

# GLOBALIZATION, ECO- FOOTPRINTS AND THE INCREASINGLY UNSUSTAINABLE ENTANGLEMENT OF NATIONS

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# Globalization: Growth through Efficiency, Technology and Trade

- Globalization implies the dissolution of national boundaries and the horizontal integration of national economies into one global economy in which most needs and wants can be provided by interregional trade.

# Implicit (sometimes explicit) General Assumptions

- ❑ Human well-being is positively associated with consumption (I.e., people are self-interested utility maximizers with fixed preferences and insatiable material demands.)
- ❑ Poverty is best addressed through economic growth. Therefore:
- ❑ Economies should be organized to maximize the production of goods and services by the most efficient means possible.

# Conventional (Ricardian) Trade Theory: Everybody Wins!

- ❑ If each country specializes in products for which it has an internal comparative advantage, global production will be maximized at least cost.
- ❑ Because goods are being produced efficiently, prices will be lower and demand higher. Producers' incomes increase.
- ❑ Higher incomes enable people to maximize their consumption of goods from all over the world. I.e.,
- ❑ More liberal trade facilitates growth in gross world product (production and consumption).
- ❑ In short, trade is assumed to be a *positive sum game* from which everyone benefits.

# Additional Assumptions of Trade-Based 'Growth-through-Globalization'

- ❑ Capital is immobile. (I.e., it 'stays home' – entrepreneurs invest in their domestic economies.)
- ❑ Ecological stability is assumed (i.e., there is no reference to ecological context or circumstances).
- ❑ Factors of production are substitutable (e.g., technology can substitute for resource depletion).

# Missing Evolutionary Context: The Natural Basis for Economic Growth

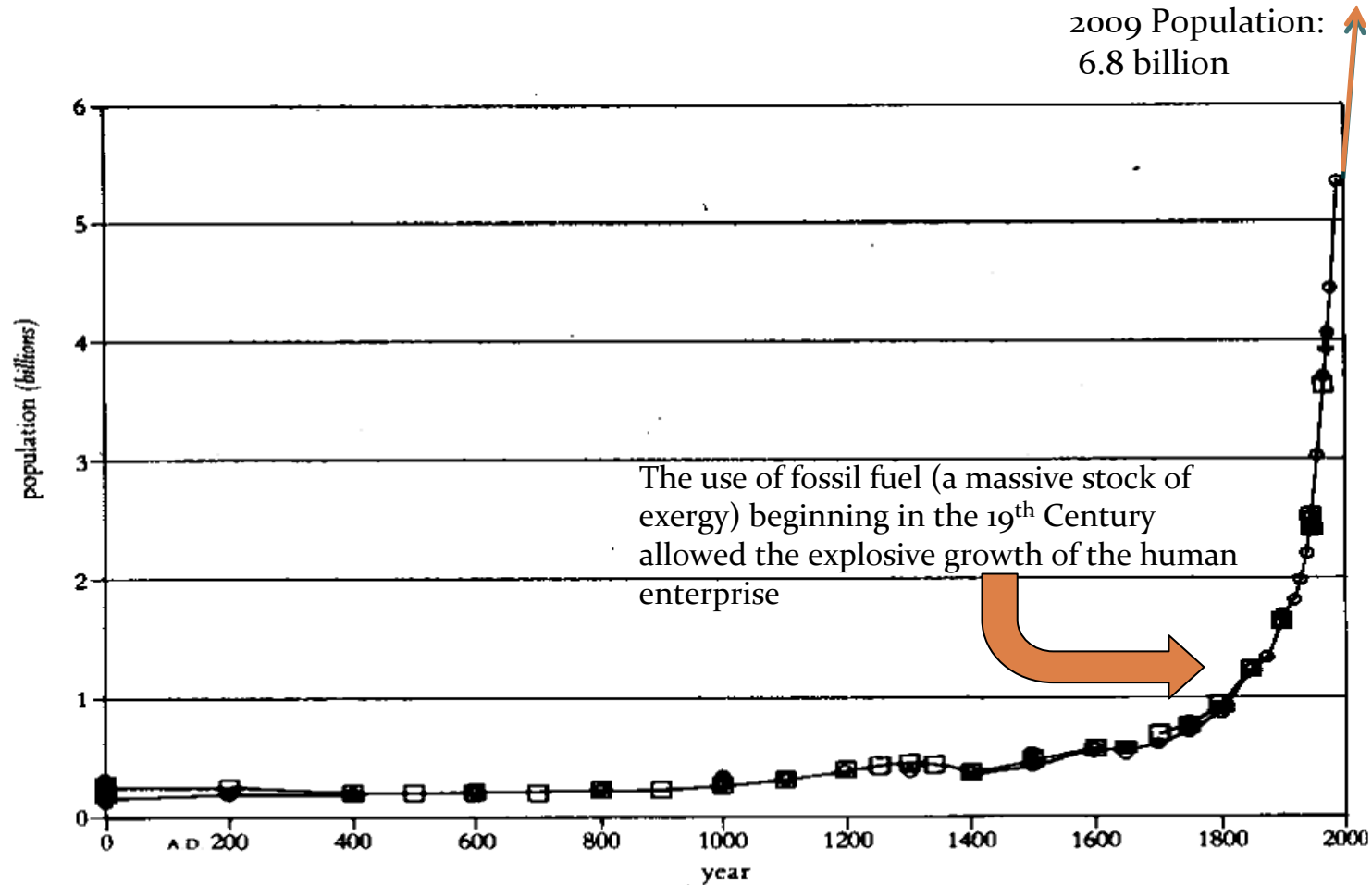
- Unless or until constrained by negative feedback, humans, like all other species will:
  - *expand to fill all the accessible habitat*
  - *use all available resources (in the case of humans, 'available' is determined by contemporary technology).*

