

The Meaning of the 21st Century

**A book by
James Martin**

The Meaning of the 21st Century

by James Martin

17th
century

18th
century

19th
century

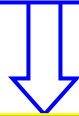
20th
century

21st
century

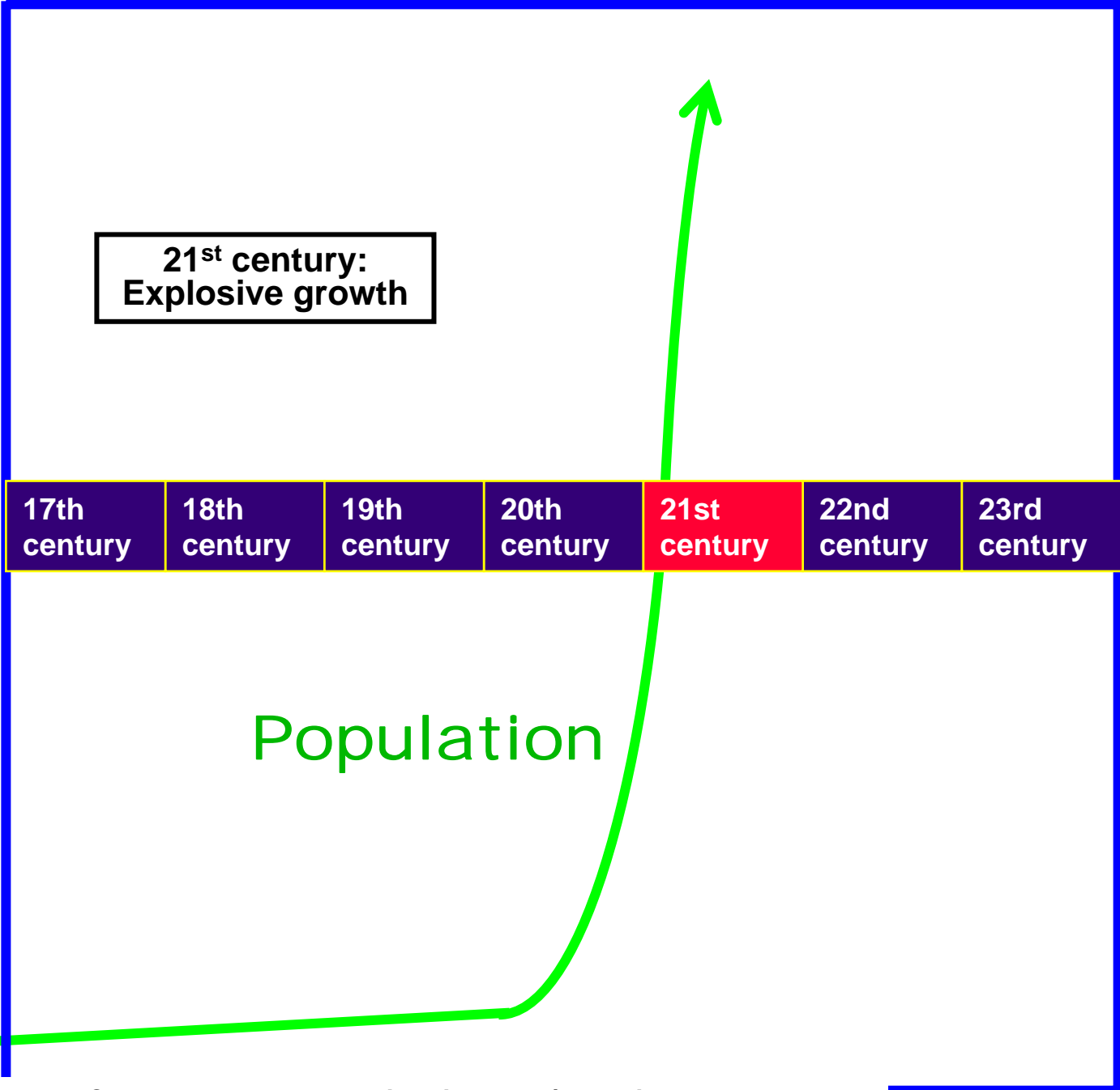
22nd
century

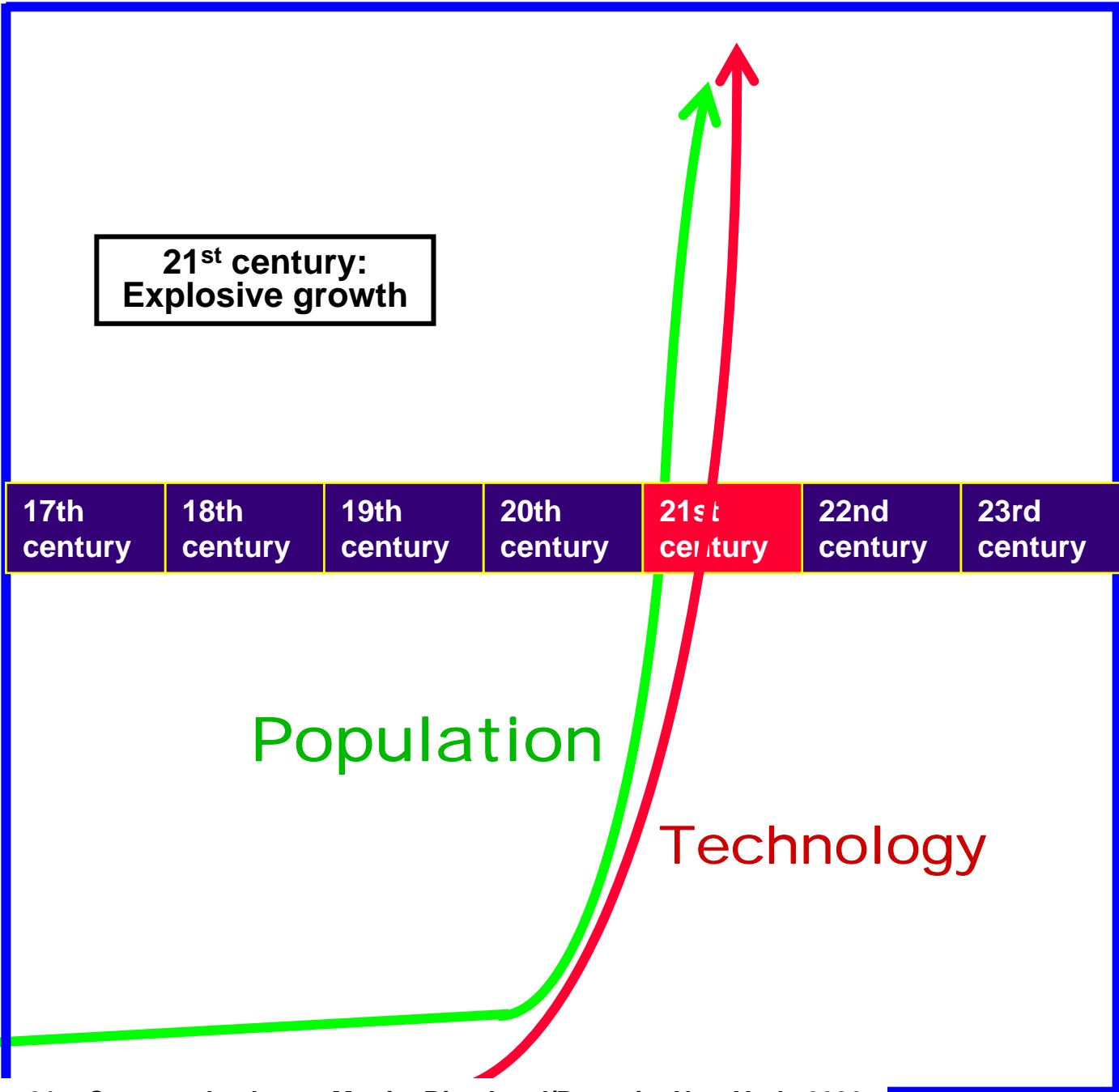
23rd
century

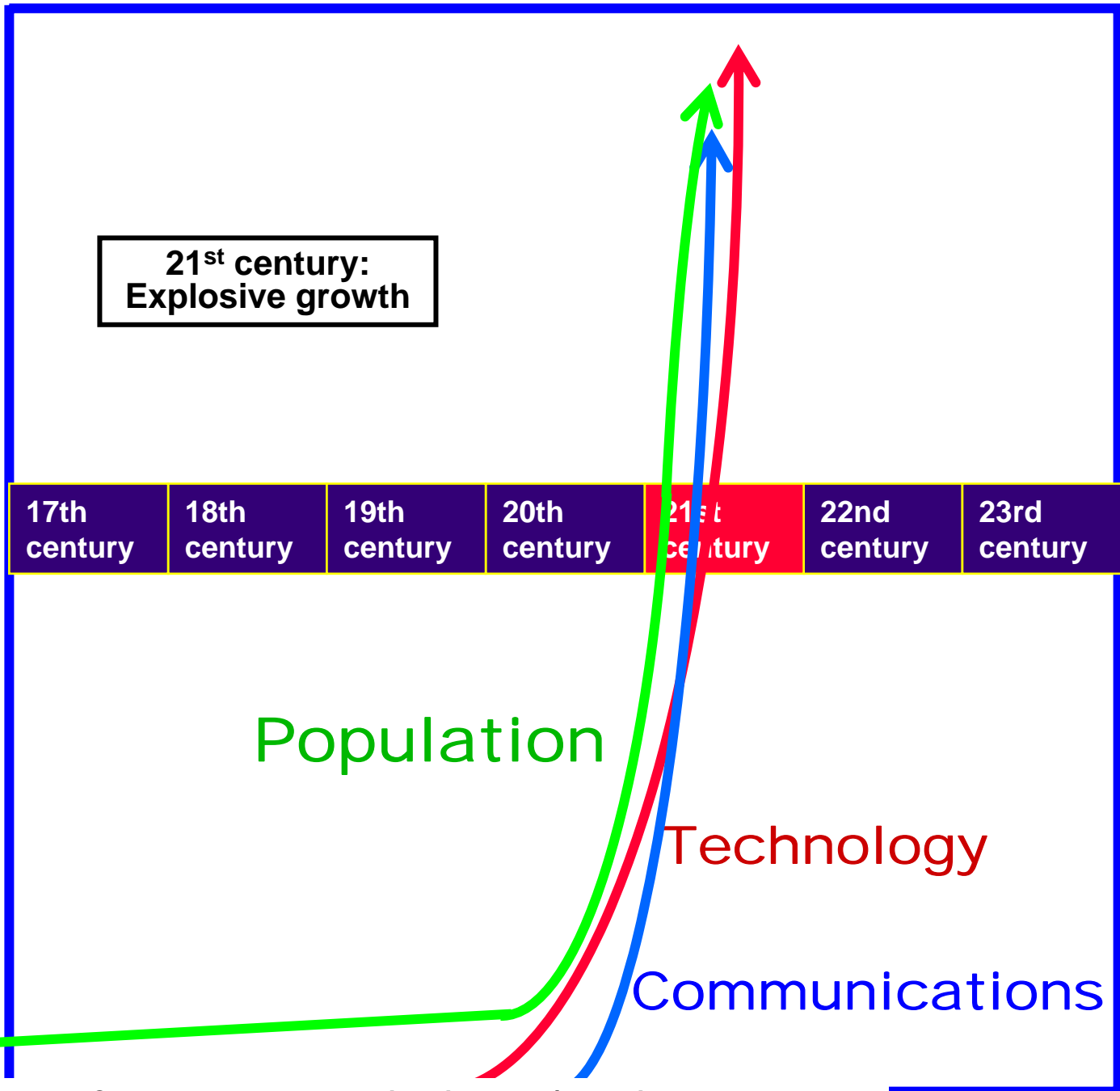
