

# **THE POST SCARCITY WORLD**

## **From Scarcity To Post Scarcity**

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There are two long term drivers to the global economy.

### **How much we have.**

If we have more than we need, then **abundance** results.

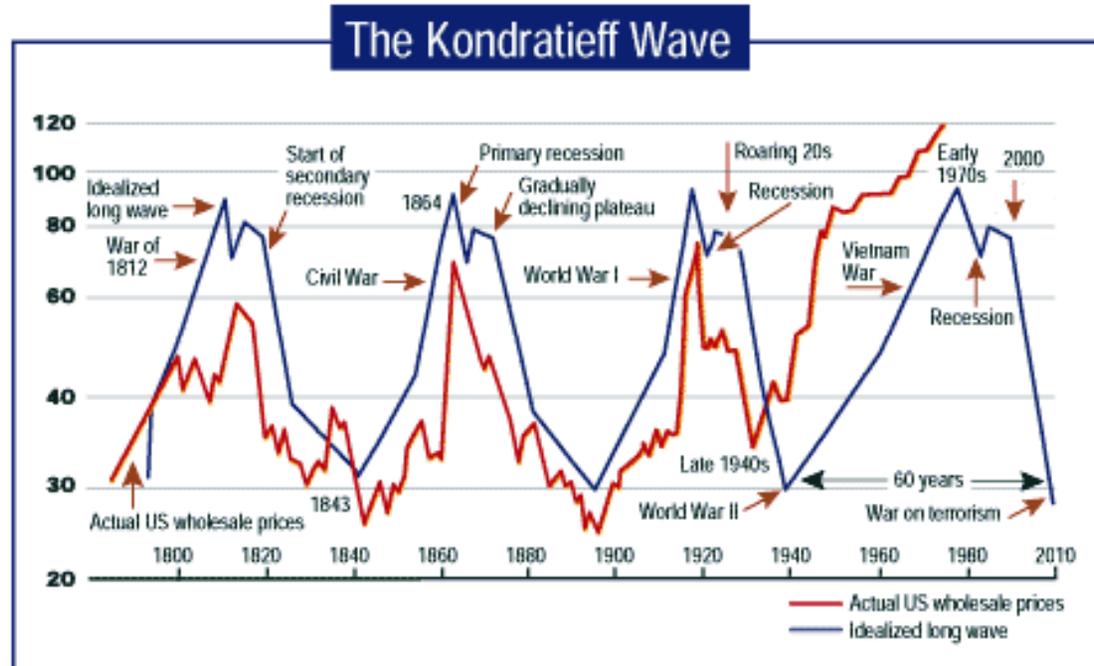
Over supply forces down the price of goods. Which stimulates the economy, generates growth and fills the public purse.

### **How much we need.**

If we have less than we need, then **scarcity** results.

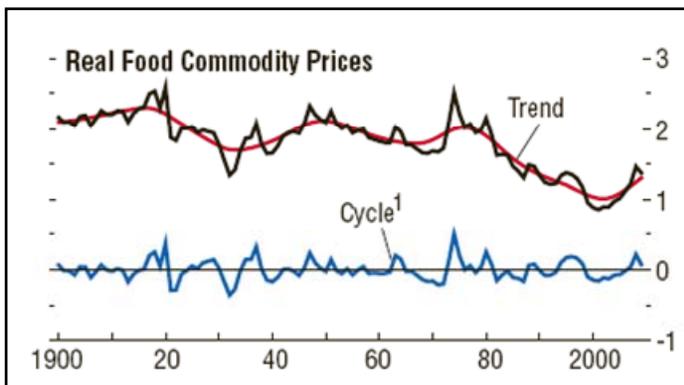
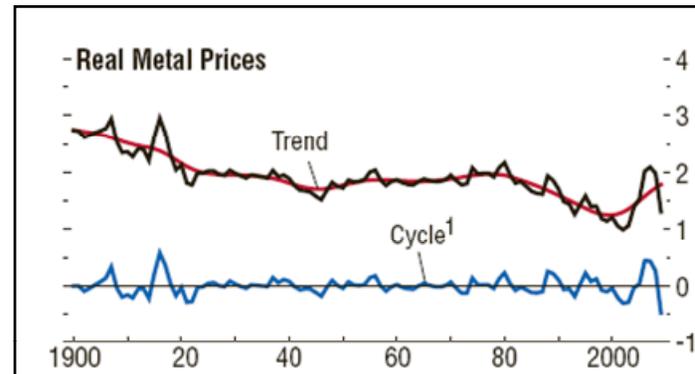
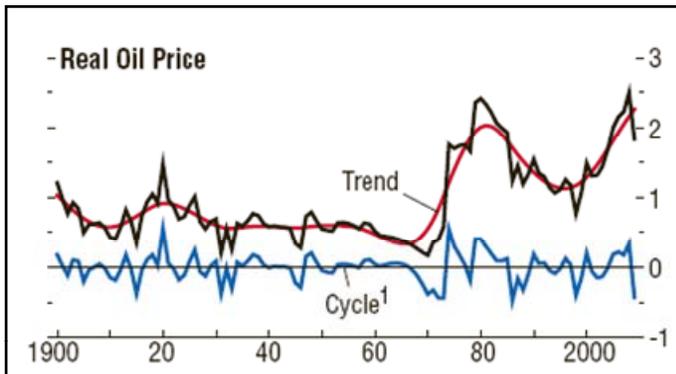
A shortage of supply forces up the price of goods. This limits the extent to which the economy can grow, has a depressionary effect, and empties the public purse.

## A long view of the economy.



Source: [http://www.kwaves.com/kond\\_overview.htm](http://www.kwaves.com/kond_overview.htm)

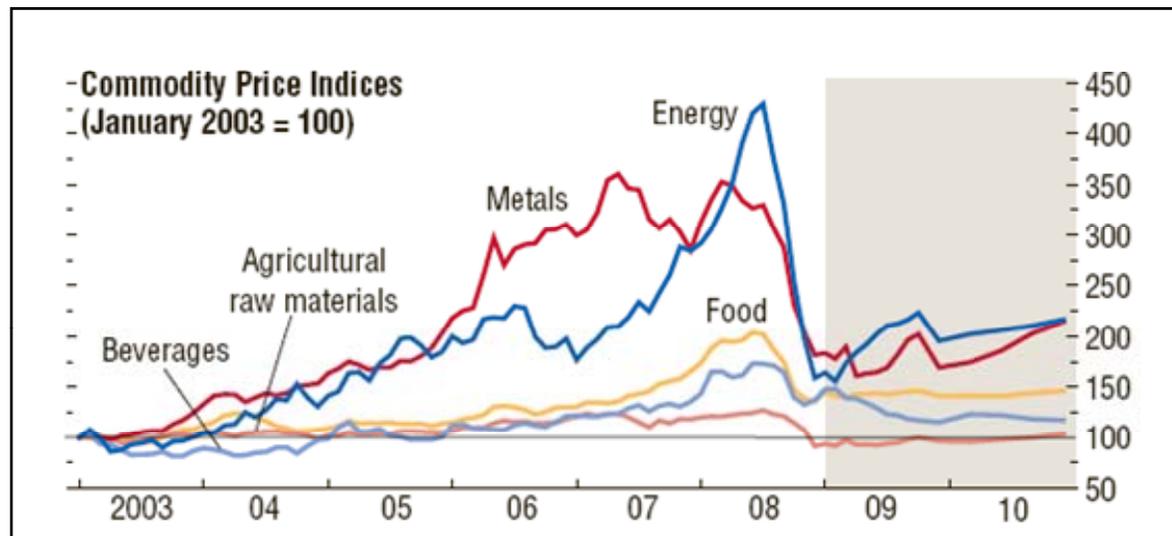
This has an impact upon prices over the long term.



Source:

<http://www.imf.org/external/pubs/ft/weo/2009/01/pdf/text.pdf>

More recently the recent inflation trend has been upwards.



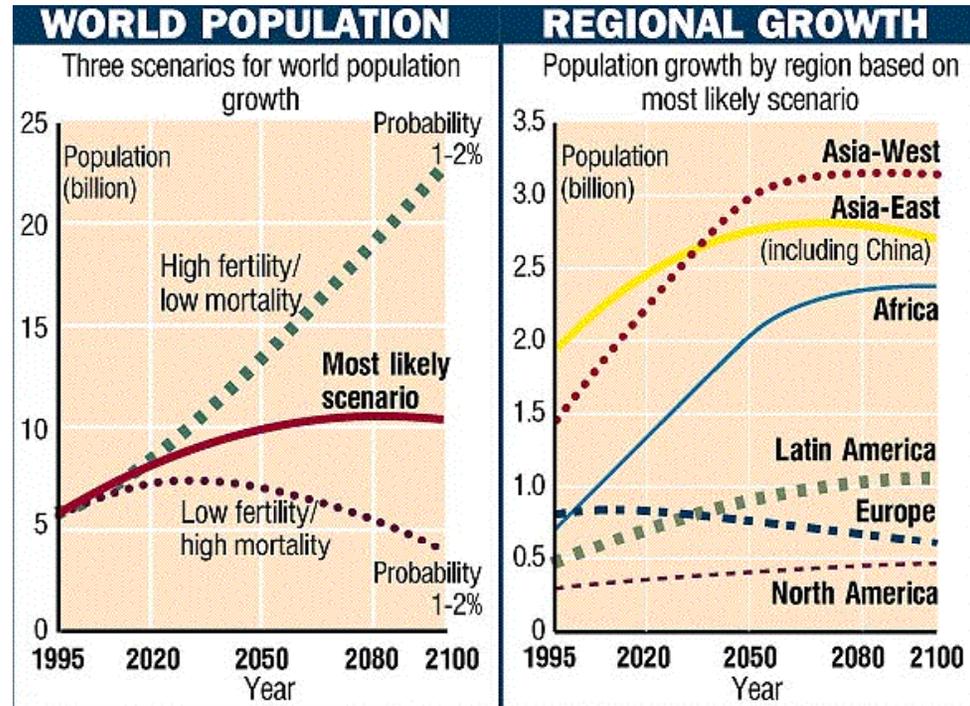
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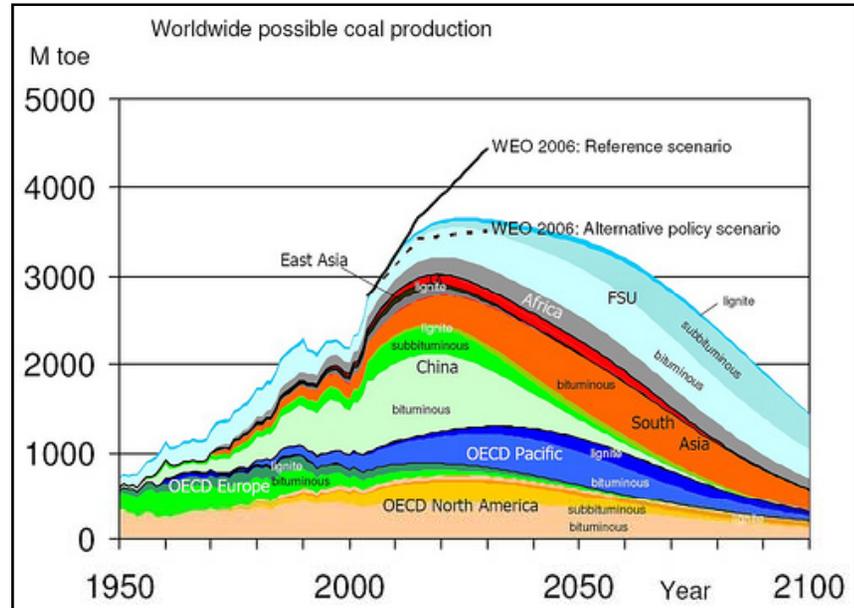
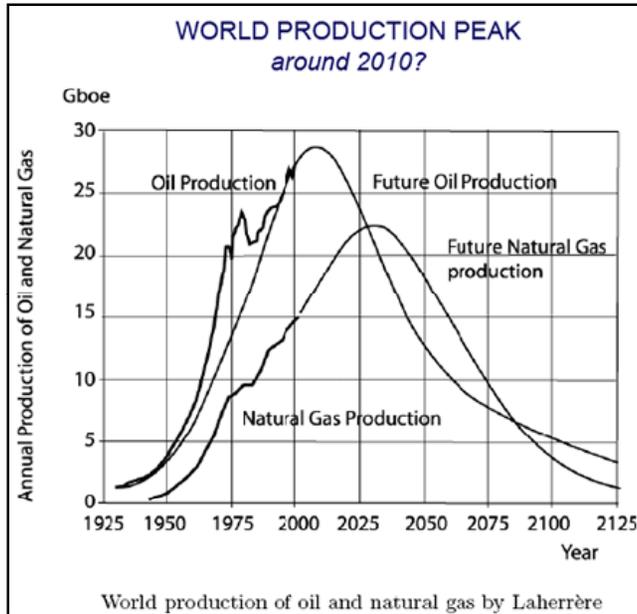
Why?

