

SOCI 101
INTRODUCTION TO
SOCIOLOGY

PROFESSOR
KURT REYMERS, PH.D.
(DR. K)

SOCIOLOGY.MORRISVILLE.EDU
> **SOCI 101**

Human Population

1. The Population "Explosion"

On October 31, 2011(+/- 6 months), the world saw its 7 billionth human being born.

During the duration of a one-hour class*, the world population will grow by over 8,000 people.

* (Here's the calculation: every second ~5 people will be born, while ~3 will die, creating 2.3 new world citizens per second ---that's 138 citizens per minute * 60 minutes = 8,280 people.)

Human Population

2.a. Demography: the study of human population

Demographers are interested in the causes and consequences of human population growth.

PRE-HISTORY: Impact of the Paleolithic Era (250,000 B.C. – 10,000 B.C.)

For most of human history, human population grew to about *170 million*; changes started with the birth of civilization

i. Impact of the Agricultural Revolution (~ 10,000 B.C. – 1800 A.D.)

Over the next ~12,000 years, the human population grew to *1 billion*;

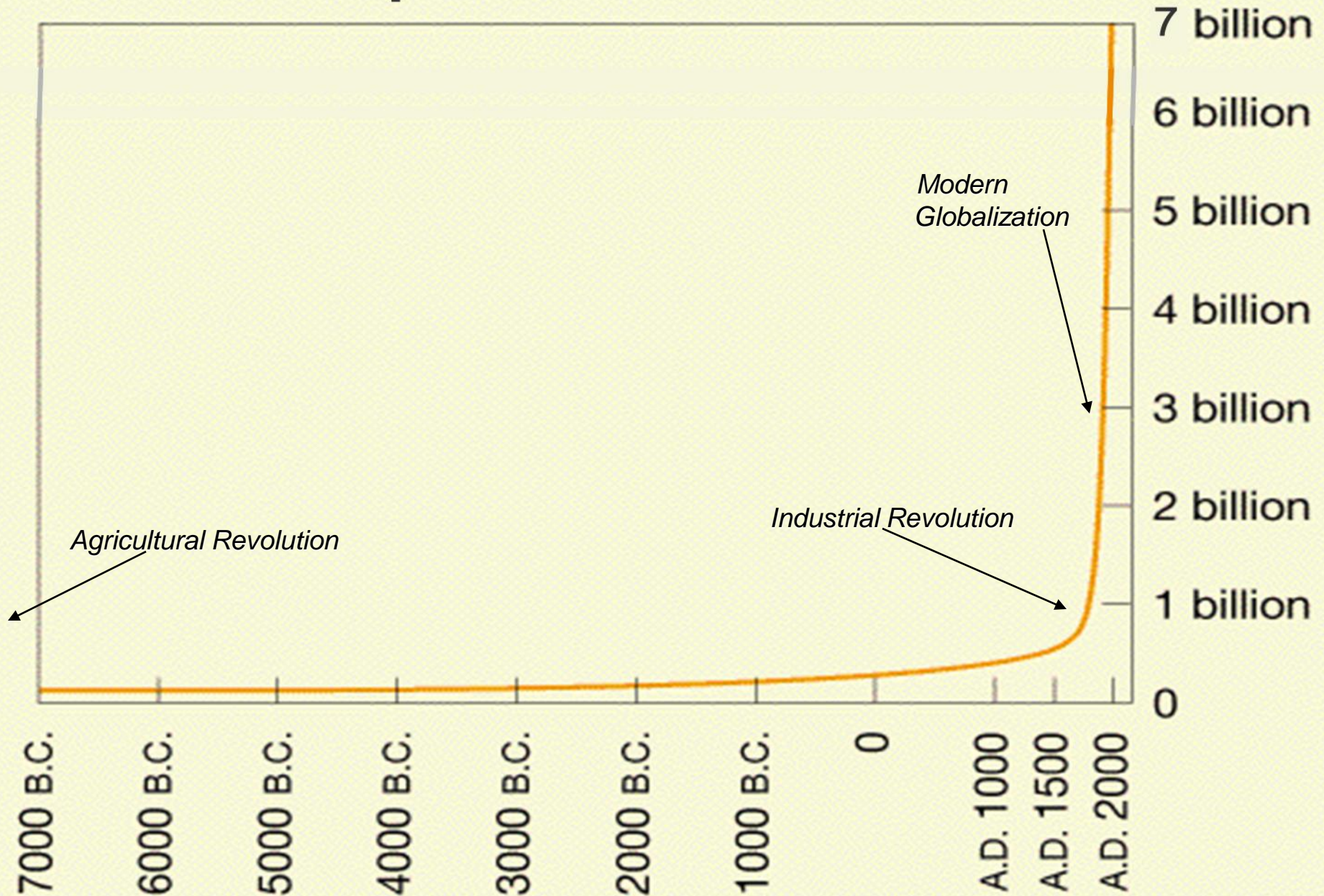
ii. Impact of the Industrial Revolution (~1800 – 1950):

