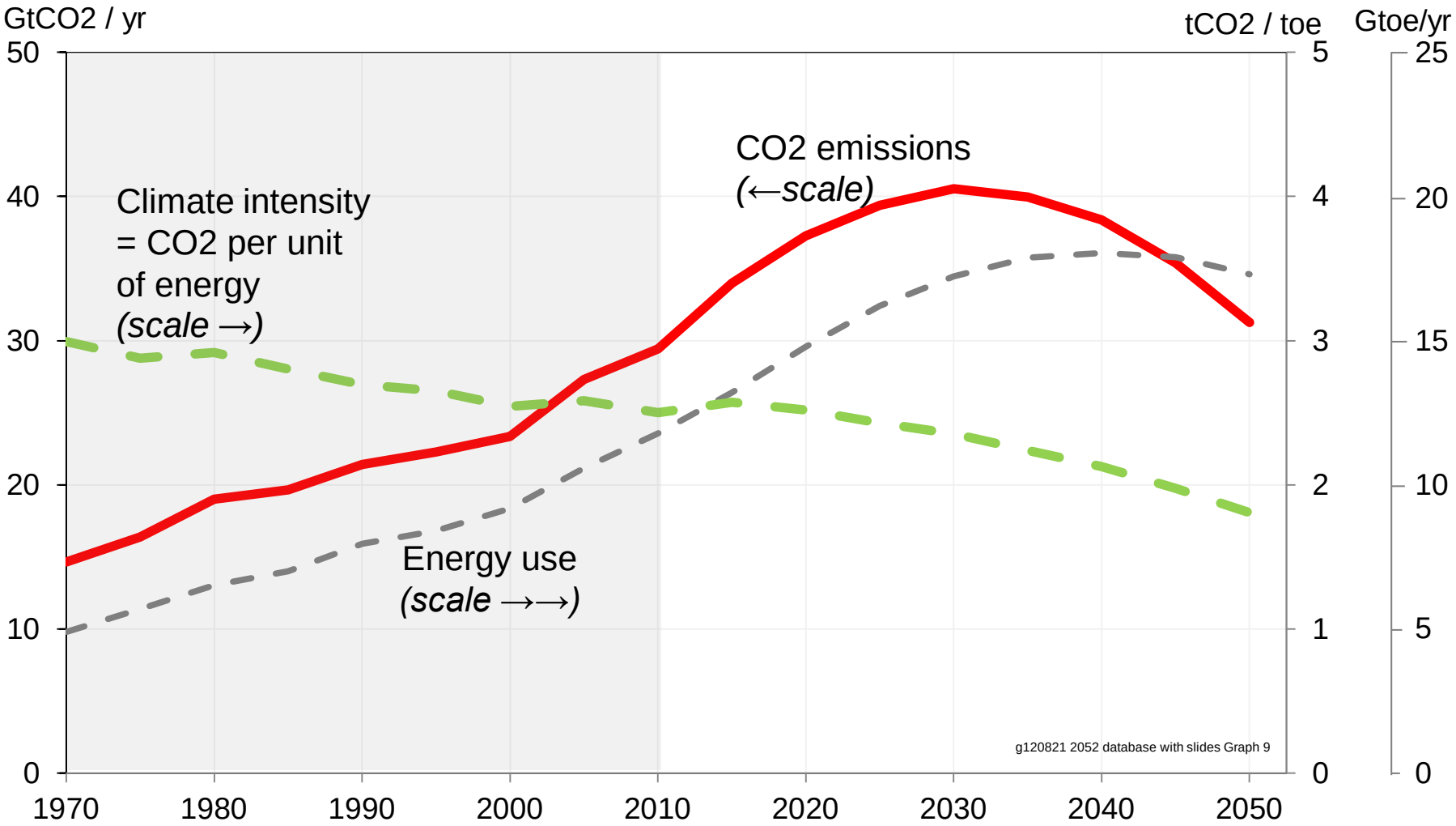


Figure 5-3: CO2 Emissions from Energy Use – World 1970 to 2050.