**The Industrial Revolution started
an avalanche of technology.**



The avalanche will thunder on for many centuries.







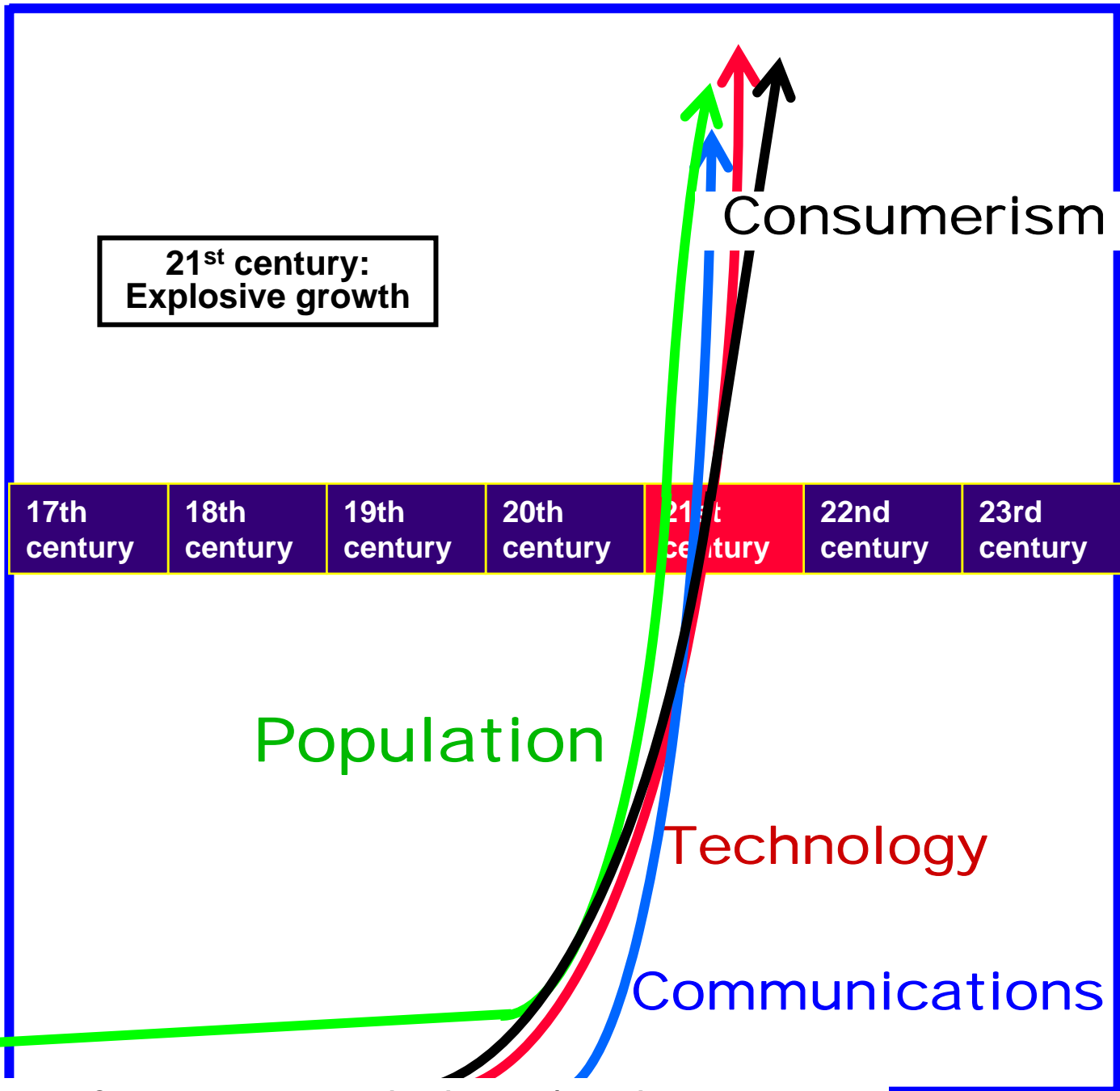
21st century:
Explosive growth

17th century	18th century	19th century	20th century	21st century	22nd century	23rd century
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Population