The balance between what we have and what we need has changed and will continue to do so for the first half of this century.

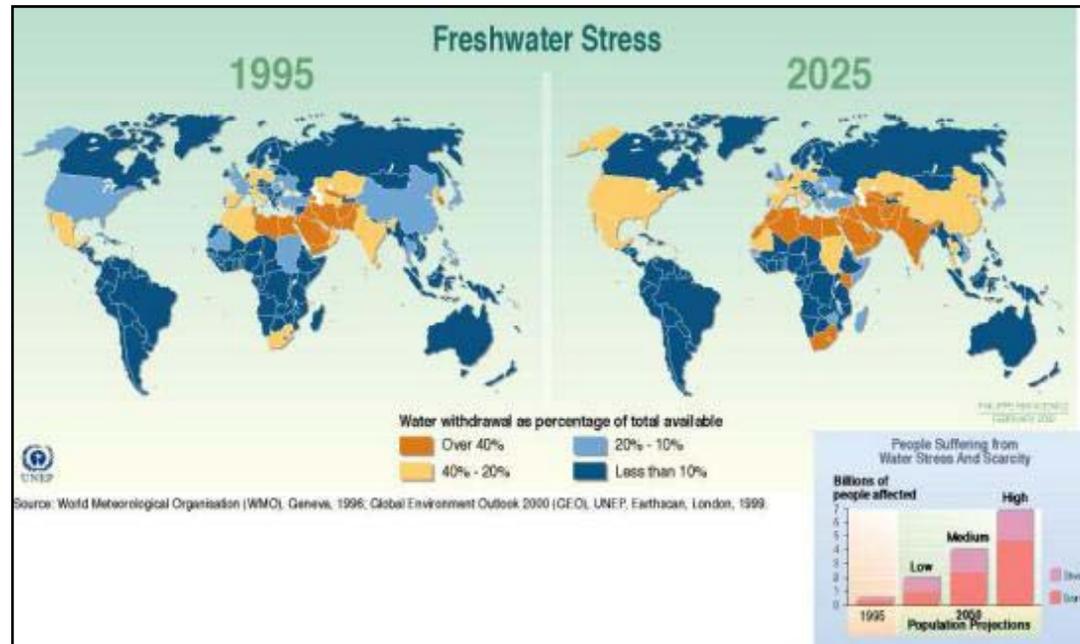
## Why do we need more?



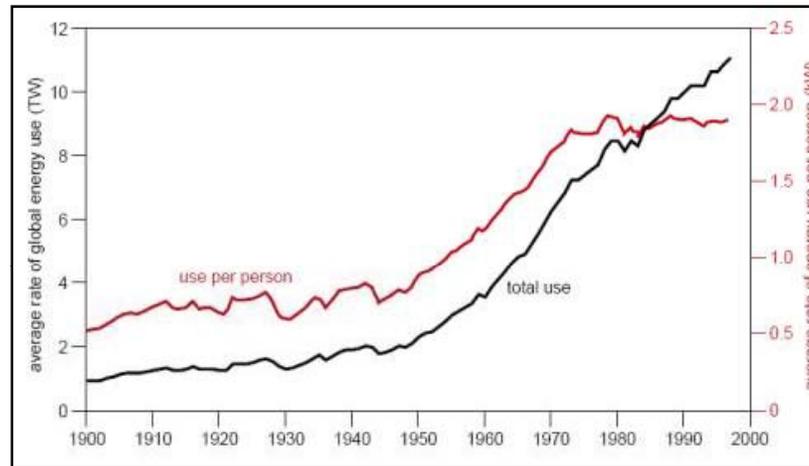
# Why can't we have more?



## Is it only energy that is peaking?



The only way out is to get more from less, which is what we have started to do.



When this becomes embedded, we will have passed from the Age of Scarcity to the Post Scarcity World.

# Society in the Post Scarcity World: 2075

Elizabeth Rudd

# Continuities & Discontinuities

- Population
- Birth Rates
- Urbanization
- Resources
- Labour & Work

# Population

- **Current Projections (continuities)**
  - 2000 6 Billion
  - 2025 8 billion
  - 2050 9 billion (peak)
- **Discontinuities**
  - Pandemics
  - Famine and Natural Disasters
  - War

# 19th and 20th Century Deaths

Type	1800-1899	1900-2004	Specific Occurrences/Other Estimates
Pandemic	10 M	46 M	5-15M per year Disease and Starvation from Hunger and Poverty. (See: For 2.6M/yr. AIDS Since 1980 25 M died AIDS, another 40 M infected HIV)
Famine	51 M	32 M	
Democide (Genocide, Rebellions, ...)	7.5 M	80 M	180 M in last 200yrs.
Wars	35 M	61 M	60 M Civilian and Military deaths in the 20th century according to Matthew Whites, Historical Atlas of the Twentieth Century
Natural Disasters (Incl. Drought)		21 M	World: 250K/yr Drought 50%, Floods: 34%, Windstorms 6%, Earthquakes: 9%, Volcanoes: 0.5%, Landslides 0.3%, Avalanches 0.1% (Source: "The Vulnerable Become More Vulnerable" New York Times Week in Review, Jan. 2, 2005)
			US: Heat: 32%, Flood: 22%, Lightning: 17%, Tornado: 12%, Winter: 9%, Cold: 4%, Hurricane: 3%, Earthquake: 1% (See: US Weather Deaths)
Accidents		500 K	100K/yr Auto Accidents. (c)
Terrorism (1972-2003)		12 K	11K (1980-99 per State Dept.)
Average Population	1.3 B	3.4 B	
* Data collection in the 19th century was not as good, so numbers are probably undercounted.			

# Pop. Discontinuities: Pandemics

## 1348 PLAGUE

- Spread throughout Europe Beginning 1348
- Killed 1/3 of existing population
- Approximately 25-75 million deaths

## 1918 SPANISH FLU

- First reported in America in March 1918
- Spread through rest of world by June 1918
- Infected 50% of the world's population
- Killed 40-50m people

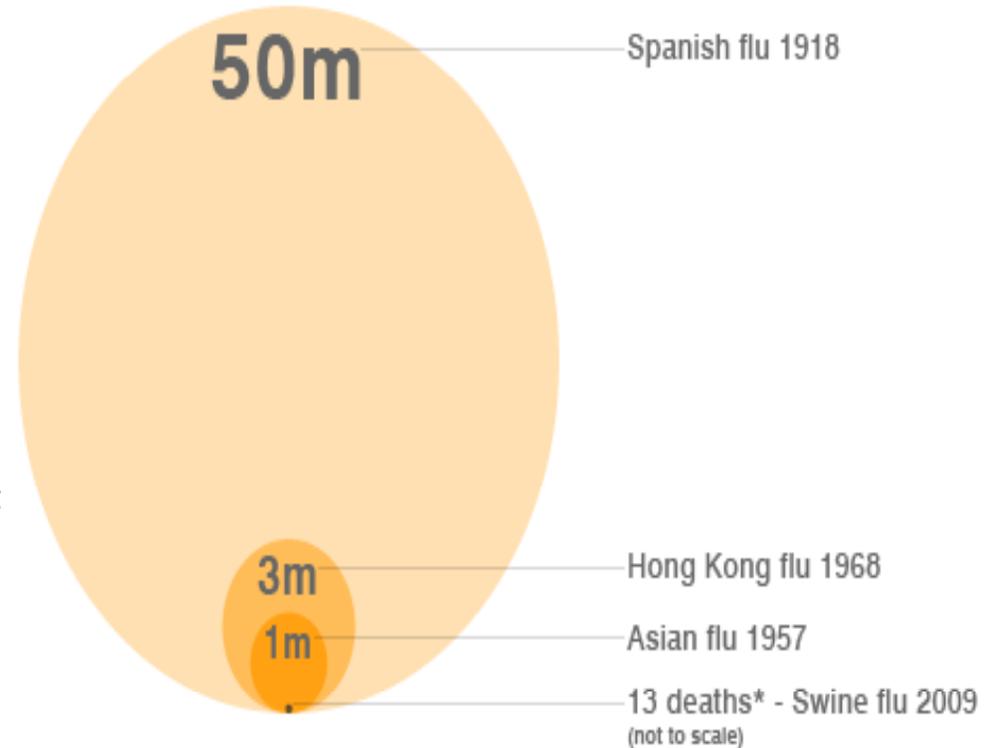
## 1957 ASIAN FLU

- First reported in China in February 1957
- Spread throughout the globe within six months
- Infected 40-50% of the world's population
- Killed more than 1m people