Over 150 years of industrialism, the human population grew to *3 billion*.

iii. Impact of Modern Globalization (~1950 – 2011):

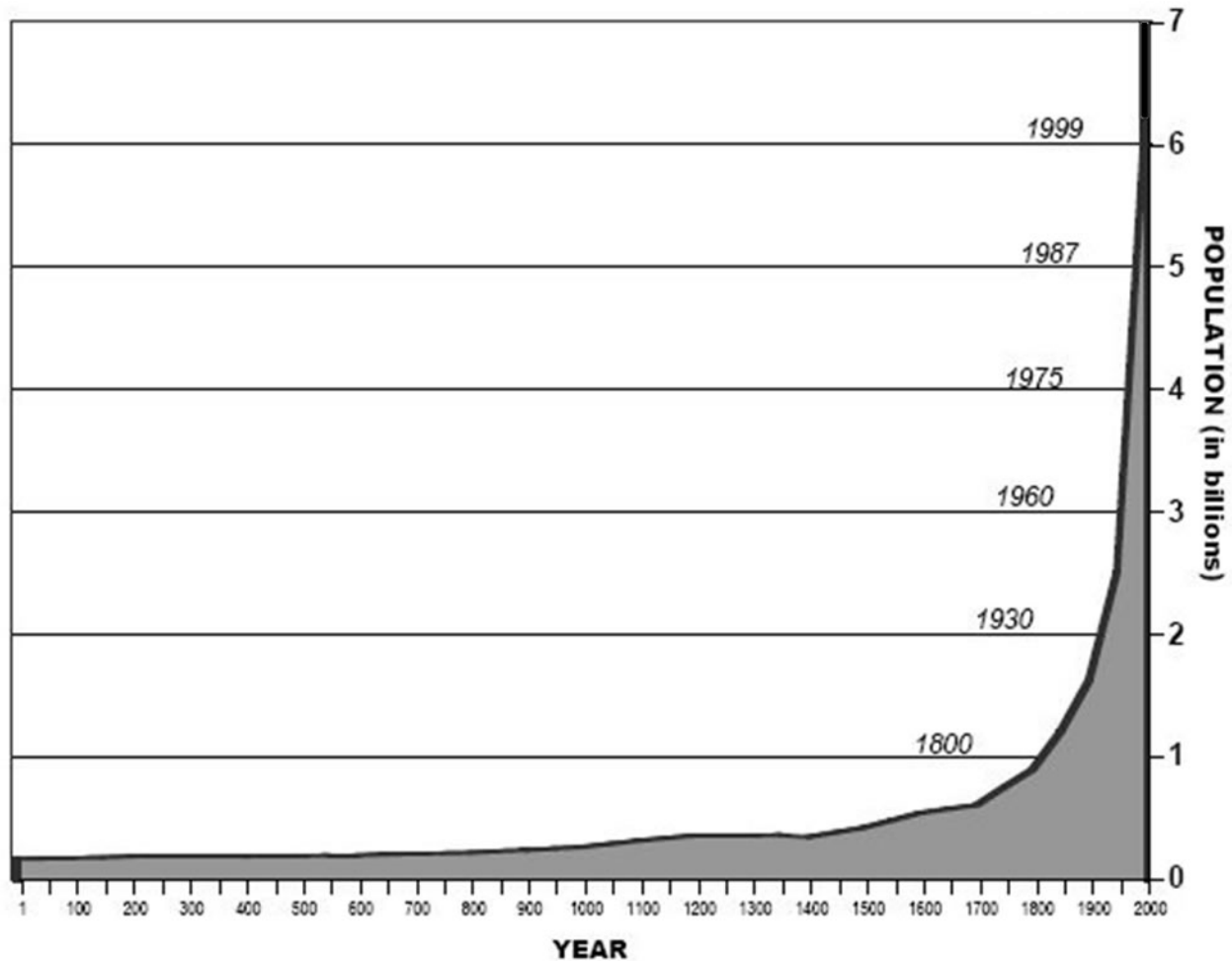
Over the past 60 years, the human population has more than doubled to reach *7.5 billion*.