Technology

Communications



21st century:
Explosive growth

Consumerism

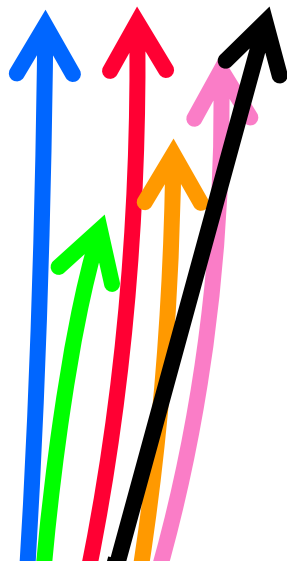
Population

Technology

Communications

**Explosive growth on
a limited planet**

17th century	18th century	19th century	20th century	21st century	22nd century	23rd century
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Soil is being turned into desert.

Fresh water is running out.



Forests are being destroyed.

Oceans will soon be devoid of life

China and India: furious growth

Global commerce is computerized

Billions of people in shanty-cities

21st CENTURY NIGHTMARES

Severe climate change

Water / soil / farm shortages

Ocean destruction

Failed nations

Global pandemics

Automated global triage

Religious extremism

Future WMD

Terrorism with WMD

War that could end civilization

Existential risks

Solutions. Solutions. Solutions.

Most of the solutions are not difficult.

This is an age of the most brilliant management



This is an age of the most brilliant management

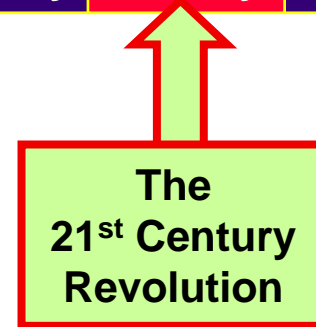
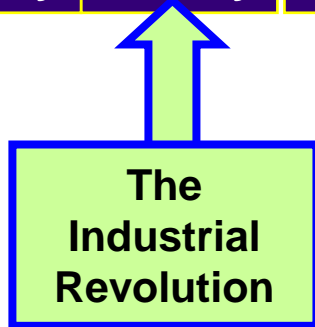
...but it's not being applied to the big problems



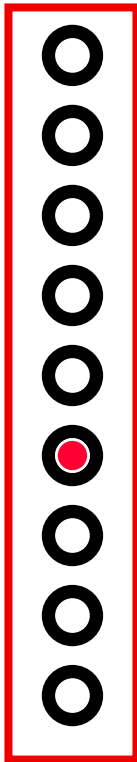
21st CENTURY OPPORTUNITIES

**Total redesign of all industries.
Great increase in wealth.
New rich nations.
Eco-affluence – a great lifestyle.
Major increase in life expectancy.
Regenerative medicine.
Nanotechnology.
Extraordinary STZ technologies.
Vast increase in human capability.
21C neuroscience.
Transhumanism.**

The Industrial Revolution unleashed the creature that led to today's world.

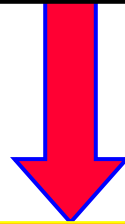


**needed to
tame the
creature**



Fourth Floor

**A transition, unique in human history,
has to occur.**



18th
century

19th
century

20th
century

21st
century

22nd
century

23rd
century

24th
century

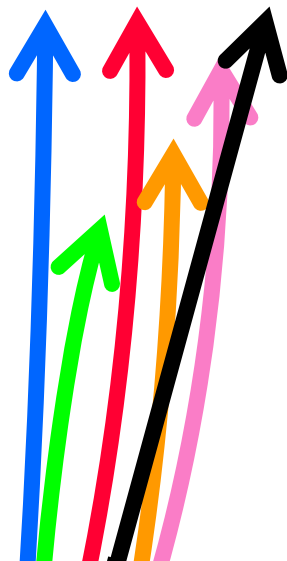
If it goes well: a magnificent future.

If it goes badly: a new Dark Age.

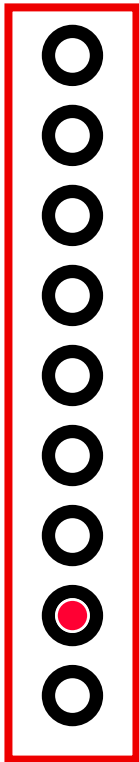
**Explosive growth on
a limited planet**

17th century	18th century	19th century	20th century	21st century	22nd century	23rd century
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The crunch century



The crunch century



Second Floor

**Today's young people
will make this grand transition succeed or fail.**

THE T-GENERATION

**The big
problems**



**are
global**

**THE T-GENERATION MUST BE
EDUCATED GLOBALLY
QUICKLY**

The Meaning of the 21st Century

**needs to be taught
to young people everywhere**



Technology's avalanche

Every year:

greater momentum and speed of change

**Lord Rees,
President of the Royal Society:**

**“The odds are no better than fifty-fifty
that humanity will survive
beyond the 21st century.”**



Eventually we must control technology's avalanche



or it will destroy us



The Good News

For every problem we describe there are powerful leverage factors

Global wealth will increase massively

New technology will be clean, miniaturized, sustainable and immensely powerful

In the 21st century we' ll invent multiple civilizations



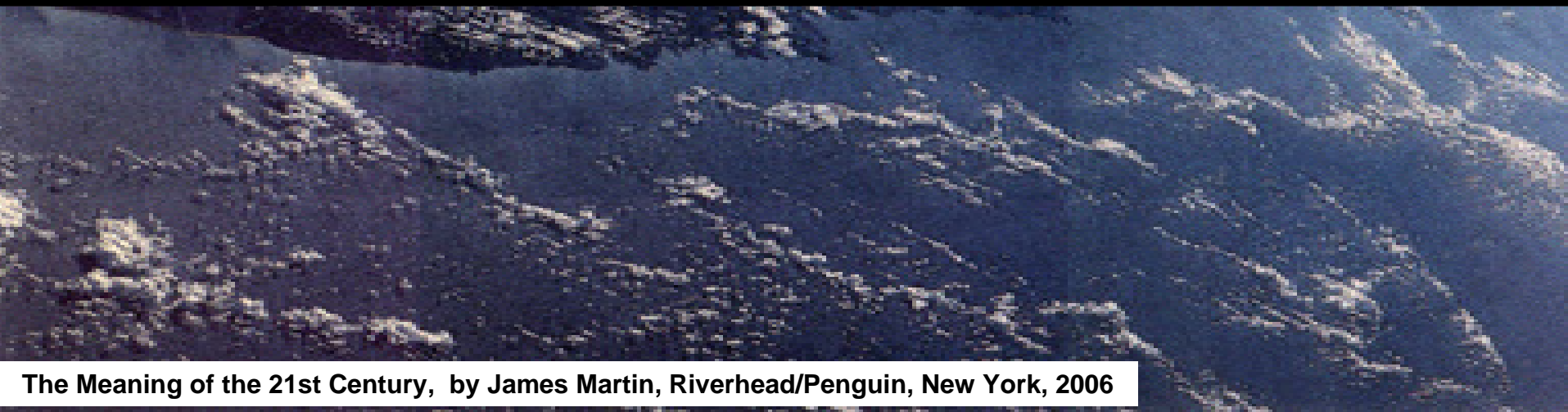
Freight-train trend

Excessive population growth



Freight-train trend

Increasing food requirements



But each year, humankind

- Loses 24 billion tons of topsoil
- Loses 160 billion tons of aquifer water
- Creates 15 million acres of new desert.
- Pumps 20 billion tons of CO₂ into atmosphere
- Loses 44 million acres of forest
- Destroys fish in the oceans



Freight-train trend

Dropping water tables; declining aquifers

Water tables in India are falling an average of 3 to 10 feet per year.