## 1968 HONG KONG FLU

- Broke out in China in July 1968
- Spread throughout rest of world by mid-1969
- Fatalities ranged from 1-3m
- More than 30,000 deaths in the UK

## DEATHS FROM PREVIOUS FLU PANDEMICS



\* As of 1 May 2009

SOURCE: Health Protection Agency, WHO

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# Population Discontinuities: Famine and Natural Disaster

Lowest Estimate	Highest Estimate	Event	Location	From	To
20,000,000	43,000,000	Great Leap Forward famine under the Chinese Communist Party led by Mao Zedong	People's Republic of China	1959	1962
6,000,000	10,000,000	Famine in the Soviet Union, under the leadership of Joseph Stalin, including Holodomor	Soviet Union	1932	1933
4,000,000	4,000,000	Bengal famine in British-ruled India	India	1943	1943
1,000,000	3,000,000	Iraqi famine in Iraq, UN economic sanctions	Iraq	1990	2003
500,000	2,000,000	Great Irish Famine	United Kingdom of Great Britain and Ireland	1846	1849

## Examples Deadly Natural Disasters from the 20th Century

- Dec 26, 2004- Earthquake Sumatra, triggered tsunamis, estimate 225,000-275,000 dead
- July 28, 1976- Earthquake, Tangshan, China, estimate 242,000-655,000 dead
- Nov 30, 1970 – Cyclone- Bangladesh, estimate 500,000 to 1 million dead

**What if weather patterns are getting more severe?**

**Overcrowding people living in marginal areas**

# Population Discontinuities: War

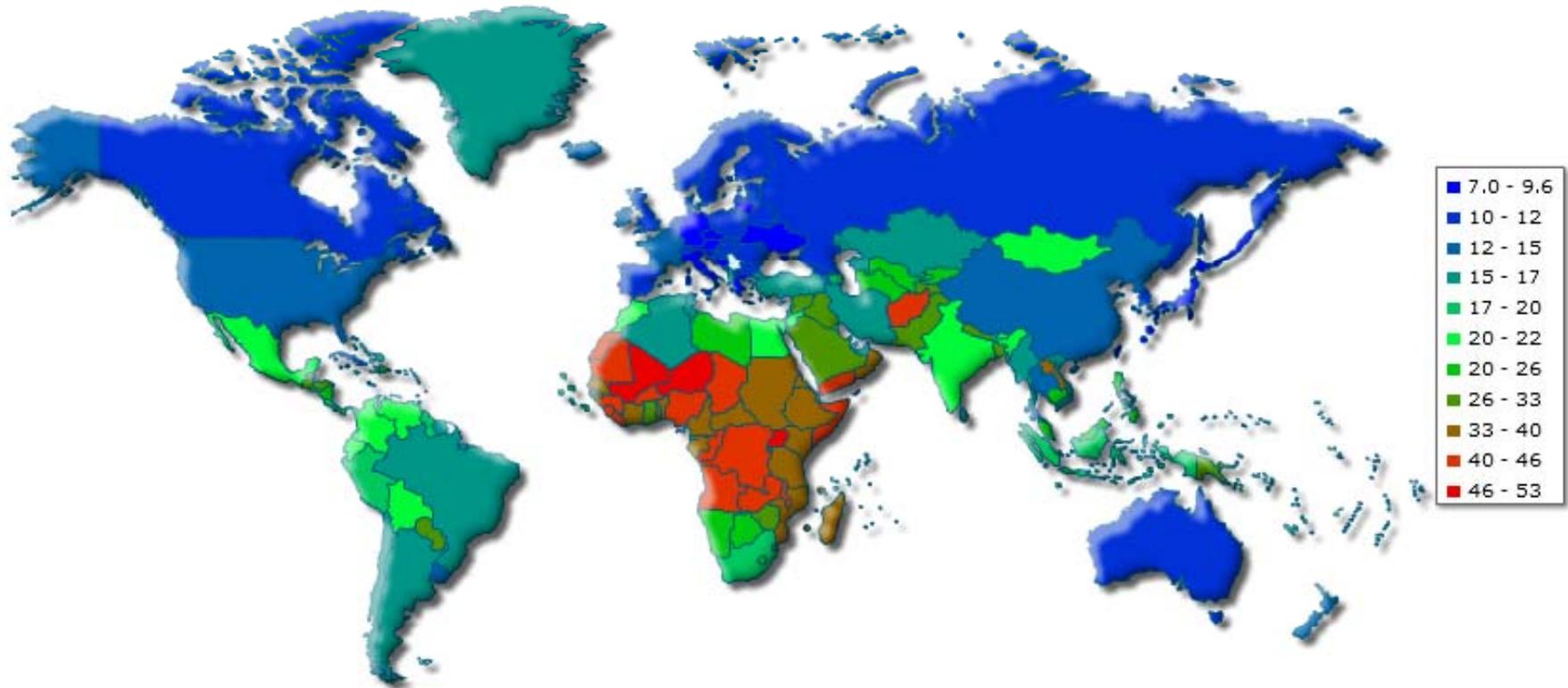
Lowest Estimate	Highest Estimate	Event	Location	From	To
3,000,000	7,000,000	Yellow Turban Rebellion	China	184	205
33,000,000	36,000,000	An Shi Rebellion	China	756	763
30,000,000	60,000,000	Mongol Conquests	Asia, Europe, Middle East	1207	1472
10,000,000	20,000,000	Conquests of Timur	Middle East, India, Asia, Russia	1369	1405
2,000,000	4,000,000	French Wars of Religion	France	1562	1598
25,000,000	25,000,000	Manchu conquest of the Ming Dynasty	China	1616	1662
3,000,000	11,500,000	Thirty Years' War	Holy Roman Empire	1618	1648
3,500,000	6,500,000	Napoleonic Wars	Europe, Atlantic, Pacific and Indian Oc	1804	1815
2,000,000	2,000,000	Shaka's conquests	Africa	1816	1828
20,000,000	30,000,000+	Taiping Rebellion	China	1851	1864
8,000,000	12,000,000	Muslim Rebellion	China	1855	1877
15,000,000	25,000,000	World War I (High estimate includes Spanish flu deaths)	Worldwide	1914	1918
5,000,000	9,000,000	Russian Civil War	Russia	1917	1921
40,000,000	72,000,000	World War II	Worldwide	1939	1945
2,500,000	3,500,000	Korean War	Korean Peninsula	1950	1953
2,495,000	5,020,000	Vietnam War	South East Asia	1959	1975
1,500,000	2,000,000	Afghan Civil War	Afghanistan	1979	present
3,800,000	5,400,000	Second Congo War	Democratic Republic of the Congo	1998	2003

# Population estimates 2005- 2050

- Developed countries, combined to remain virtually unchanged at 1.2 billion.
- 50 least developed countries projected to more than double, from 0.8 billion to 1.7 billion.
  - at least triple in Afghanistan, Burkina Faso, Burundi, Chad, Congo, the Democratic Republic of Congo, East Timor, Guinea-Bissau, Liberia, Mali, Niger and Uganda.
- Growth in the rest of the developing world is also projected to be robust, though less rapid, with its population rising from 4.5 billion to 6.1 billion between 2005 and 2050.
- India is expected to surpass China as most populous country in 2025.
- Nine countries are expected to account for half of the world's projected population **increase**:

• India	• Pakistan	• Nigeria
• Dem. Rep. of Congo	• Bangladesh	• Uganda
• <b>USA</b>	• Ethiopia	• China

# Birthrates



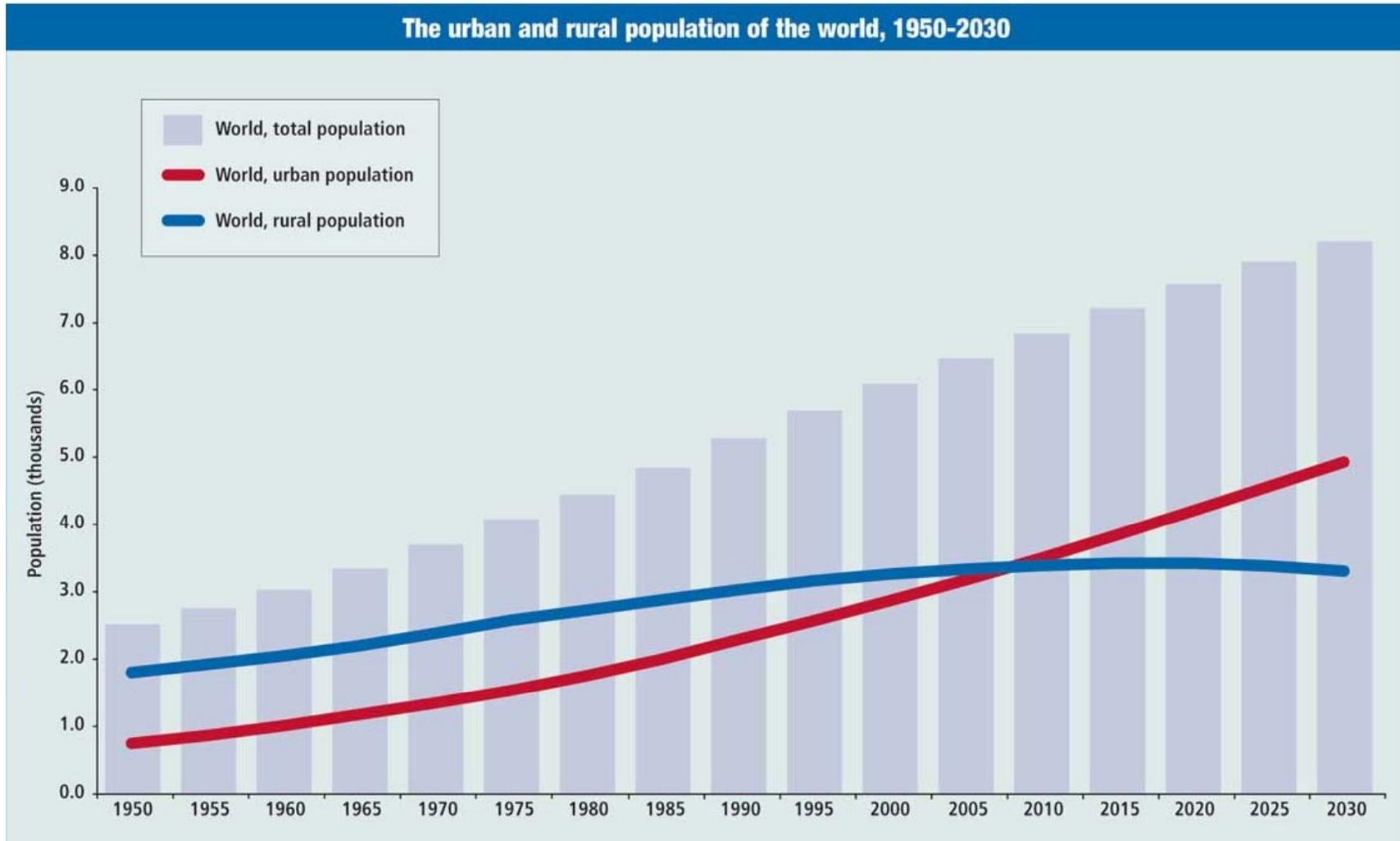
# Birthrates

- UN figures global birth rates fell to the lowest level in recorded history- the average woman in the developing world =2.9 children
  - Down from an average of nearly 6 in the 1970s.
- UN demographers predict fertility in most of the developing world will fall below the replacement level (2.1 children per woman) before the end of the 21st century.
- Factors leading to falling birth rates include increased level education for women, the use of contraceptives, and urbanization