The Population J-Curve



Human Population

Human Population Growth Since 1 A.D.



Human Population

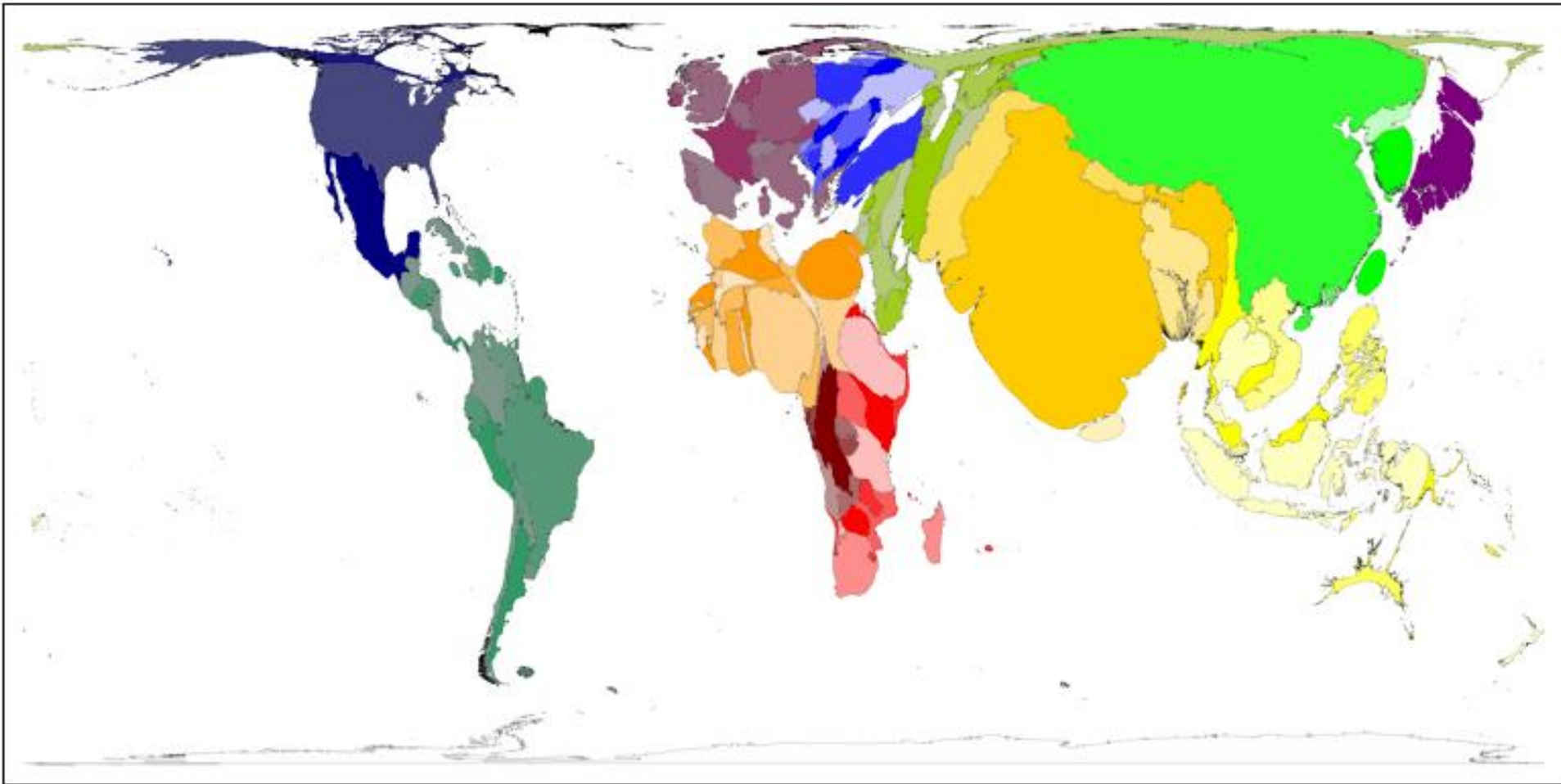
2.b. Exponential Growth: *The Lily Pond Parable*