Temperature will pass +2 degrees C in 2052

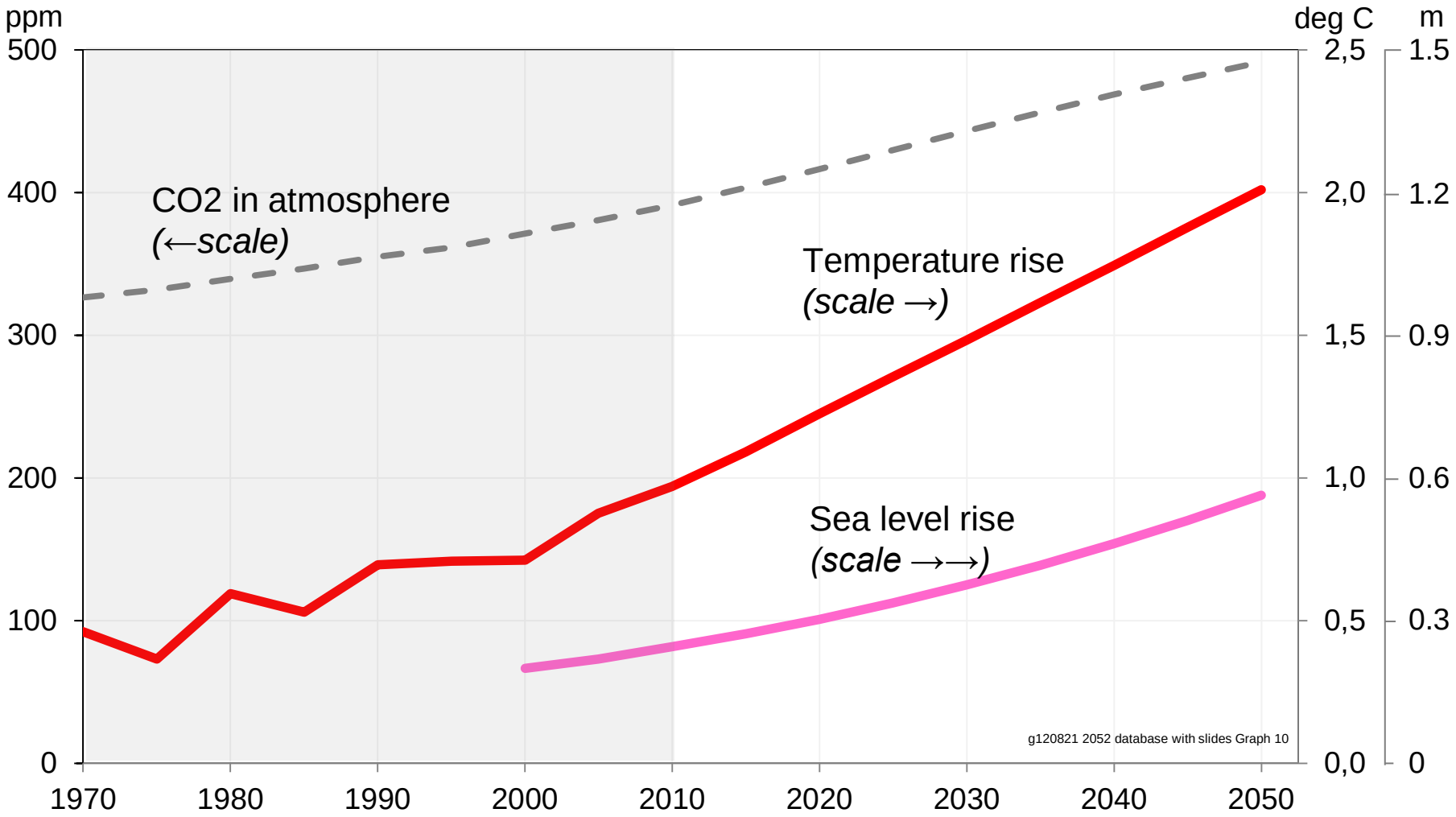


Figure 5-4: Climate Change – World 1970 to 2050

Enough food to satisfy demand – but not need

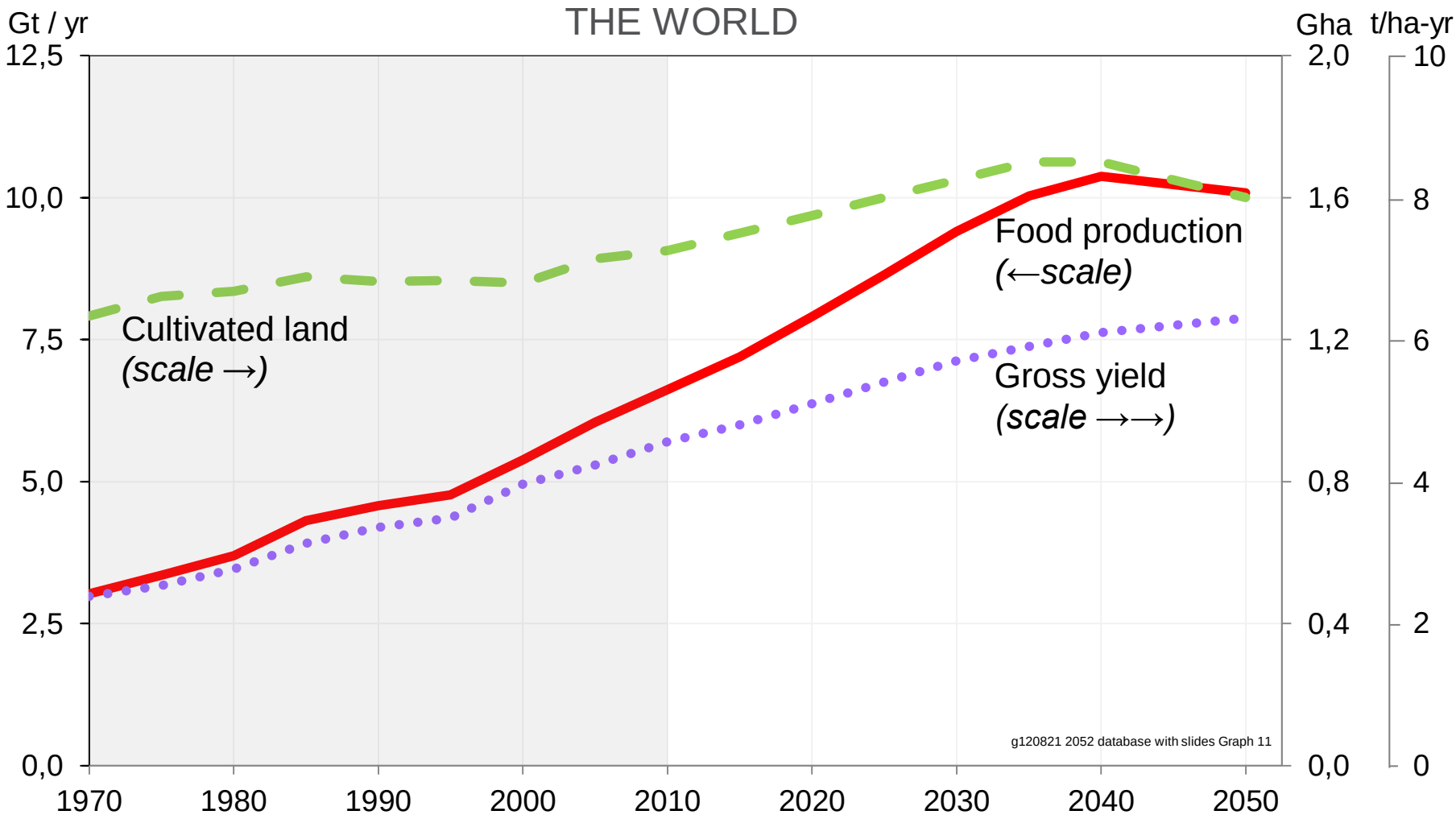


Figure 6-1: Food Production – World 1970 to 2050

Discussion of the *2052* forecast

1. World population and GDP growth will "slow by itself"
Because of human choice, not planetary constraints

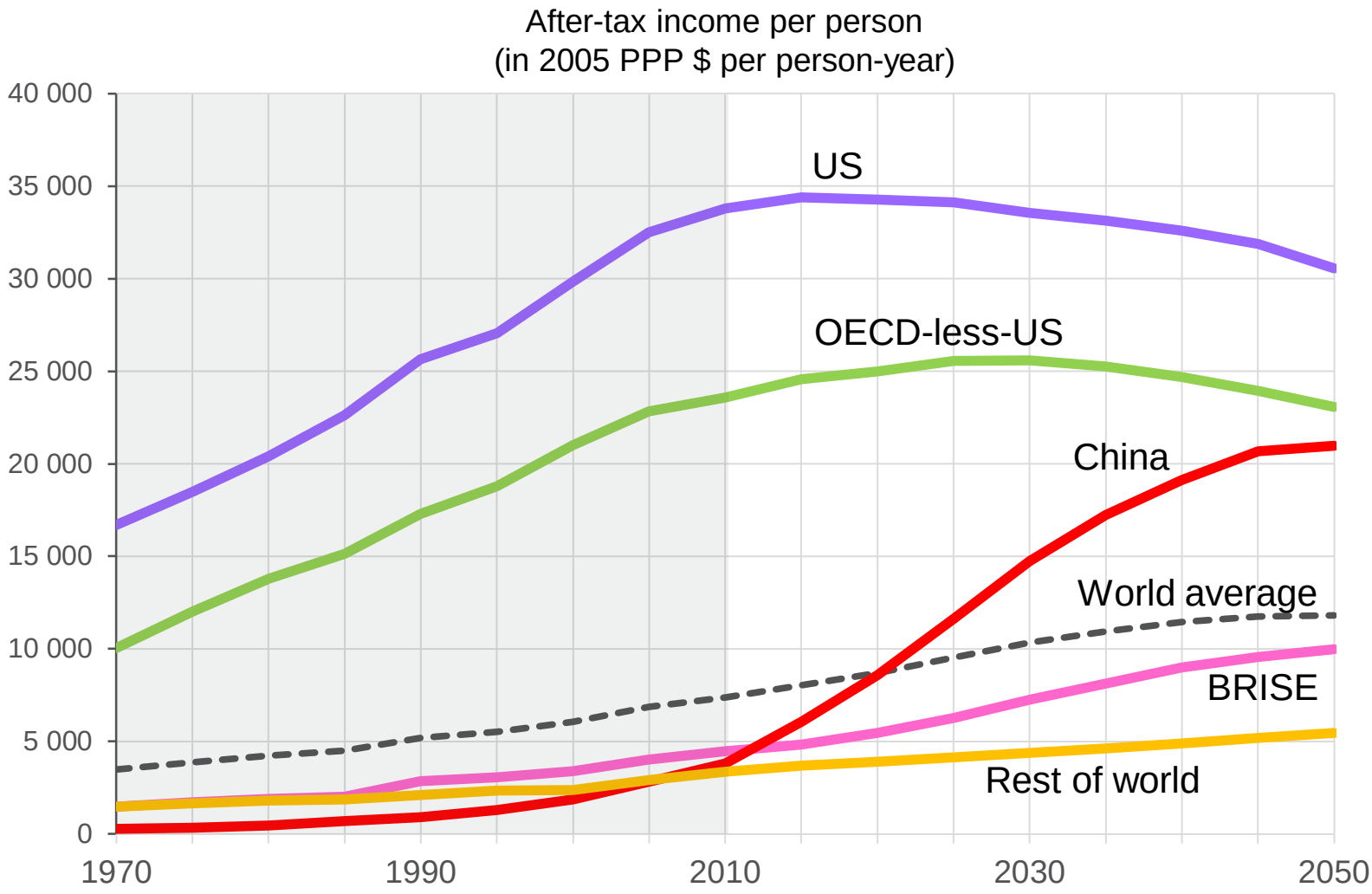
2. There will be enough resources
Because middle class will be smaller than expected

3. There will still be significant poverty
Because of growing inequity in the rich world and low GDP growth in the poor world

6. The world will be well on its way towards a climate catastrophe in the second half of the 21st century

The root problem: Pervasive short-termism

There will be huge regional differences



Source: Jorgen Randers, *2052*, Chelsea Green, Vermont, 2012

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 society will have to spend ever more
labour and capital 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 should be done? - Ideally

1. Further slow population growth
   Introduce 1-child policy – first in rich world
2. Cut CO2 emissions – first in the rich world
   Ban the use of coal, oil and gas from 2024
3. Reduce poverty in the poor world
   Give them a climate-friendly energy system
4. Reduce the ecological footprint of the rich world
   Legislate compulsory vacation
5. Temper national short termism
   Establish supra-national institutions
6. Reduce the focus on income growth
   Establish "increase in well-being" as a new goal