# Birthrates

- 20 less developed countries where fertility is at or below replacement levels:
  - Armenia, Barbados, Chile, China, Cuba, Cyprus, Georgia, Guadeloupe, Hong Kong, Iran, Kazakhstan, Macao, Martinique, North Korea, Puerto Rico, Saint Lucia, Singapore, Thailand, Trinidad and Tobago.
- The lowest fertility rates are in the world's 44 most developed countries, which account for 19 per cent of the world population.
  - All except Albania have fertility below replacement level
  - 15, mostly located in Southern and Eastern Europe, have reached levels of fertility unprecedented in human history (below 1.3 children per woman).
  - Japan, Italy, Spain, Germany, and most of the successor States of the former USSR are expected to have significantly lower populations by 2050.

# Urbanization



# Population Distribution

## Sea Level

- Low-elevation areas are home to 634 million people- roughly 1/10 of the world lives in low-elevation coastal zones
- Some of the countries have very large populations: The 10 countries with the most people in the low coastal areas are China, India, Bangladesh, Vietnam, Indonesia, Japan, Egypt, United States, Thailand, and the Philippines.
- 2/3 of world's largest cities — cities with more than five million people — are at least partially in these low areas and people are increasingly moving to cities.

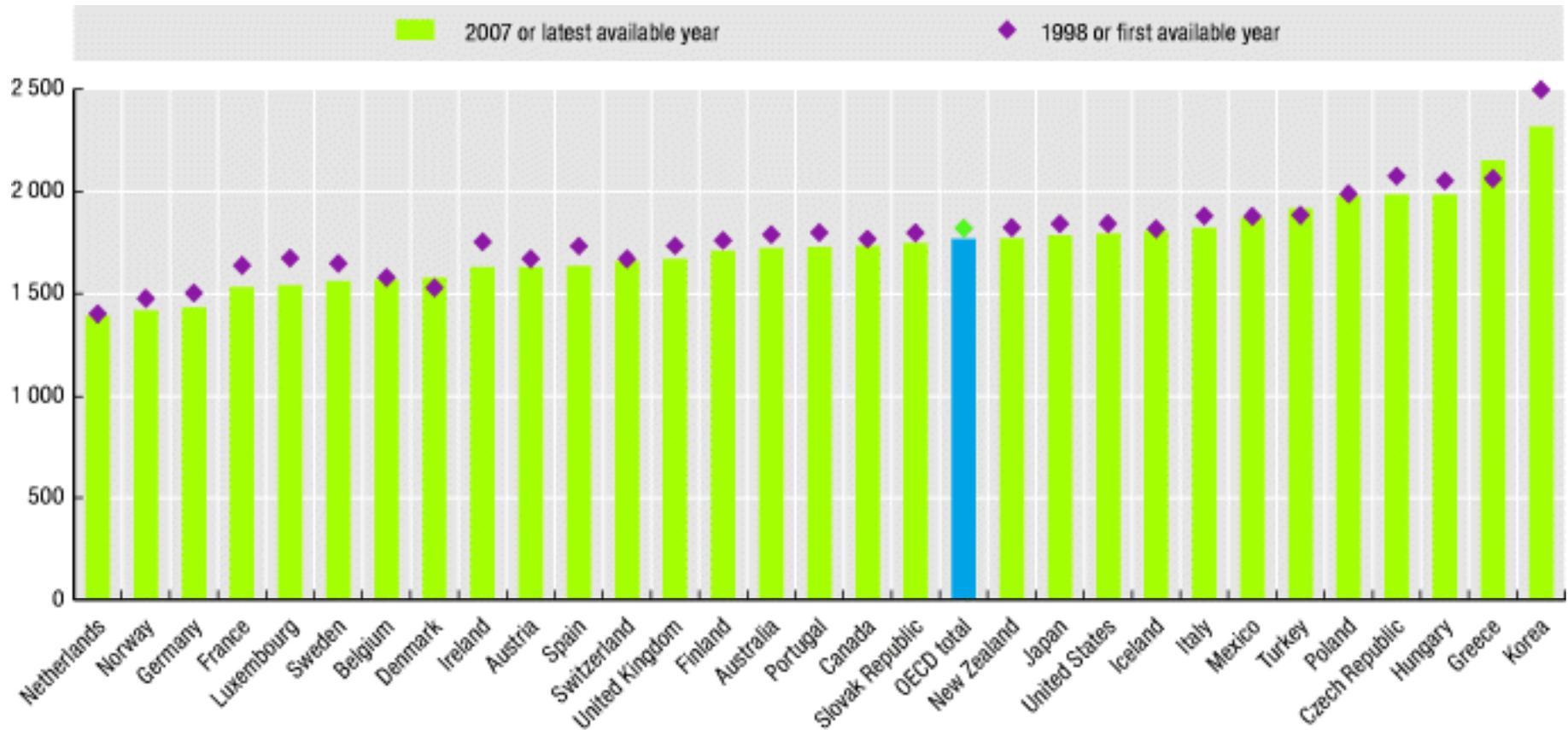
## Urbanization

- 2008 : First time in history, more than half the population, 3.3 billion people, live in urban areas.
- By 2030, this is expected to swell to almost 5 billion, 81% of which will be in the developing world.
- Rural population will remain stable 2000-2030, falling from 3.21 B to 3.19 B
- In 1800- 3%
- In 1900 – 14%, (only 12 cities < 1 M pop)
- In 1950, 30% (83 cities <1 M pop)
- In 2000, 47% (411 cities < 1 M pop)
- Developed nations ~ 76% urban, 40% of less developed countries

# Resources

- Population growth and population distribution will put strain on resources
  - Heightened tensions- oil, water, energy
    - Clash of civilizations
  - Rise of supernational governance and regulation
    - G20
    - Copenhagen Round
  - Terrorism
- ASEAN  
- UN

# Working Hours OECD

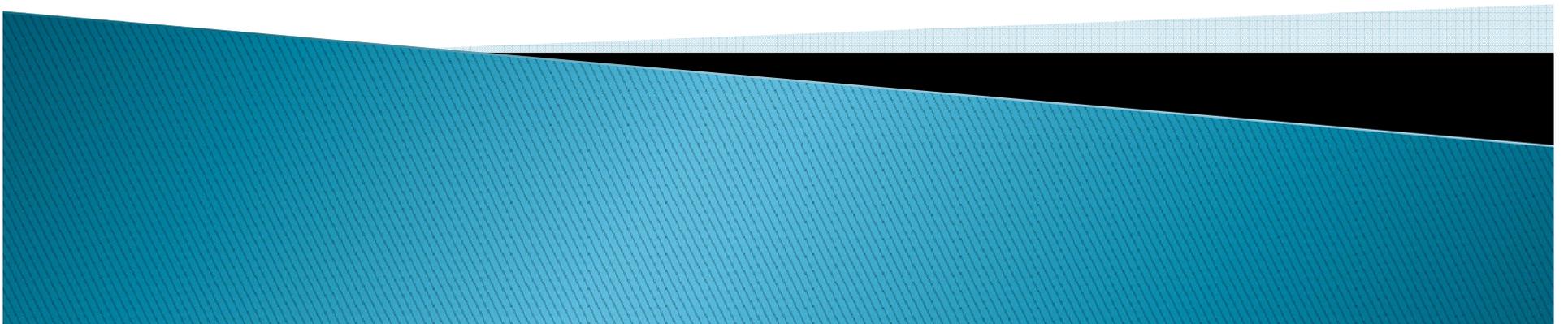


# Society Summary

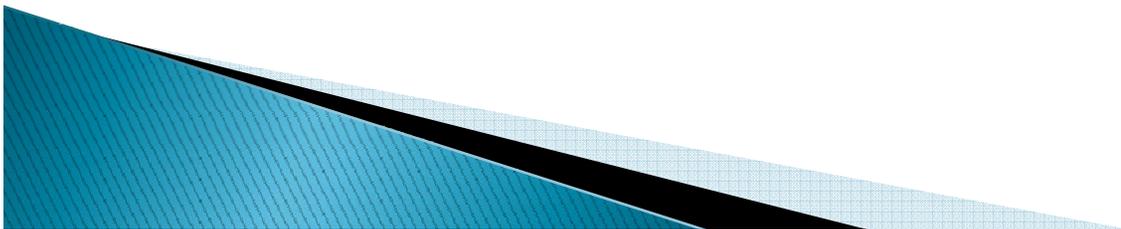
- Population
  - Birth Rates
  - Life expectancy
- Urbanization
  - Living Arrangements
- Resources
- Labour & Work