If a pond lily doubles every day and it takes 30 days to completely cover a pond, on what day will the pond be $\frac{1}{2}$ covered?

- On what day will it be $\frac{1}{4}$ covered?
- What kind of environmental consequences can be expected as the 30th day approaches?
- What will begin to happen past the 30th day?
- At what point (what day) would preventive action become necessary to stop unpleasant events from happening?
- With respect to human population, what corresponding day are we at in the world?

www.WorldMapper.org



Human Population

3. *The population explosion*

The formula for calculating population change:

$$\text{Population Growth Rate} = \frac{\text{Births} - \text{Deaths} \pm \text{Migration}}{\text{Time}}$$

Q: What part of this formula is affecting the global population explosion today?

A: *The population explosion is due to a reduction in mortality (death rate) throughout the world, NOT an increase in fertility (birth rate).*

Human Population

4. Current Population Theory: The “Demographic Transition”

Demographic = Population

Transition = Change

a. Demographic transition theory states that due to a decrease in mortality as a result of **technology transfer** we have seen a renewed explosion in world population since 1950.

Human Population

4. The Demographic Transition

b. According to demographic transition theory,

4 stages of industrialization

(and population transition) have occurred or are currently transforming nearly all societies in the modern world.

i. *Pre-industrial society (agricultural);*

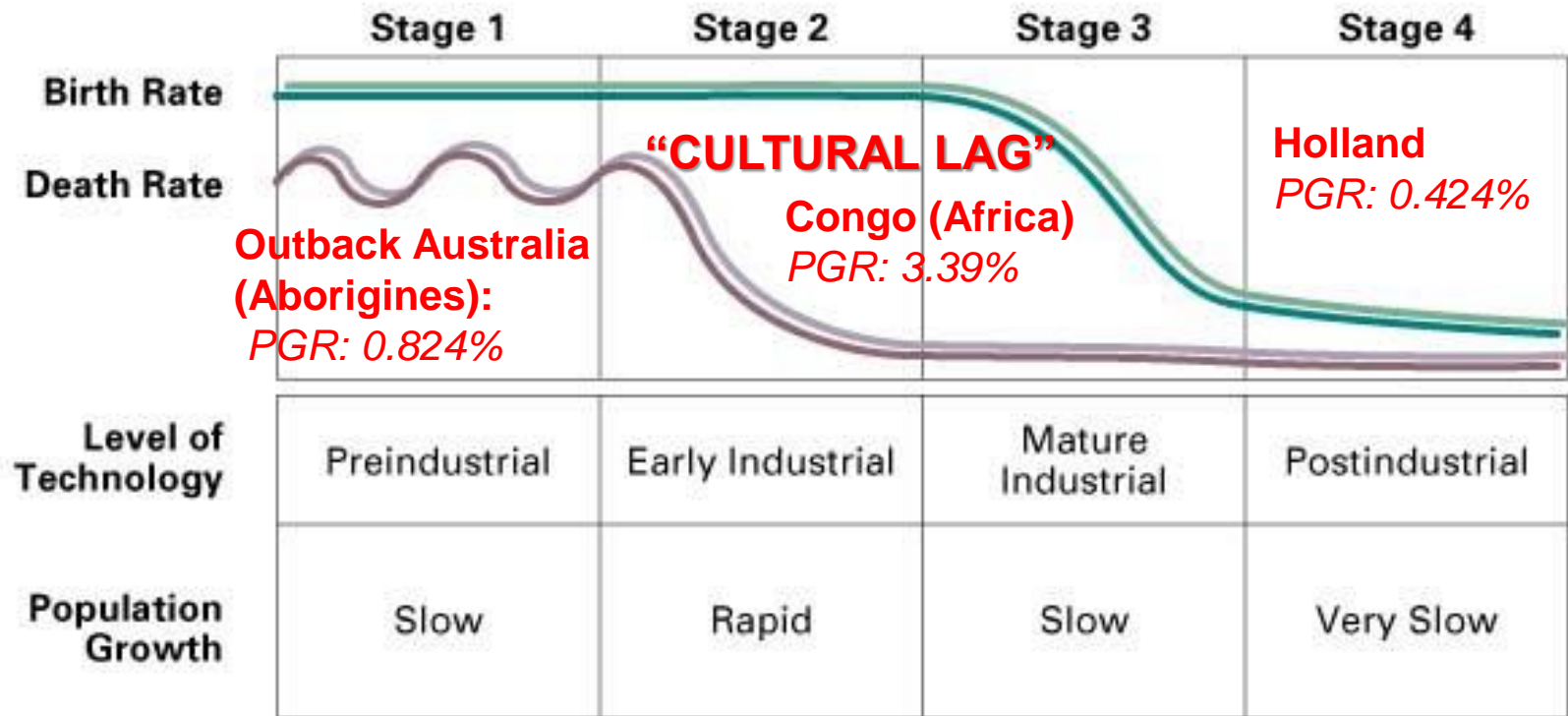
ii. *Early industrial society (simple mechanical);*