We need to modify the decision making system

In order to attain two major changes

- A shift in societal investment flows
  - towards what society needs in the long run
  - away from what is profitable in the short term

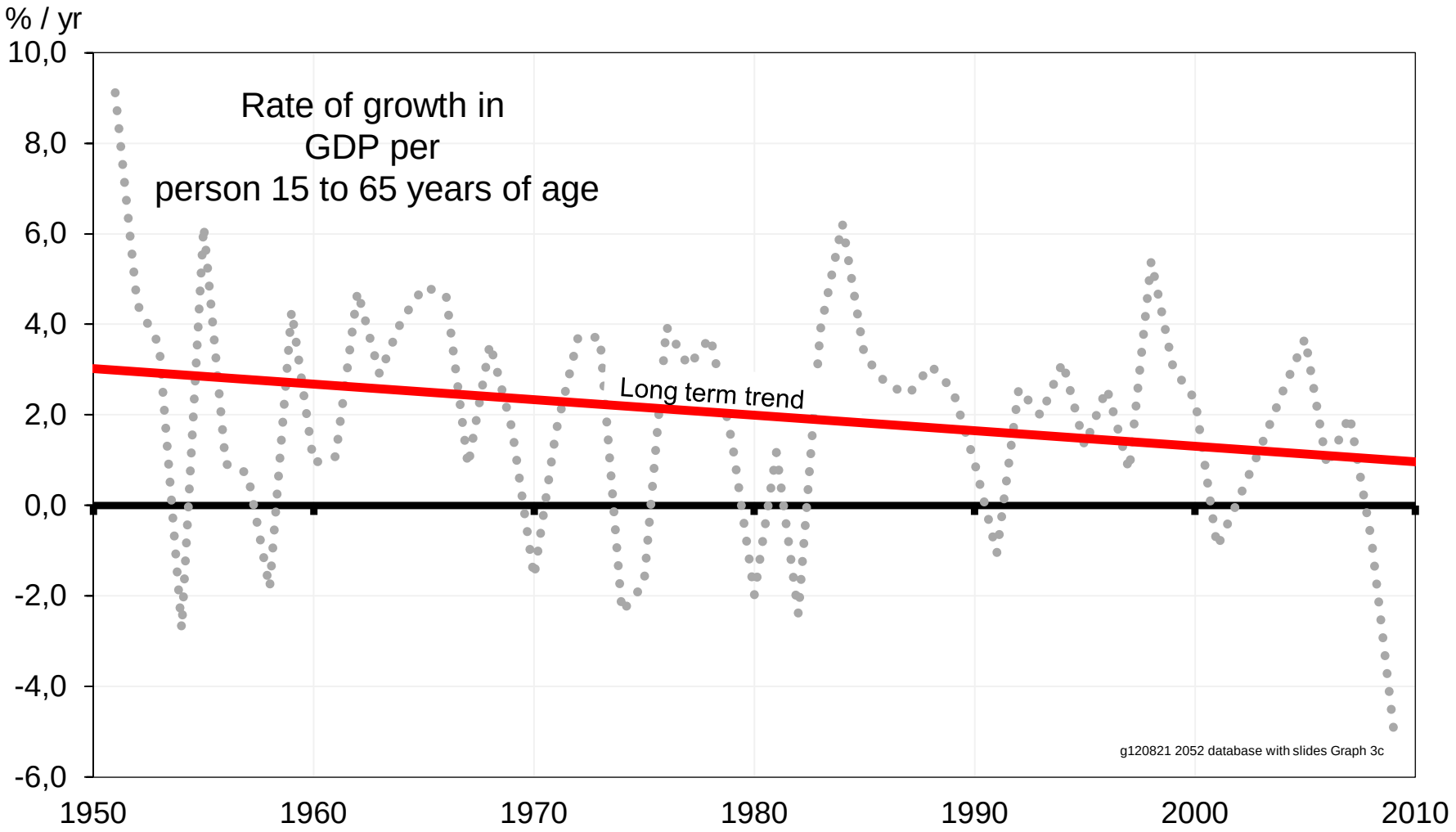
- A shift in societal goals
  - towards wellbeing and leisure
  - away from production growth