We extract 160 billion tons more water per year than is being replenished by rain.

If this water were carried in water trucks it would require a 300,000-mile-long convoy of trucks **every day** (a convoy length 37 times the diameter of the Earth).

Exotic pollution

Technologies of sorcery

Reopening weapons of mass destruct

Increasing conflict among religions

Global w

eed

Damage to

Growth of

Poore

Growing

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exce

Cancer

man endocrine system

snational corporations

forests

soil

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Genetic modification

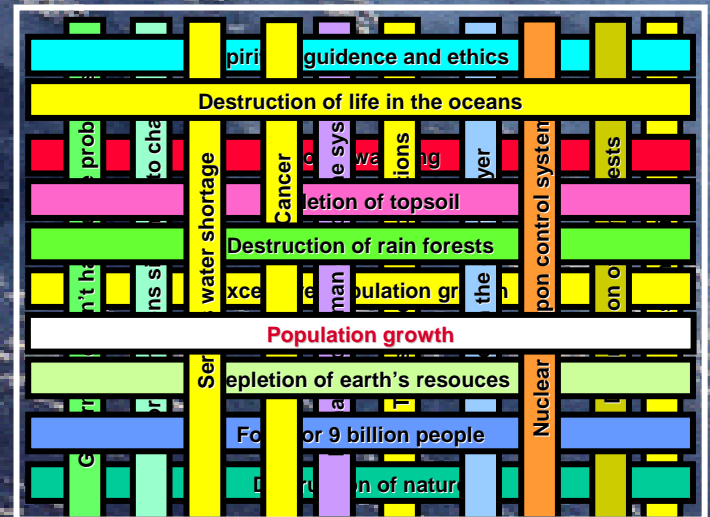
Elir

Growing

tion of species

ed for sustainability

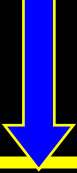
When you put the world's freight-train trends together it is clear that we are deep trouble



**Long-term, stock market
capitalization goes up**

**Nature's trust fund
goes down**

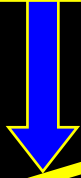
Leverage



Leverage factor

A large change in behavior
can be brought about
in inexpensive ways.

Leverage



Leverage factor

The future we'll live in

What are the momentum trends?

What are the leverage factors?

An aerial photograph of a mountain range, likely the Himalayas, showing rugged terrain and snow-capped peaks. A black box with a red border is overlaid on the right side of the image, containing white and yellow text.

**35 years from now,
there'll be
2.5 billion more people
to feed**

Momentum trend

Excessive population growth

4 stages of growth

Number of
children

Women: Illiterate; treated with contempt

8

Women learn to read

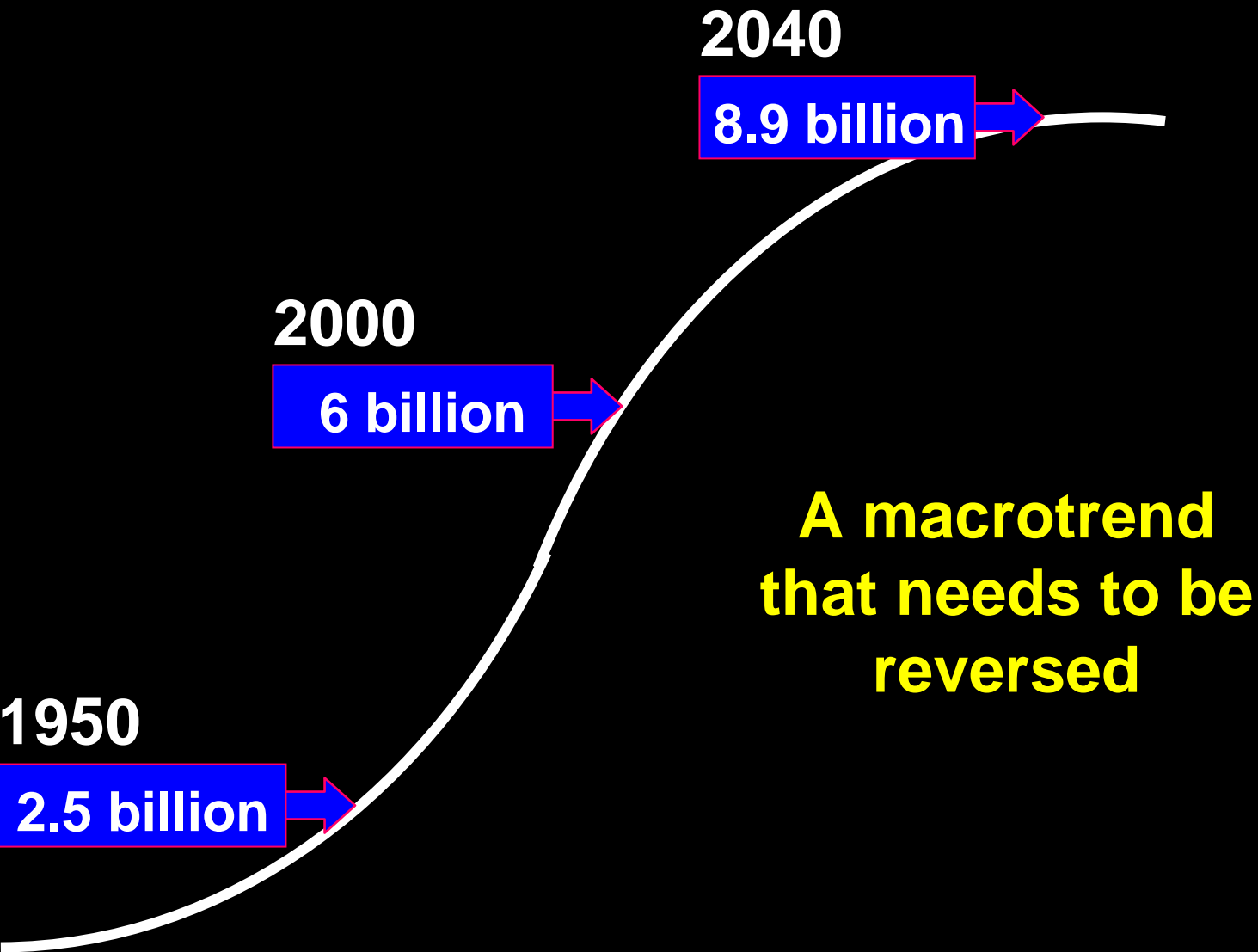
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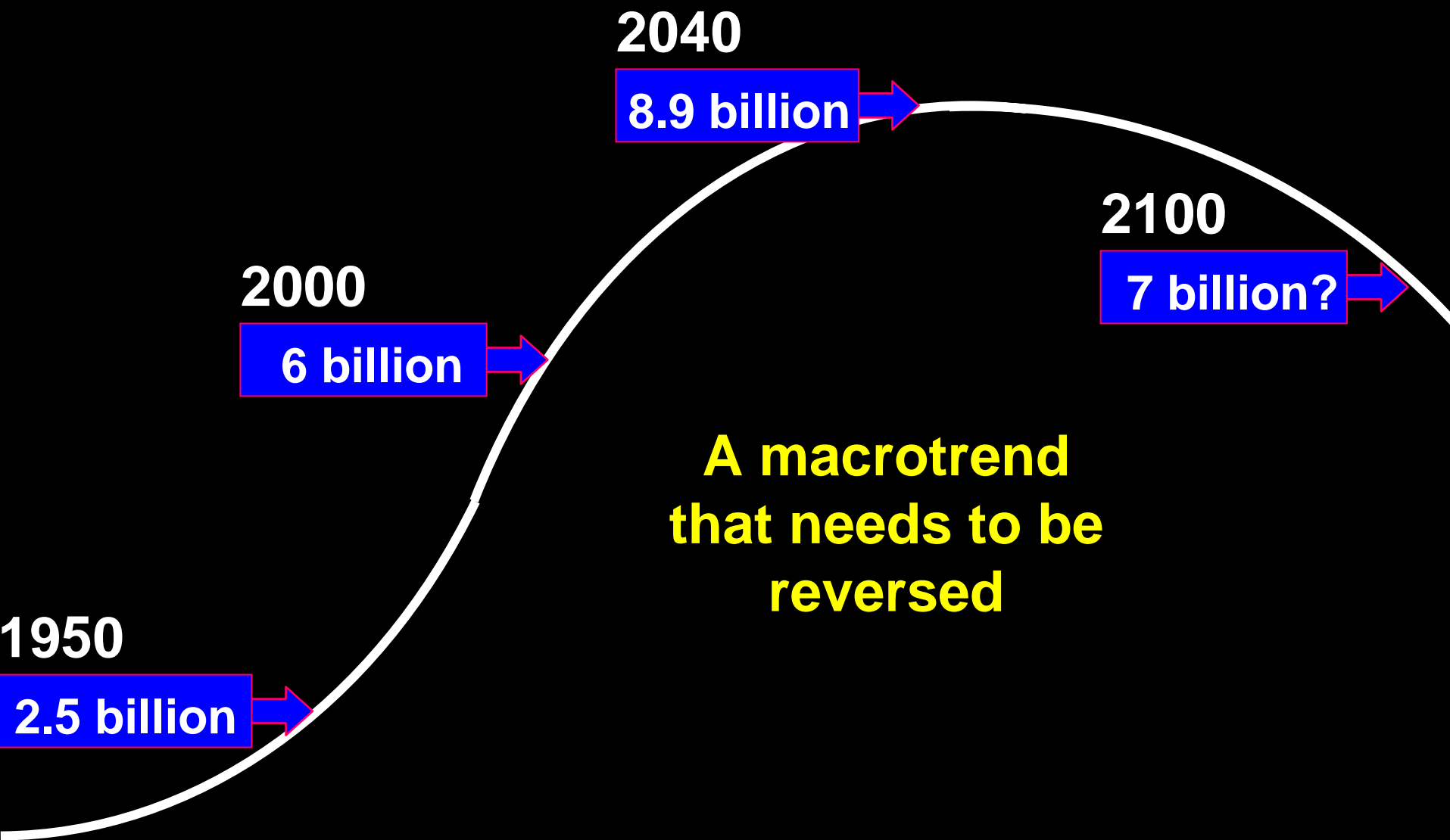
Women's liberation