iii. *Mature industrial society (complex mechanical);*

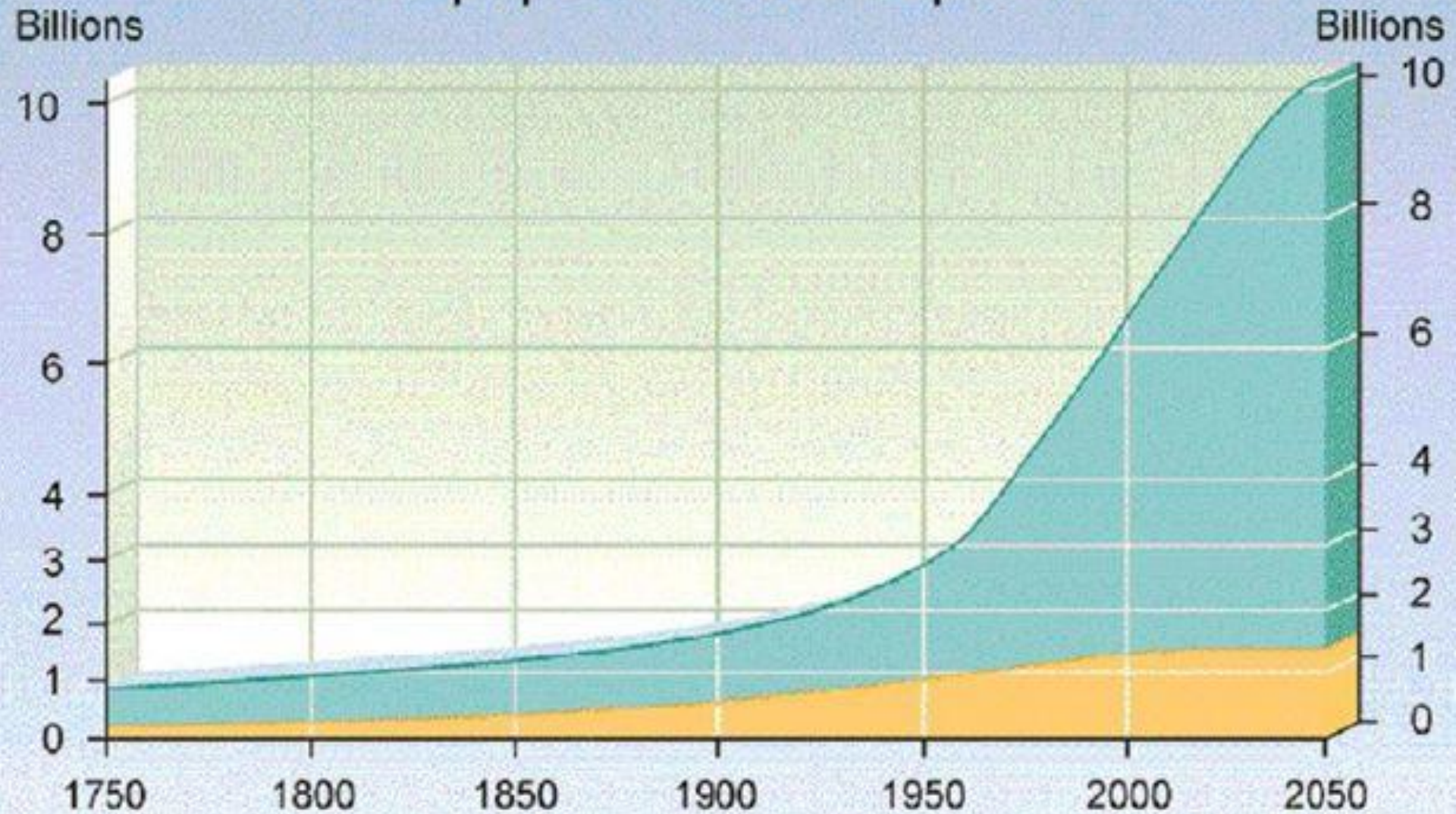
iv. *Post-industrial society (technocratic).*

Human Population

4. The Demographic Transition Graph



World population development



Developing countries
Industrialized countries



Human Population

4. *The demographic transition, cont.*

The Good News:

c. Worldwide fertility rates are dropping, but are still above “replacement rates”:

- **1965 World fertility rate: 5.0 births / woman**
- **NOW: World fertility rate: 2.7 births / woman**
 - 1965 US fertility rate: 2.91 births / woman
 - NOW: US fertility rate: 1.89 births / woman

Replacement fertility rate (no population growth) is

2.1 births per woman, or one child to replace each parent (with the “.1” taking into account premature deaths).

The Bad News:

Current urbanization threatens global environment.

Human Population

4. The Dilemma: Overpopulation

d. **What is overpopulation?** It is *not* a result of sheer population number or density; rather it **is related to *sustainability* and *competition for resources*.**

Competition for resources stems from **limited quantities** of raw materials that **the natural environment can provide for a given population:** this is known as the planet's ***carrying capacity*** (c.f., [*The Lily Pond Parable*](#)).

In the "Lily Pond" metaphor, the edges of the pond (the boundaries for further lily pad growth) represent the carrying capacity of the earth for further human growth.