# Cultural Reinforcement

The perpetual growth paradigm and the progress myth

- ❑ “There are no... limits to the carrying capacity of the earth that are likely to bind any time in the foreseeable future... The idea that we should put limits on growth because of some natural limit, is a profound error [with] staggering social costs” (Lawrence Summers 1991).
- ❑ “Technology exists now to produce in virtually inexhaustible quantities just about all the products made by nature...”, and: “We have in our hands now... the technology to feed, clothe, and supply energy to an ever-growing population for the next seven billion years...” (Julian Simon 1995).

# Result: The Anomalous, Unsustainable Oil-Based Expansion of Global Civilization



Continuous growth—population and economic—is an anomaly. The growth spurt that recent generations take to be normal is the single most abnormal period of human history.

# The Missing Biophysical Context: Far-from-Equilibrium Thermodynamics

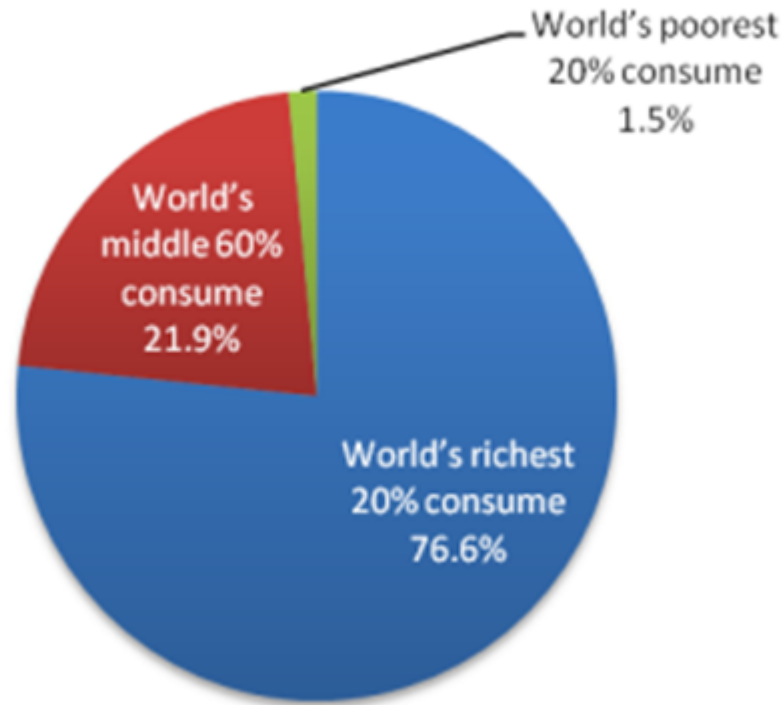
- All living systems, including the human enterprise, are **dissipative structures**. They produce themselves and grow (i.e., raise themselves ‘far-from-equilibrium’) by consuming, transforming, and dissipating available energy/matter [negentropy or exergy] produced by nature). However:
- The human enterprise is also an open, growing sub-fully dependent sub-system of the materially closed non-growing ecosphere. Therefore:
- The human enterprise can produce itself and grow only at the expense of consuming and dissipating its host system, the ecosphere—*global entropy (degradation) necessarily increases*.