# Geopolitics of post- scarcity

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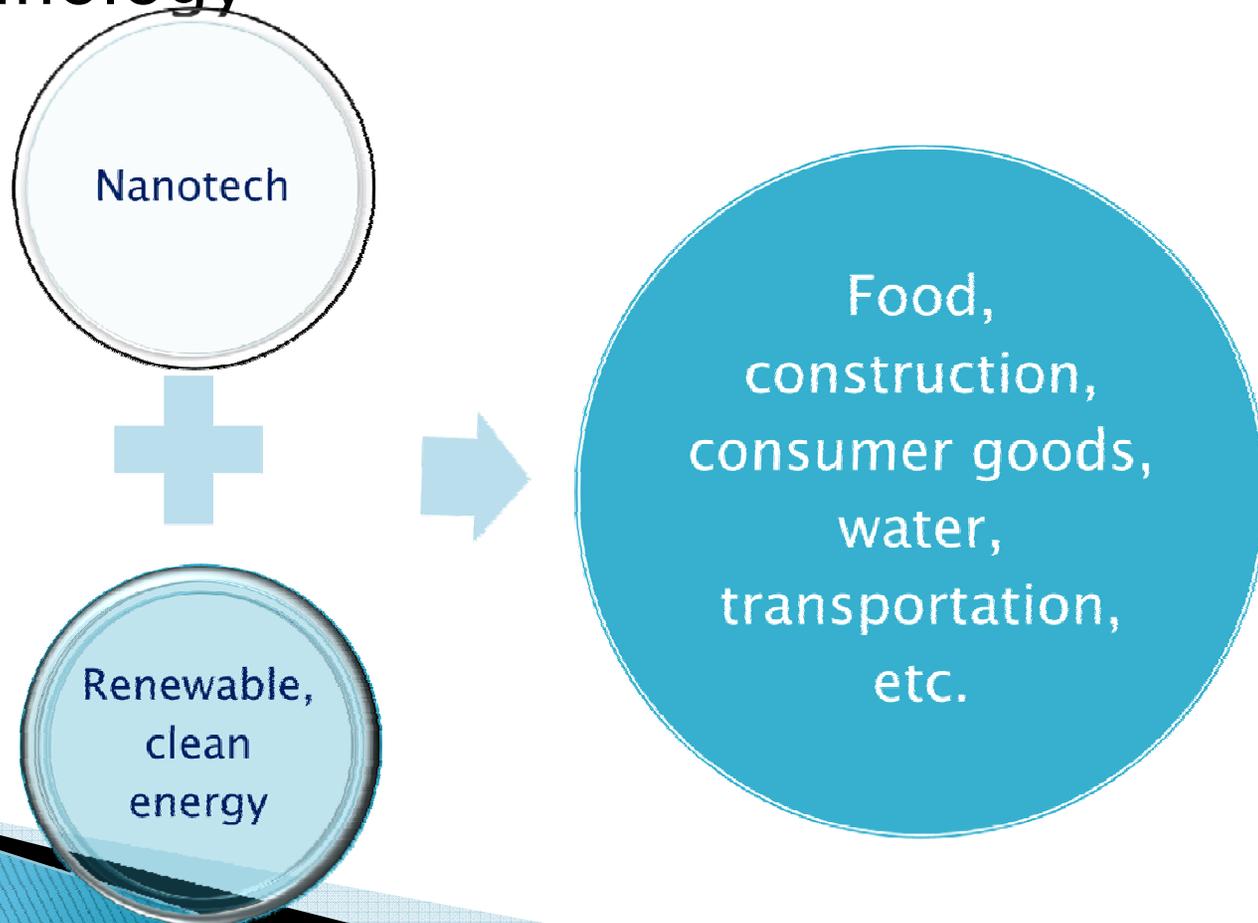


# Drivers and nations



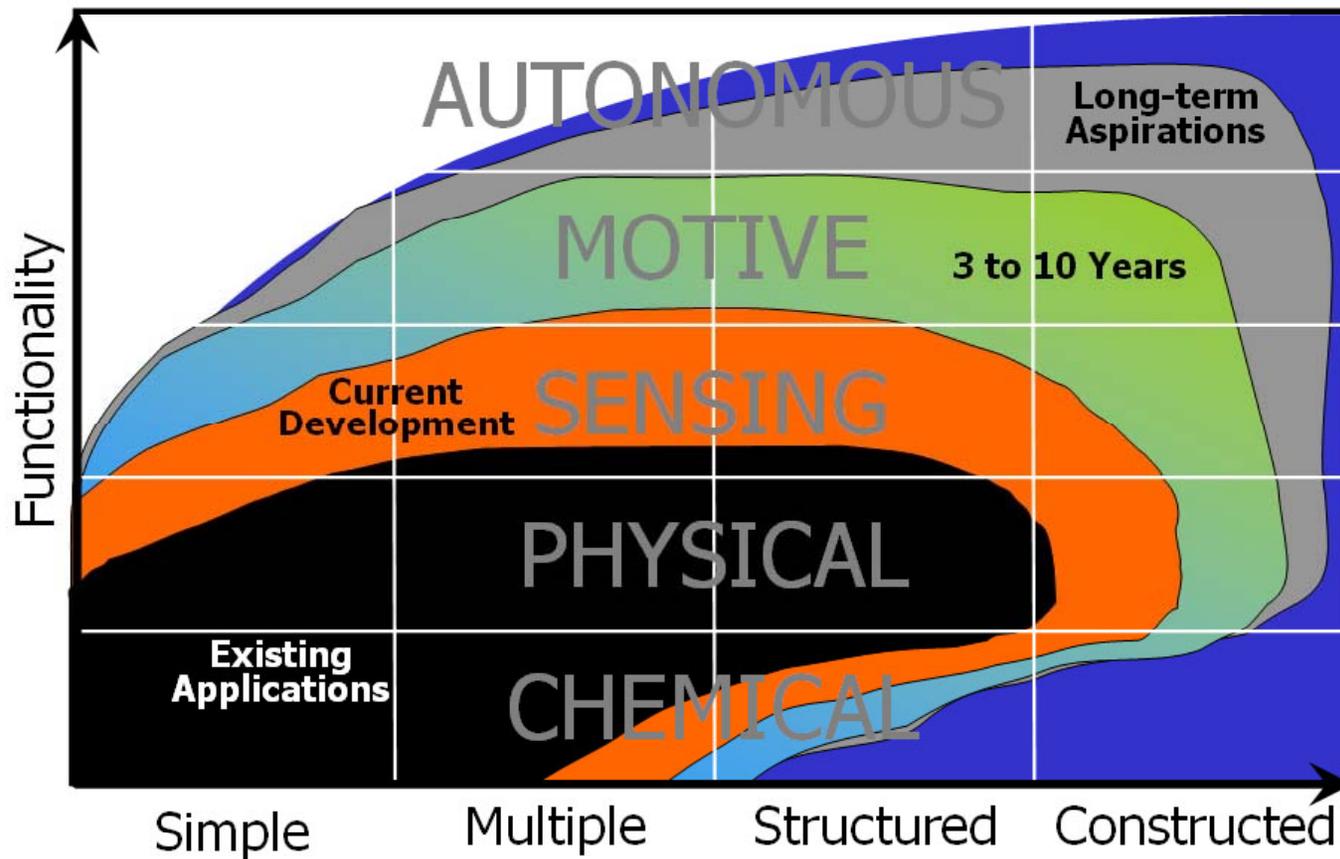
# Drivers

- ▶ Post-scarcity world will be enabled through technology



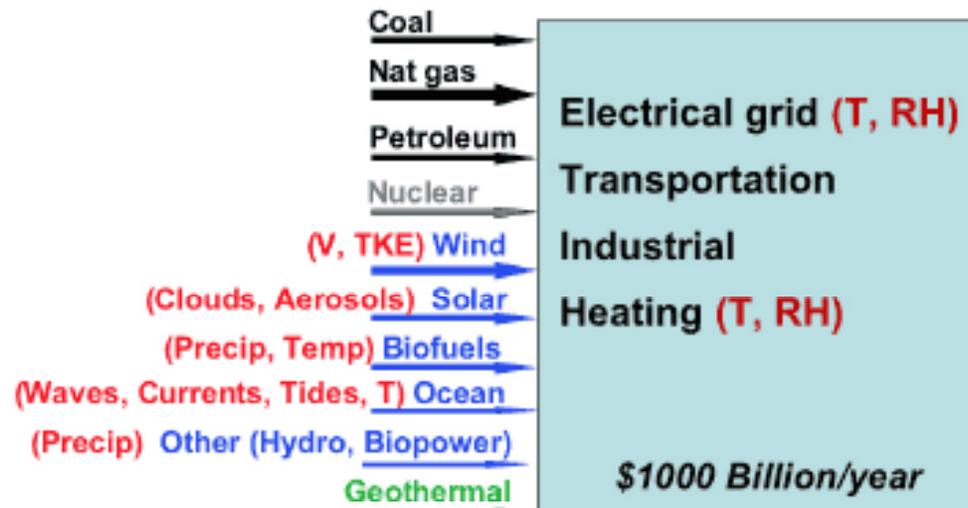
# NIA nanotechnology spread

Technology Spread Over Time



# Energy

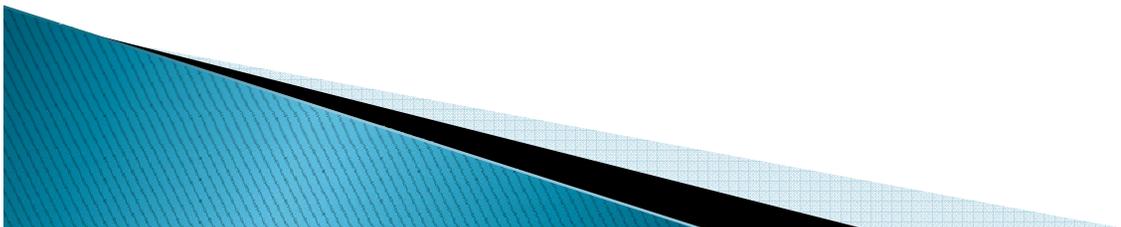
2030 U.S. Energy Flows?