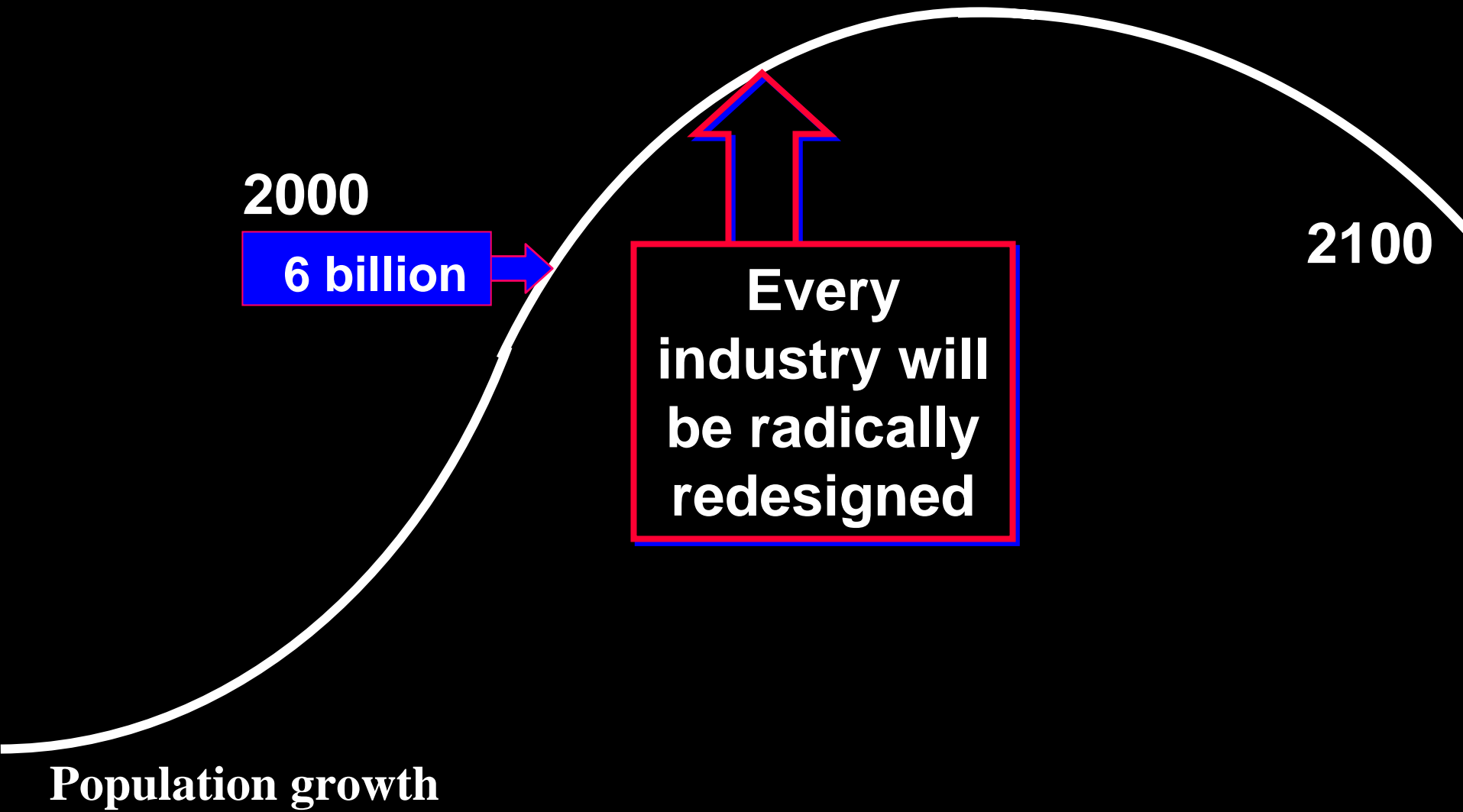
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Women: Higher aspirations