To this end current decision making should …

1. Seek higher well-being rather than higher GDP per person
2. Place more weight on national needs and less on profitability
3. Be more sensitive to long term and soft consequences
4. Emphasize distribution over growth
5. Disregard public opinion when it is unduly short term

It is time to turn

Slowing growth in total productivity - USA



Source: Jorgen Randers, *2052*, Chelsea Green, Vermont, May 2012

Fertility decline in EU-15 – 1950 to 2010

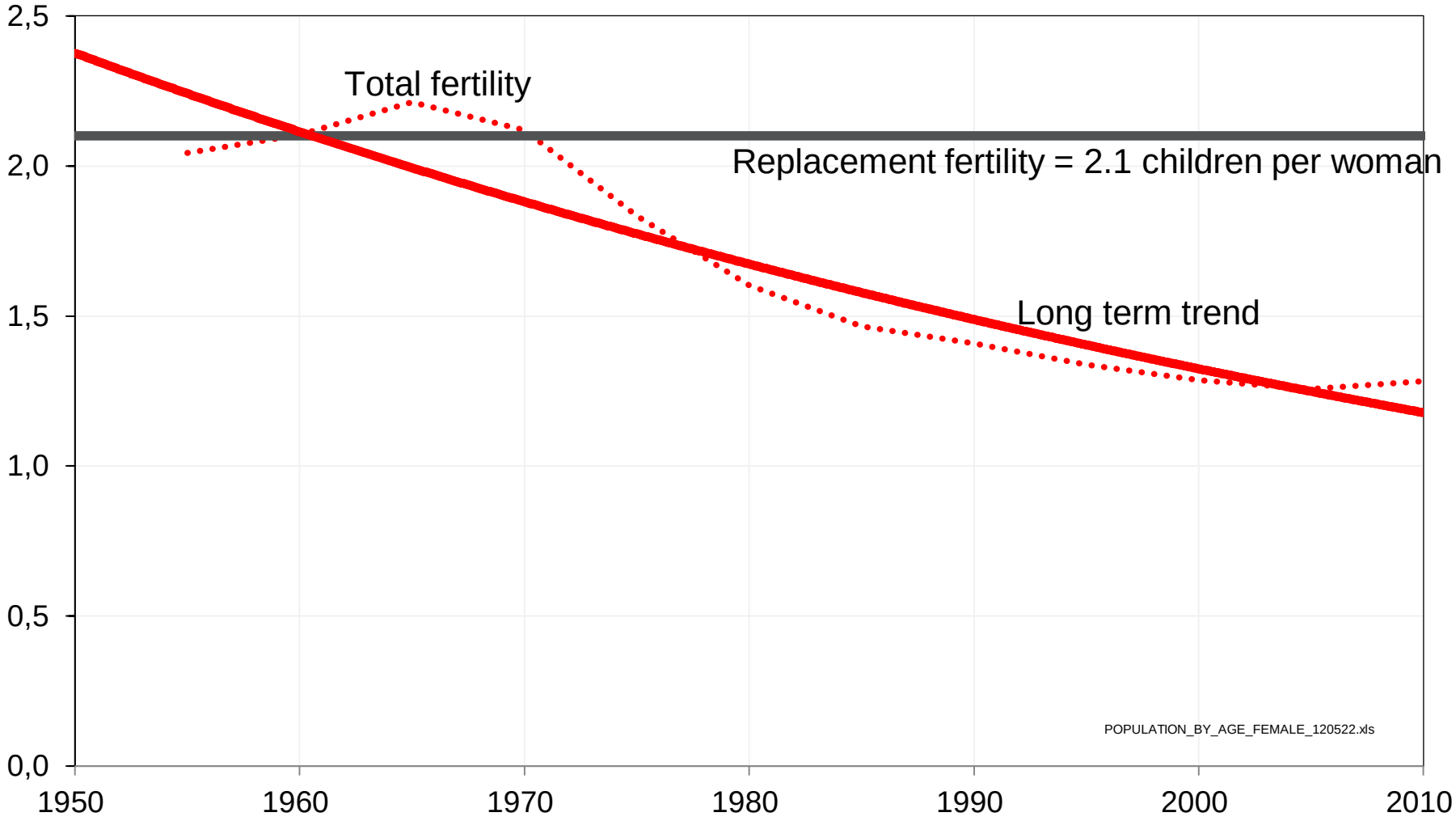
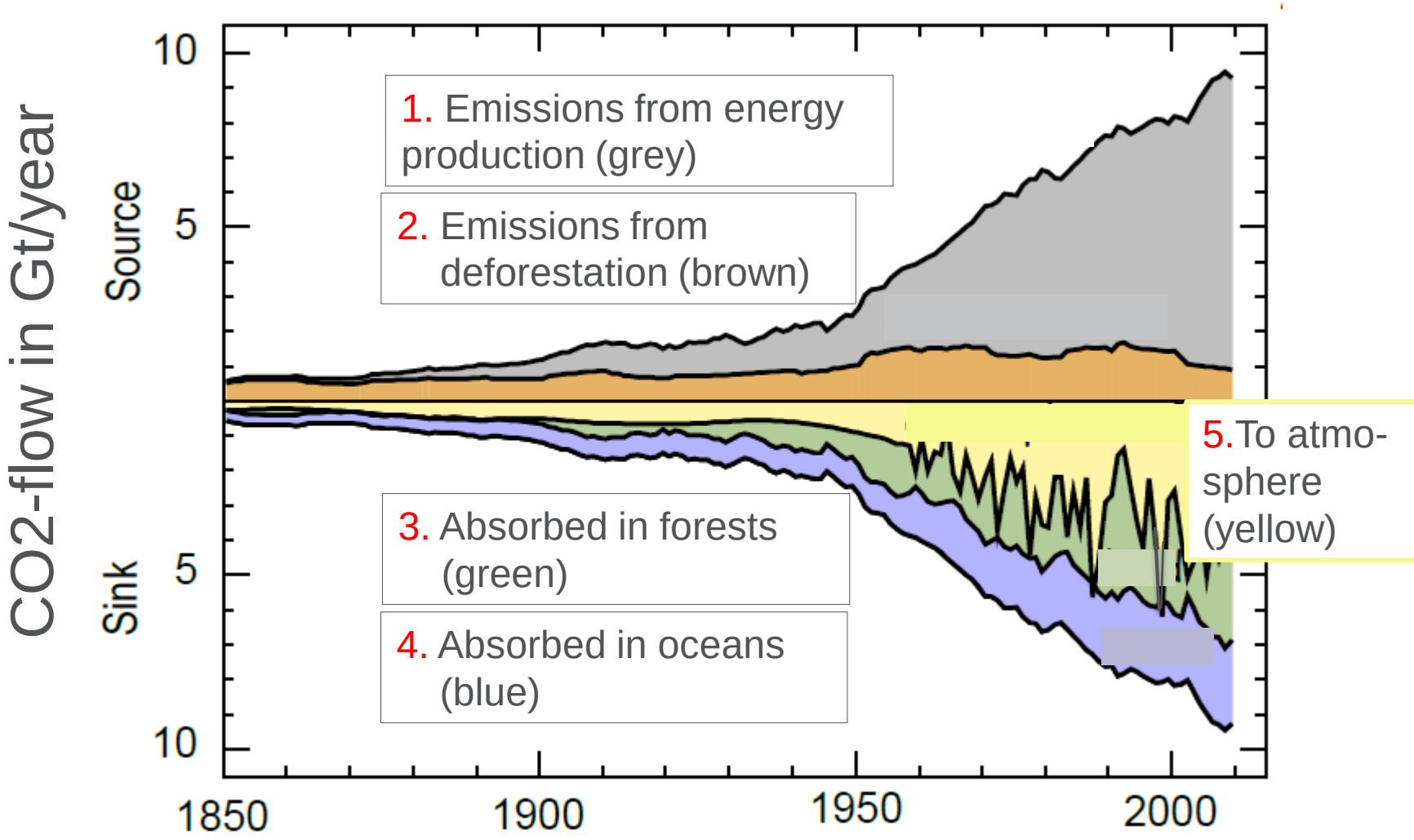


Figure A4-1 Total Fertility – EU15 1950 to 2010
Definition: Total fertility = Number of children per woman during reproductive age

Source: Jorgen Randers, *2052*, Chelsea Green, Vermont, May 2012

50 % of human CO2 ends in the atmosphere



Source: Global Carbon Project, Carbon Budget 2009