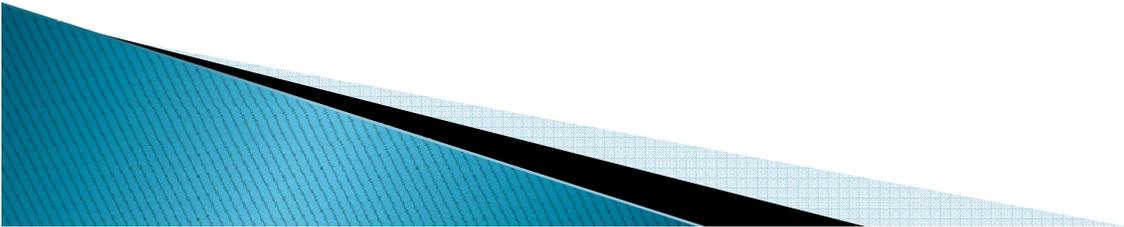
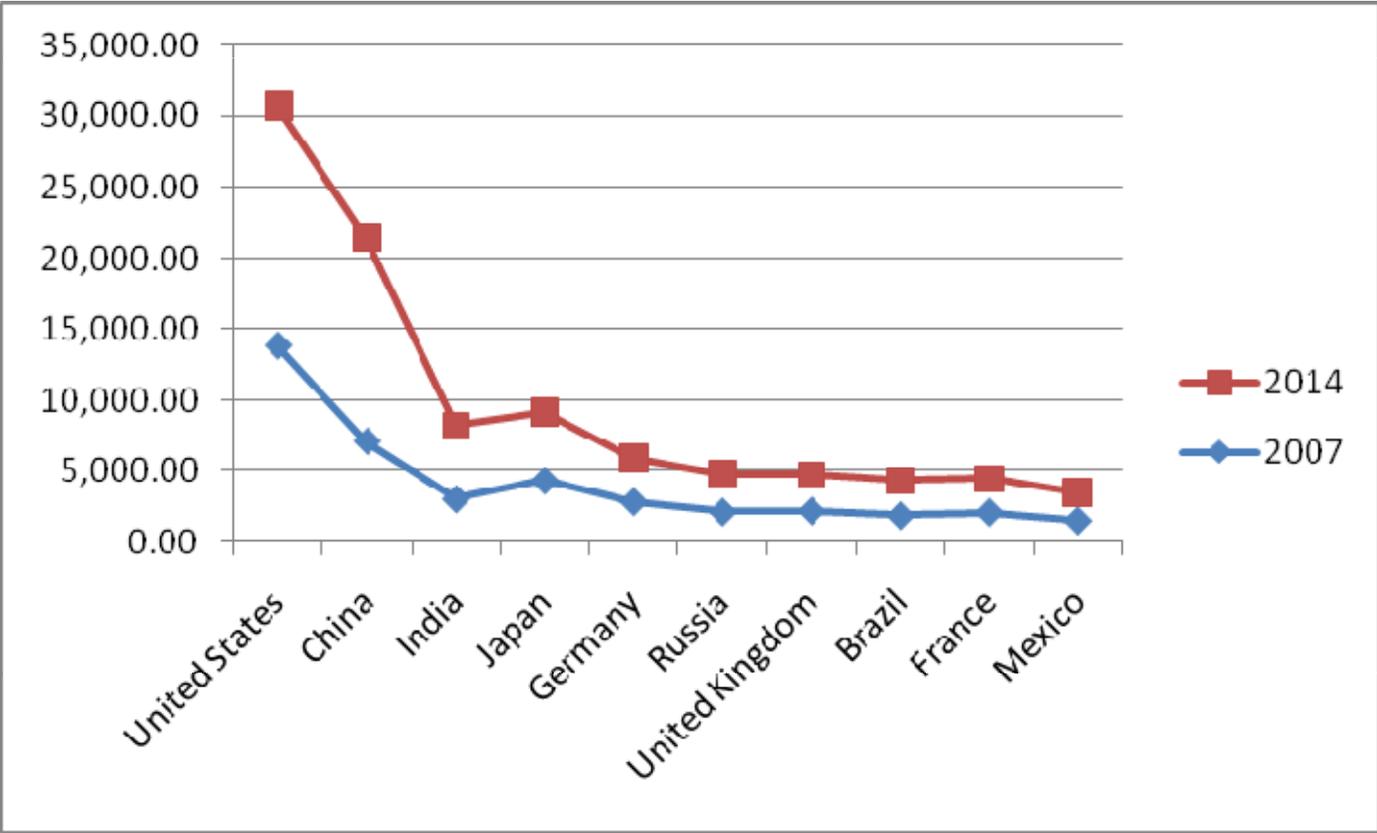
Earth System Research  
Laboratory

# Most likely to emerge in developed world

- ▶ United States
- ▶ Most technology-driven European nations or EU collectively
- ▶ Most technology-driven Asian nations
- ▶ BRIC (Brazil, Russia, India, China)
- ▶ Most prosperous Gulf states
- ▶ Could be wildcards

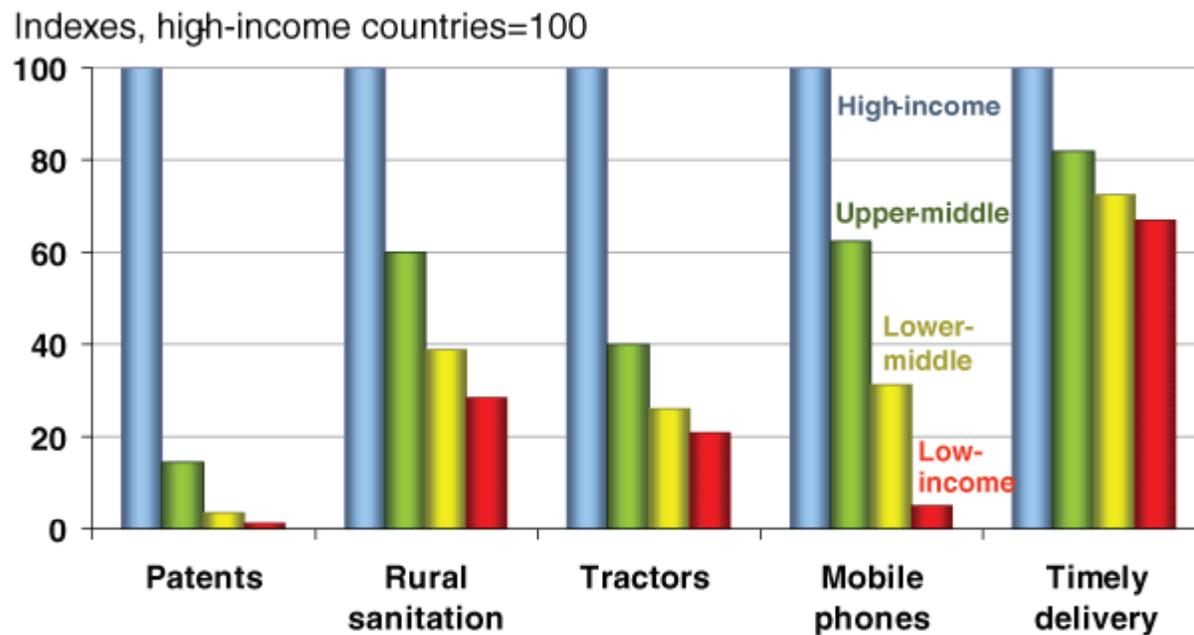


# GDP by purchasing power parity in 2014 in billions

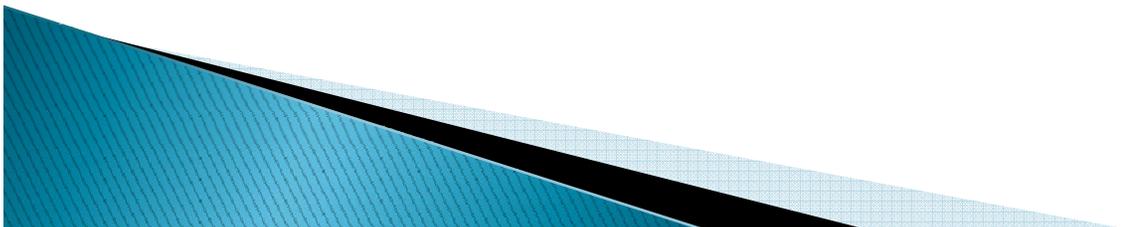


# Spread of driving technologies

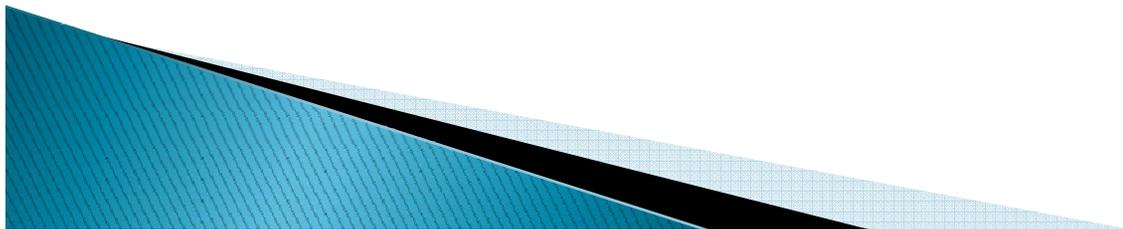
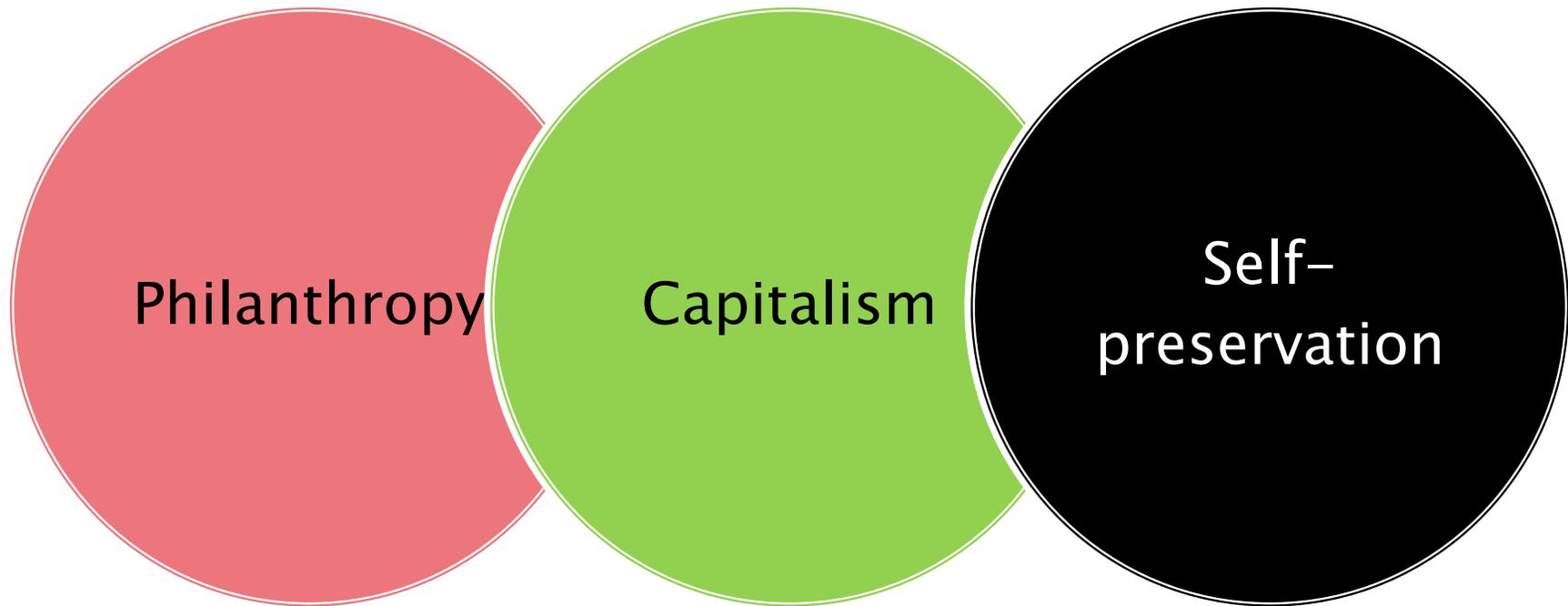
## Wide gaps persist in the use of many technologies in 2004