1.5





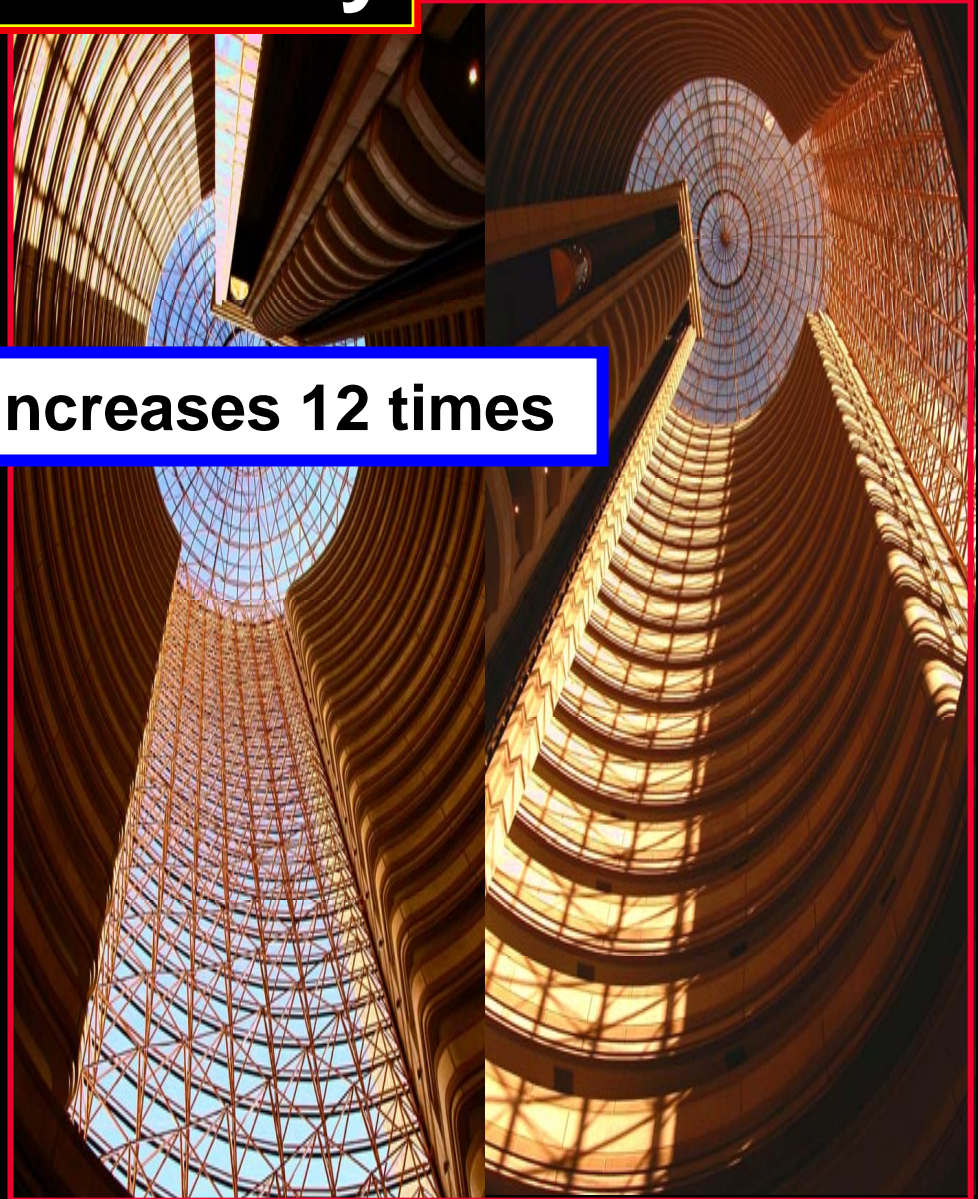


Cars
Telecommunications
Farming
Fishing
Education
Entertainment
Retail
Manufacturing
Building
City design
Intelligence
Health care
Pharmaceutical
Supply chain