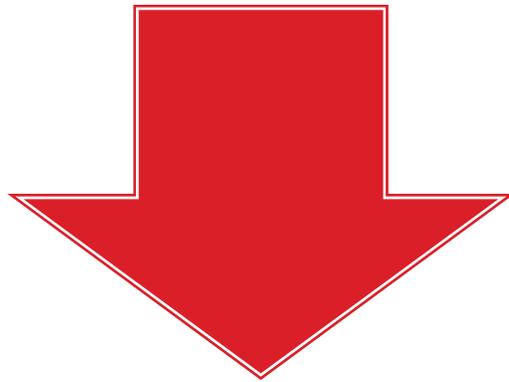
Source: World Bank, Global Economic Prospects (2008)



# Likelihood of diffusion to developing world is high



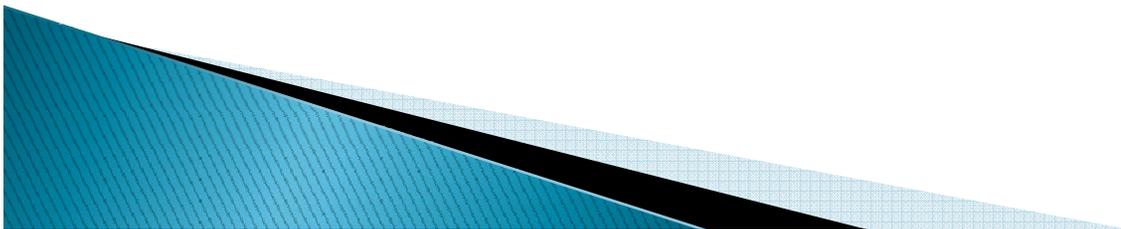
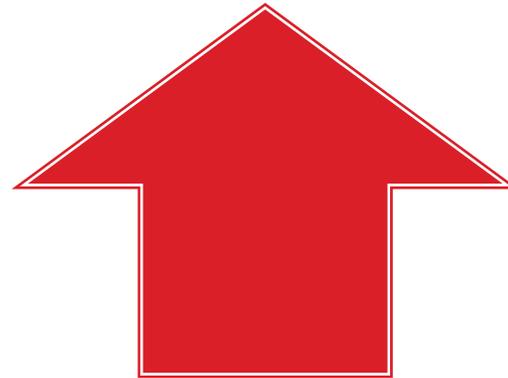
# War and peace



Resource  
scarcity  
declines

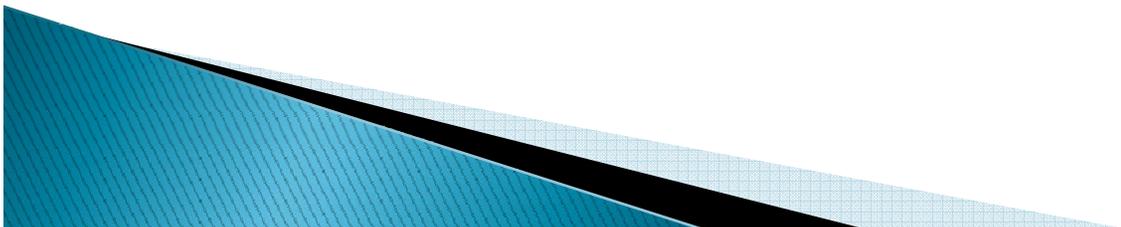


Greater  
capacity to  
wage war

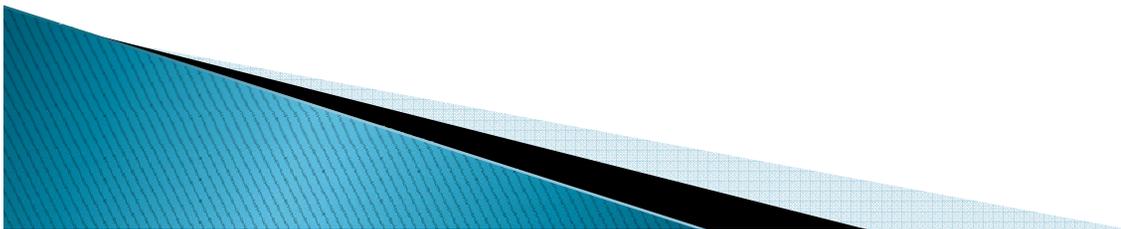


# Ideological and other threats

- ▶ Use of natural environment
- ▶ Identity (religion, race, etc.)
- ▶ Grudges from previous conflicts
- ▶ Individual or group instability
- ▶ Transitions to new alliances, nations, states, and autonomous groups

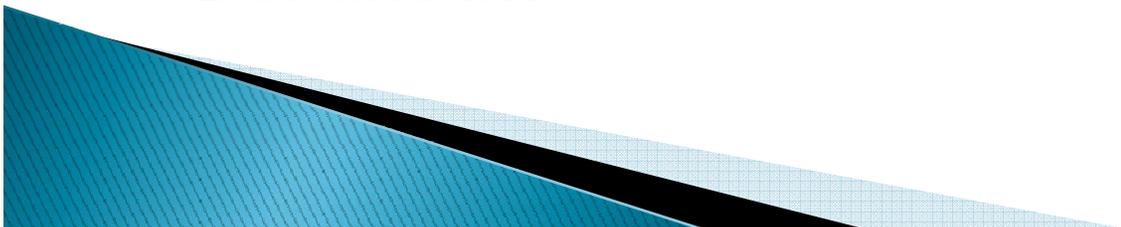


# Alliances, nations, and states and autonomous groups

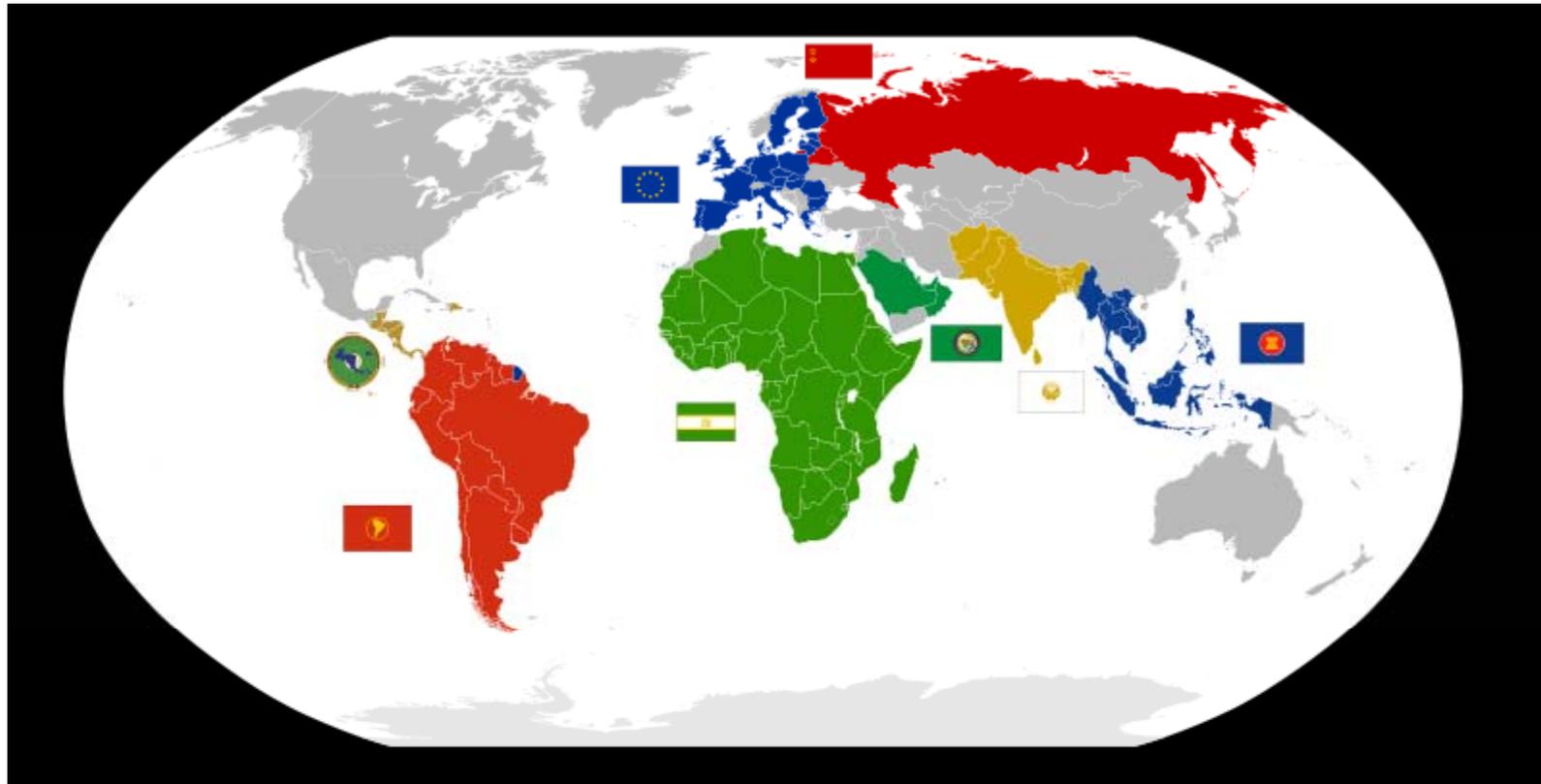


# New creations in late 19<sup>th</sup> and 20<sup>th</sup> centuries

- ▶ League of Nations, United Nations
- ▶ NATO, Warsaw Pact
- ▶ OPEC
- ▶ Organization of American States, African Union, Arab League
- ▶ Reunification of Germany
- ▶ European Union: Newest and most far-reaching, including shared government functions and currency
- ▶ Online communities: Badoo, Anonymous, DeviantART