**Every
industry will
be radically
redesigned**

Wealth in the 21st century

Real wealth of USA increases 12 times

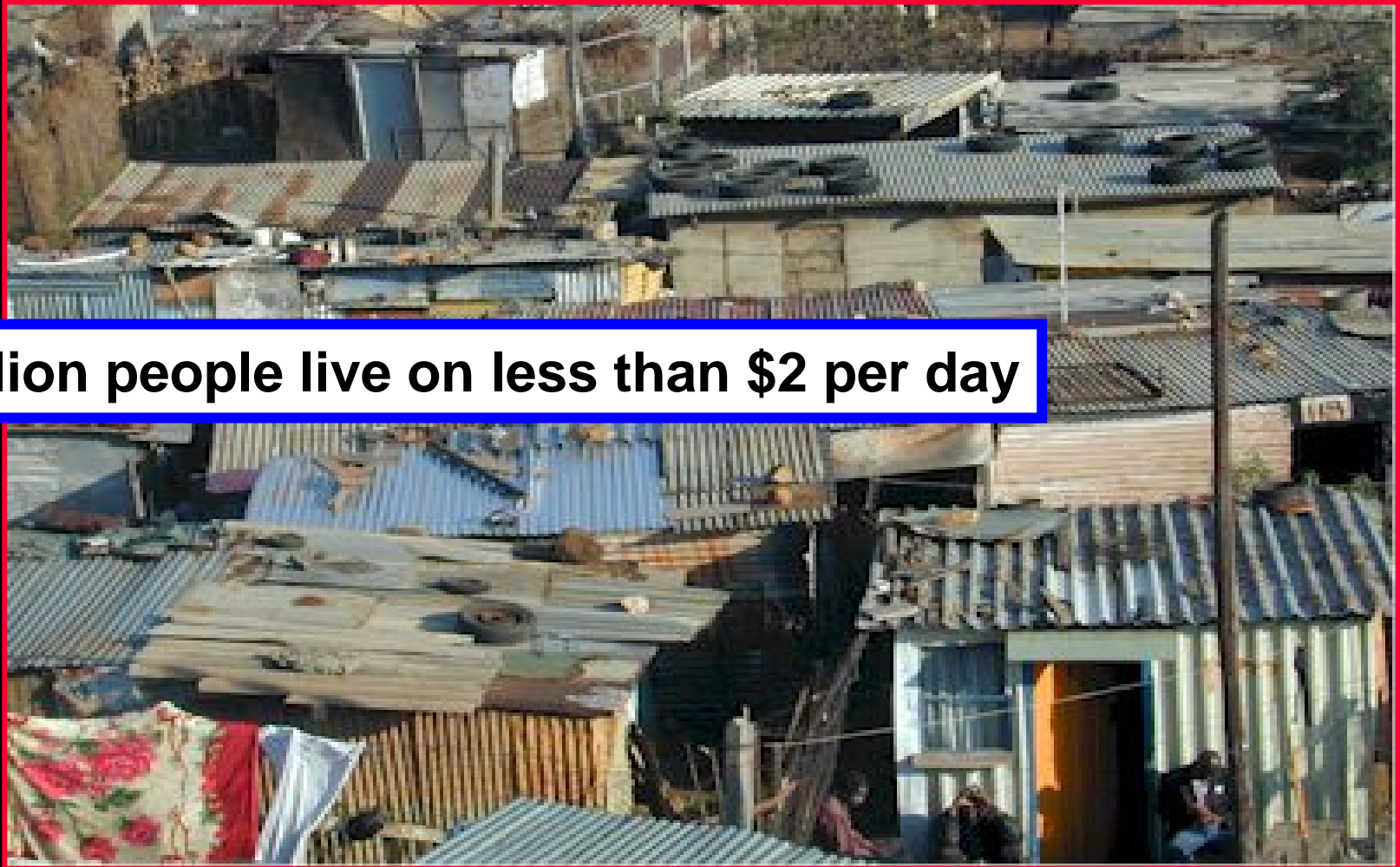


Wealth in the 21st century



Real wealth of China increases 24 times

In the 21st century



3 billion people live on less than \$2 per day

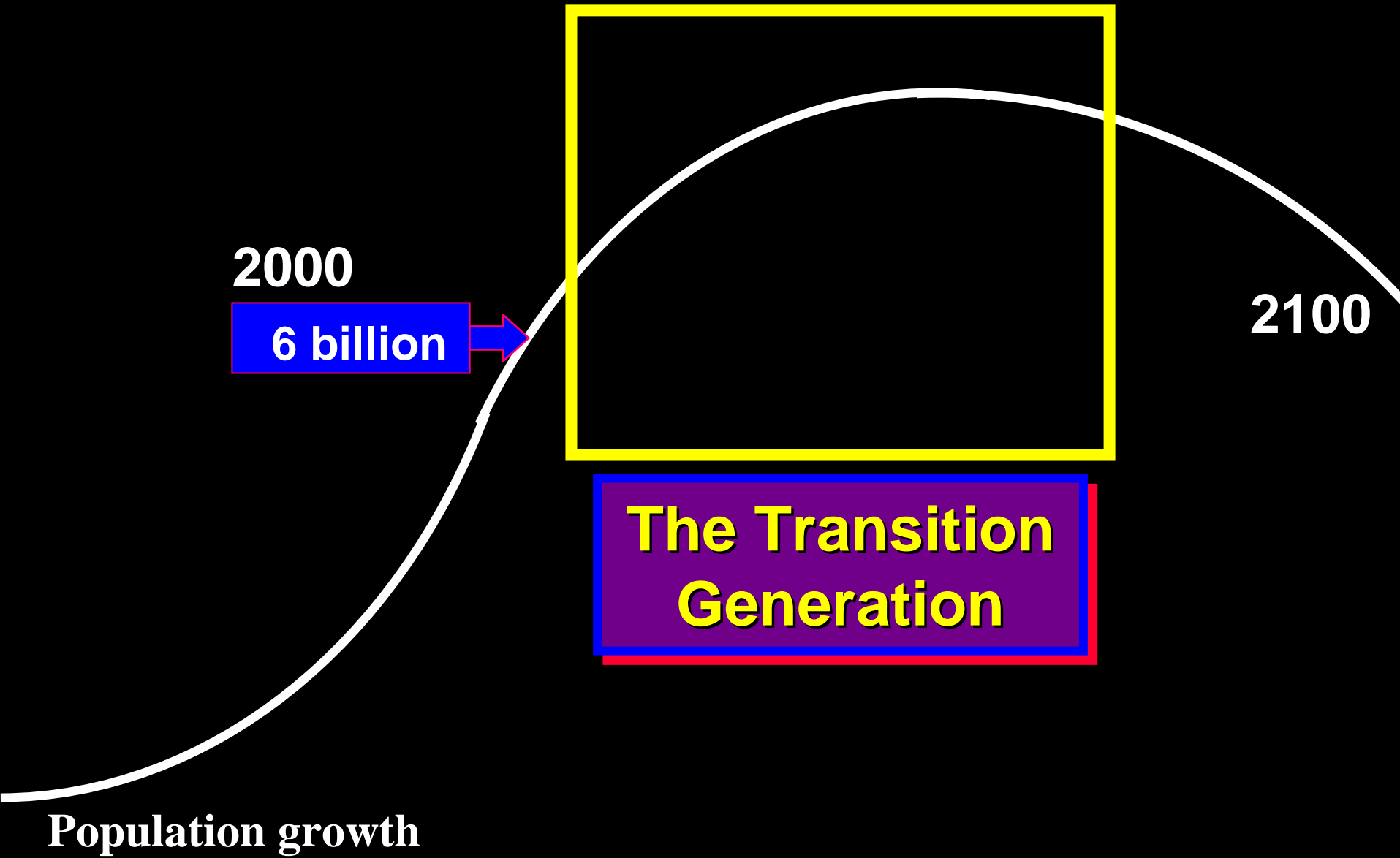
Burkina Faso



**Women walk for more than an hour
to where they can find firewood**

De Gioia

Dealing with the inequalities caused by globalism is
the moral challenge of our lifetimes



2000

6 billion

2100

The Transition
Generation

Population growth

- Climate change
- Excess population
- Extreme poverty
- Water shortages
 - Famine
 - Pandemics
 - AIDS
- Fundamentalism
- Violence
- Mass-destruction weapons

2100

Pop

2000

6 billion



2100

Population growth

The
canyon



2000

6 billion



2100

Population growth

The
canyon





For all of the negative momentum trends there are solutions

**Today, it seems probable that the solutions
will not be applied in time.**

It's a race against time.



Climate change

An aerial photograph of a vast, arid desert landscape. The terrain is characterized by numerous concentric, circular ridges and valleys, creating a series of terraced, bowl-like structures. The colors range from light tan and beige to deep, dark blues and purples, likely due to shadows and the mineral composition of the soil. The overall appearance is that of a natural geological formation, possibly a large-scale crater or a series of ancient, interconnected basins. A white rectangular box is superimposed over the center of the image, containing the text "More dangerous than terrorism".