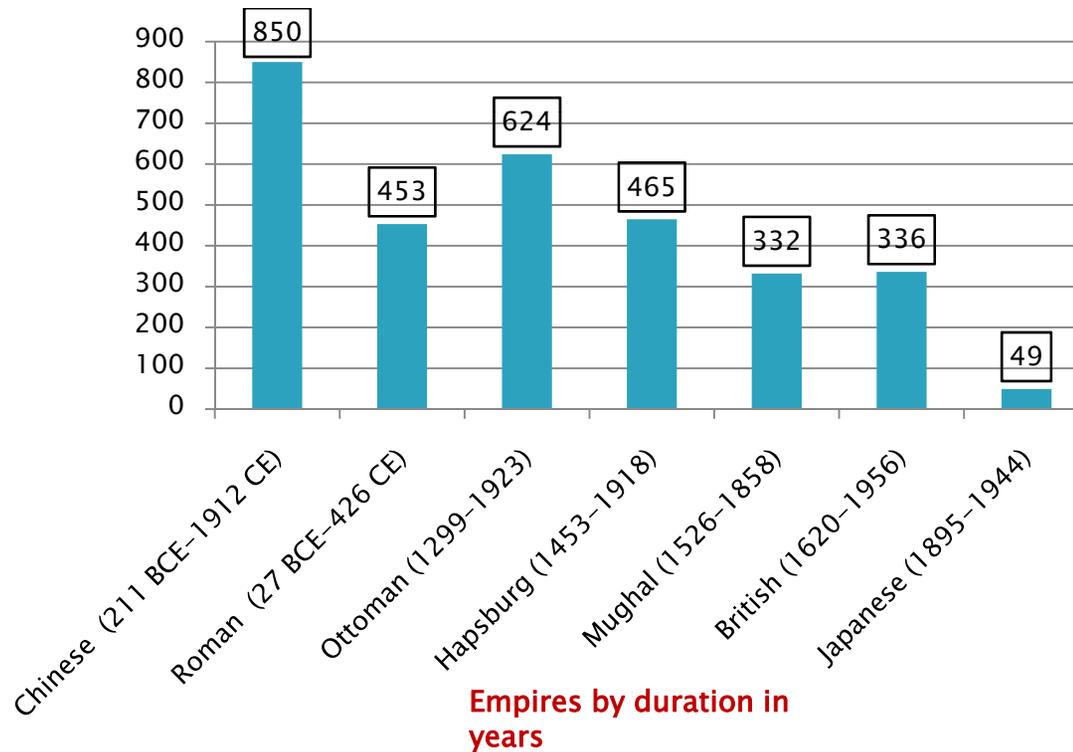
# Supranational alliances



Wikimedia Commons

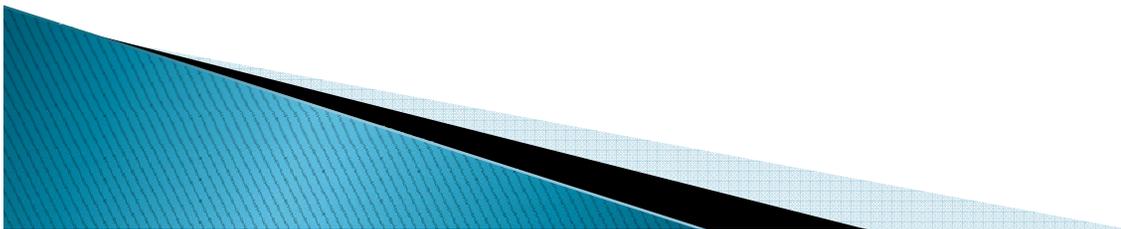
# Alliances, nations, and states breaking up

- ▶ Empires were major form for most of the last two millennia



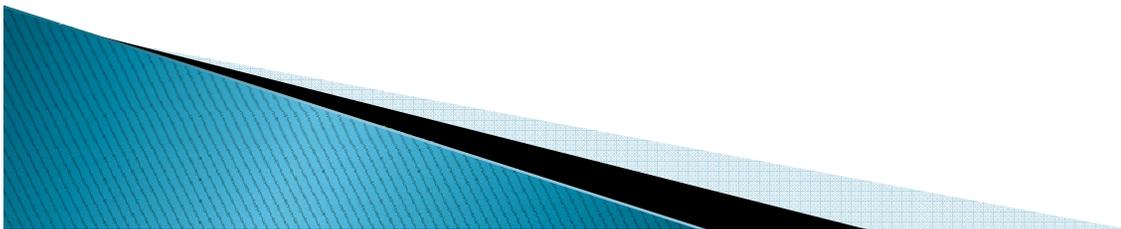
# Other formations breaking up

- ▶ Colonies into independent states or protectorates
- ▶ Soviet Union
- ▶ Korea



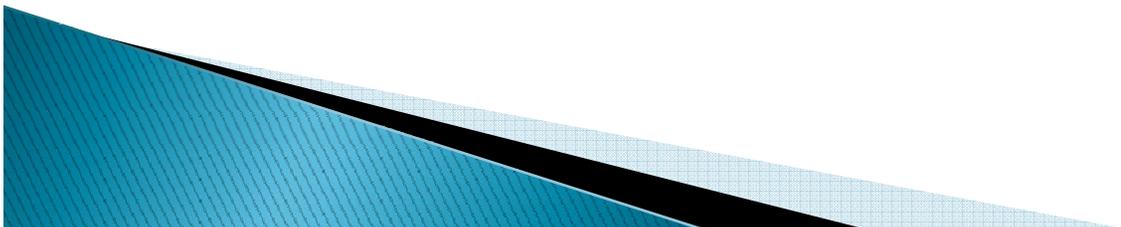
# Post-scarcity likely to accelerate joining and creations of alliances

- ▶ Mutual goals rather than just shared borders
- ▶ Shared cultural background (e.g. Muslim or Roman Catholic states)
- ▶ Shared governance systems (e.g. democracies)

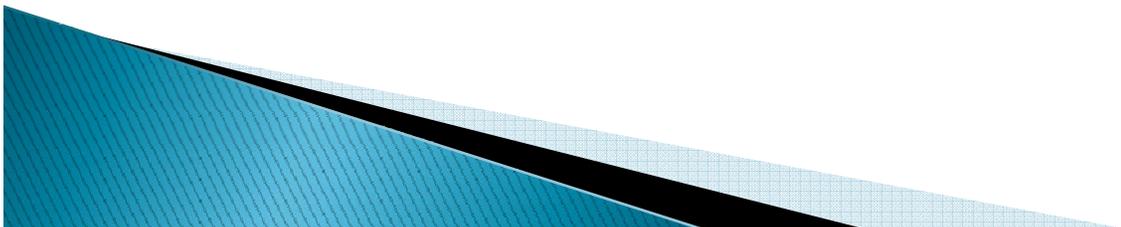
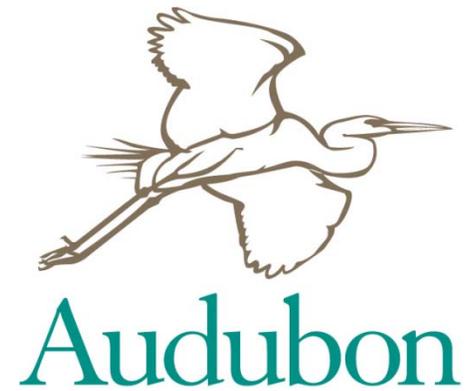
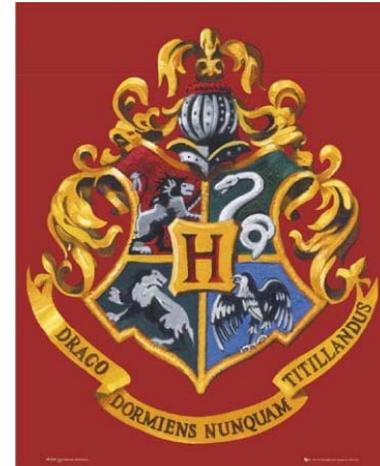


# In many cases through dissolution or reshaping of existing ones

- ▶ Financial and trade (OPEC, NAFTA)
- ▶ Nations likely to be reshaped by internal creation of autonomous or semi-autonomous entities
- ▶ Cultural subgroups and tribal affiliations
- ▶ Governmental ideologies
- ▶ Family groups
- ▶ Even interests

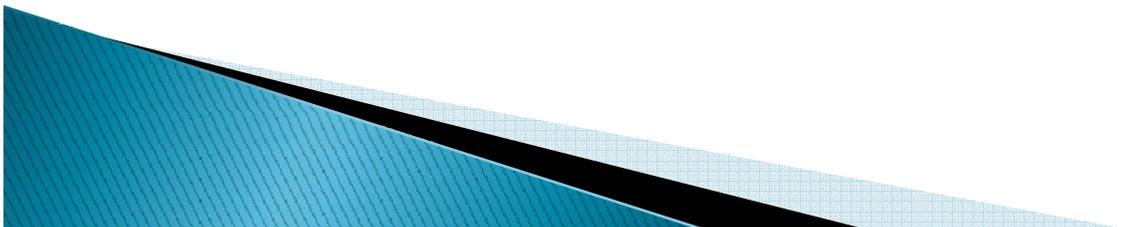


# New nations?



# Peaceful transition will require

- ▶ Vision
- ▶ Justice
- ▶ Tolerance
- ▶ Commitment to shared goals
- ▶ Commitment to peaceful conflict resolution
- ▶ Generosity



# **THE POST SCARCITY WORLD**

## **Post Scarcity Finance**

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## How the future resembles today.

### **In a Post Scarcity World, we will continue to need money to ...**

... act as a unit of account.

... act as a medium of exchange.

... act as a store of wealth.

... act as a standard for deferred payments.

In this way there is continuity between the past, present, and future.

How the future resembles today.

**If money continues to exist, we shall need a Central Bank to ...**

... issue and guarantee the currency.

... supervise the financial system.

... act as a lender of the last resort.

## How the future resembles today.

**If money continues to exist, and need a Central Bank, then we will also need a banking system to ...**

... match those with surplus funds (savers) to those with a deficit of funds (borrowers).

... determine the time cost of money (the interest rate) and the means by which the present values the future (the discount rate).

... innovate and operate a system of financial instruments that matches the needs of saver and investors to the needs of the users of funds.

How the future resembles today.

**In the Post Scarcity World, it is not unreasonable to predict that ...**

... there will still be a monetary system ...

... supervised by a Central Bank ...

... and operated by a banking system.

In which case, what is different to today?

## How the future differs from today.

**The form of money could be radically different from today.**

We could see the greater incidence of digital cash to replace notes and coin.

The monetary system could become more dehumanised through migration into virtual worlds and on-line banking facilities.

There may be a greater degree of currency integration between nations.

## How the future differs from today.

### **The shape of Central Banks will reflect the ways in which sovereignty develops.**

If there is a lessening of the nation-state, then there will be a gravitation towards a supra-national currency.

If the process of globalisation weakens, then national currencies would be strengthened and the Central banking system will be characterised by international co-operation.

The Post Scarcity Financial System is likely to be characterised by a period of liberalisation as a reaction to a period of regulation in the Age of Scarcity.

## How the future differs from today.

**The shape of the banking system will reflect the society it serves.**

Banks may not be banks as we currently know them. What we currently see as telephone companies or supermarkets may develop into retail banks.

If the digitisation of the banking system grows, then we can expect to see larger volumes of 'hot' money that moves around the world at greater speeds.

If the process of globalisation weakens, we are more likely to see the development of national banks and less likely to see the growth of global financial institutions.

## Conclusion.

In many respects, the Post Scarcity World will be very similar to today.

There will be some major dissimilarities, depending upon how society develops in the Age of Scarcity, along with the impact of digitisation and globalisation.

It is likely that banks will still be banks, they will continue to make profits, from which banker's bonuses will be paid.