More dangerous than terrorism

Category 7 hurricanes





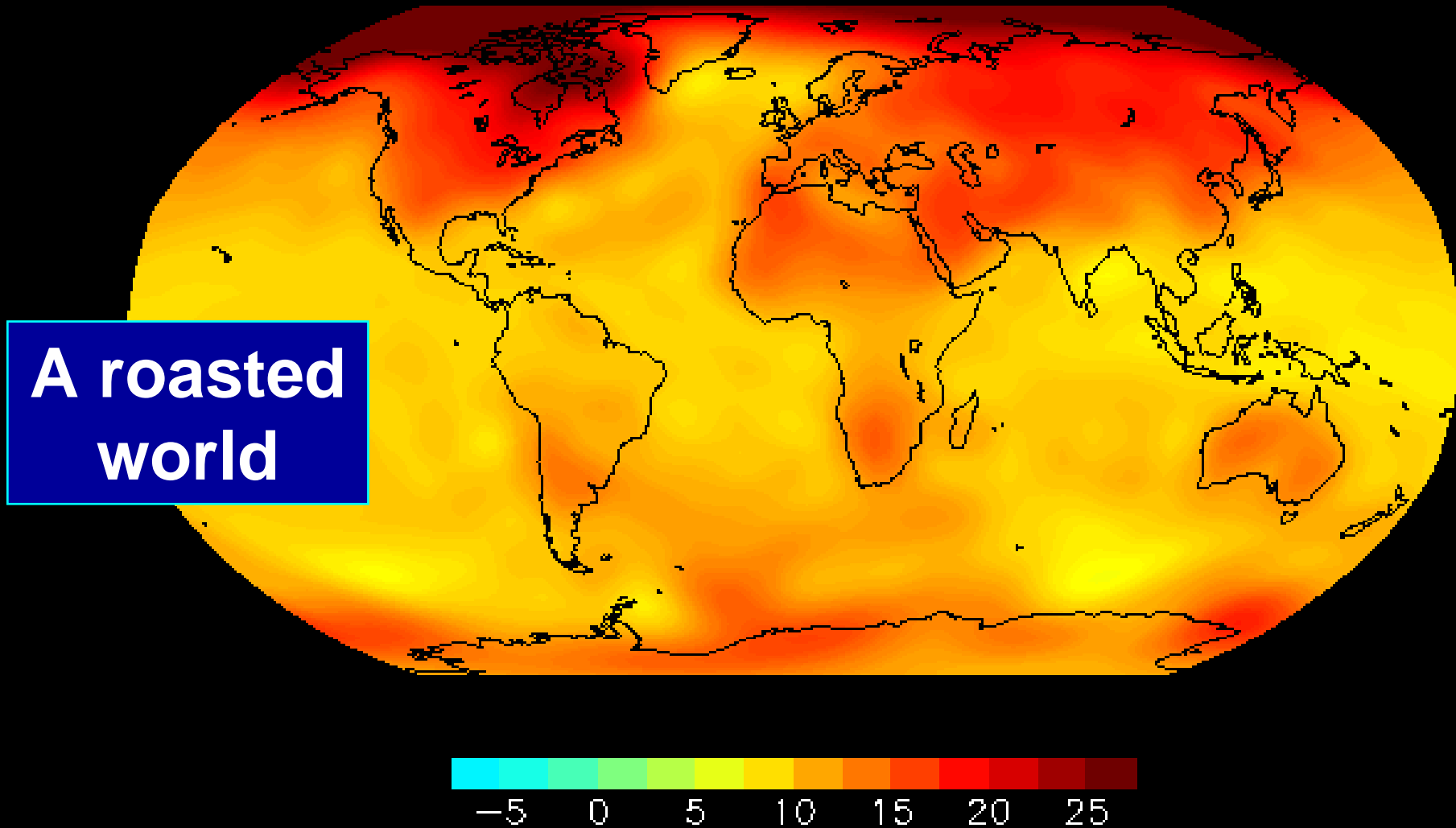
China and India:

**Severe increase in
carbon emissions**

Gaia



If 2005 “business as usual” continues to the century end
northern hemisphere mid-continent average warming: 15-25°F



A satellite view of Earth from space, centered on the Arctic region. The Arctic ice cap is visible as a large white area in the center, surrounded by the continents of North America, Europe, and Asia. The ice cap appears to be melting, with some brownish and yellowish patches visible within the white area. A small blue circle is located in the center of the Arctic ice cap. A red-bordered box with yellow text is overlaid on the left side of the image.

Melting Arctic ice-cap



The Global Conveyer



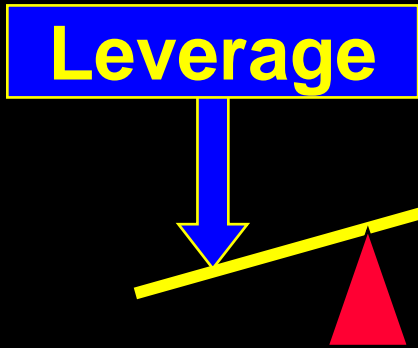
**The Achilles Heel
of the Global Conveyor**

As fast as possible:



Development of the new energy technologies

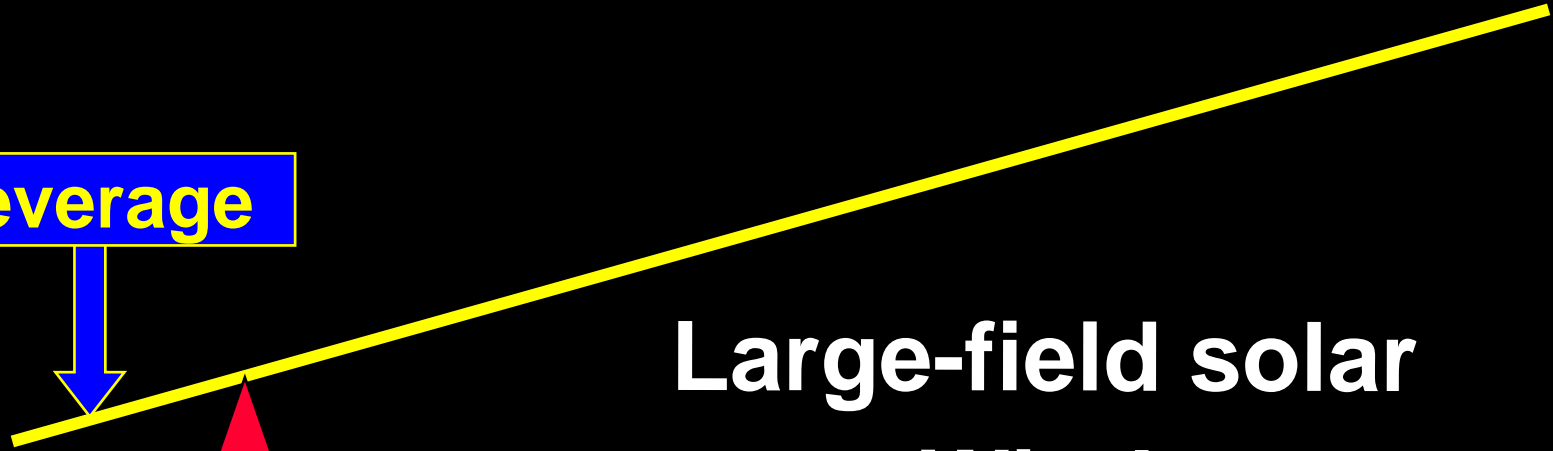
As fast as possible:



Development of the new energy technologies

As fast as possible:

Leverage



**Large-field solar
Wind**

Fuel cells

Hydrogen-based cars

Pebble-bed energy

Bio-mass

Fusion

An extremely high quality of life can be achieved with low use of fossil fuels.

Eco-affluence

What should be the characteristics of a great civilization with advanced technologies?



Eco-affluence

Eco-affluence



The Meaning of the 21st Century, by James Martin, Riverhead/Penguin, New York, 2006

**Saving energy
is much cheaper than
generating energy**

21st century technologies

➤ Extreme-bandwidth Internet

➤ Genetic engineering

➤ Biotechnology

Infinite in all directions

➤ Parallel supercomputing

➤ New artificial intelligence

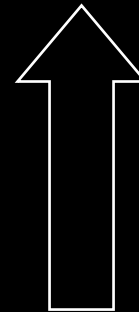
➤ Automated evolution

➤ Intelligent robotics

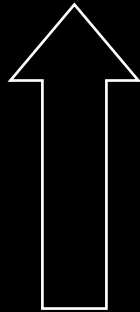
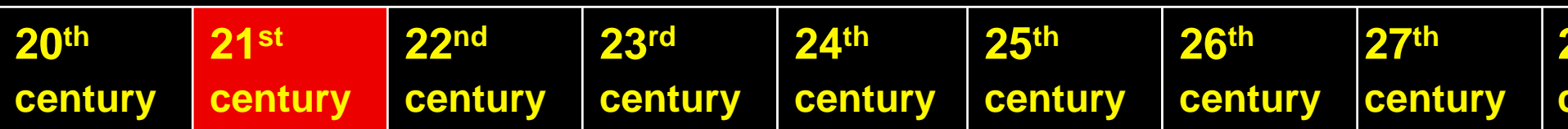


The fastest rate of new wealth generation in history

15th century	16th century	17th century	18th century	19th century	20th century	21 st century	22 nd century	23 rd century	24 th century
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The century when we learn to control what we are doing



... to make future centuries possible

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