# Social and Ecological Consequences of Faulty Assumptions and Missing Frames

- ❑ Capital flows outward to exploit the *absolute* advantages of cheap labour and regressive environmental practices . (Such input ‘subsidies’ are encouraged by WTO rules.)
- ❑ Competition among exporters of the same products drives down export prices and reduces producer surpluses (profit margins)—good for consumers, bad for ecosystems.
- ❑ Without adequate surpluses producers cannot maintain their vital ‘natural capital’ (e.g., forests, fish-stocks, agricultural soils, water-tables, etc.)
- ❑ Gross pollution and accelerated resource depletion (entropy accumulations) are common, particularly in low-income producer countries (but also countries like Canada (think oil-sands and North Atlantic cod).
- ❑ Globalized goods are being traded below their full social and ecological costs of production.
- ❑ Such social and ecological ‘dumping’ violates market principles, is grossly inefficient and makes hypocrites of us all.

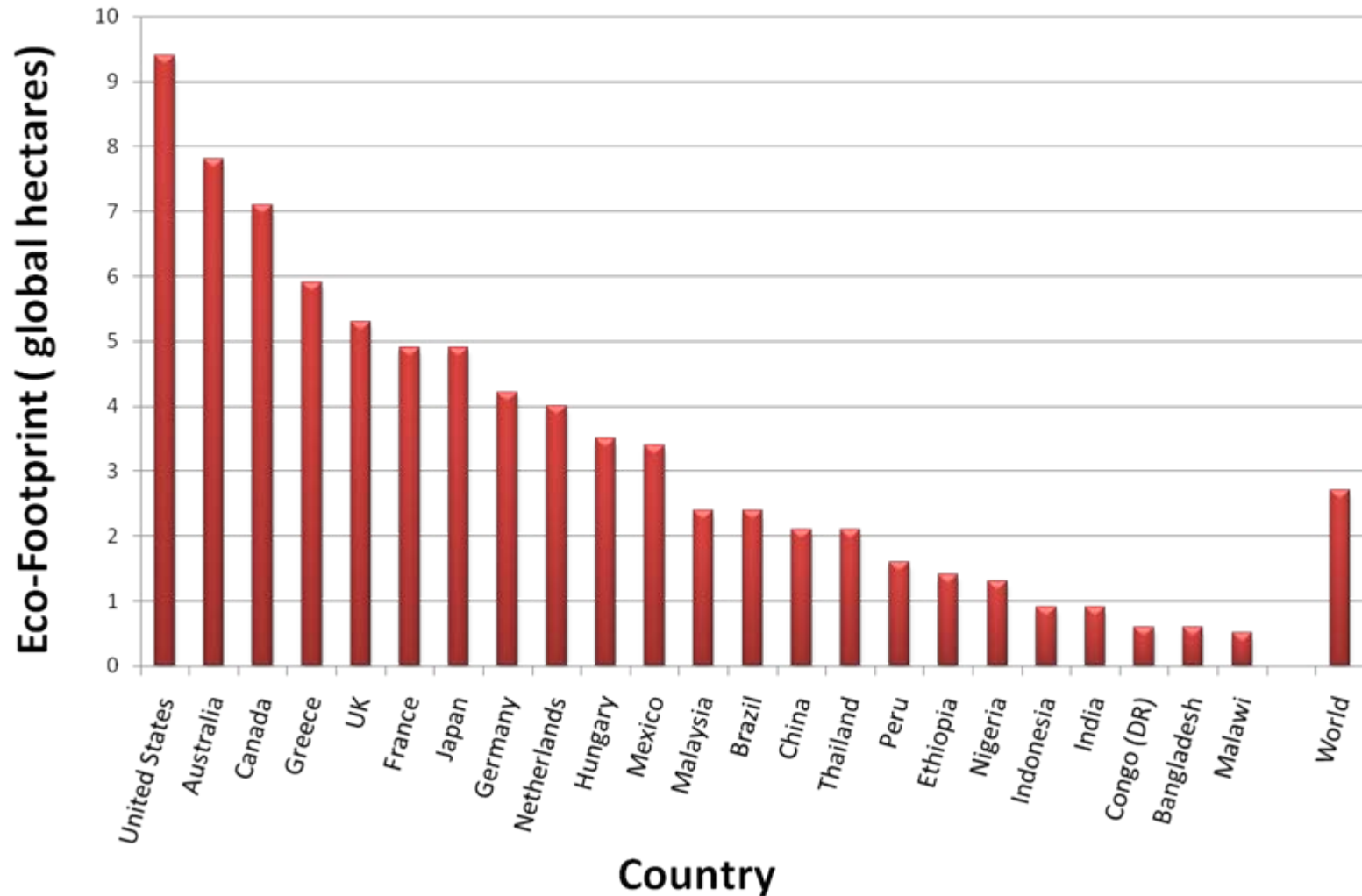
# Meanwhile, the income gap is Still increasing

## Share of world's private consumption, 2005



Source: World Bank Development Indicators 2008

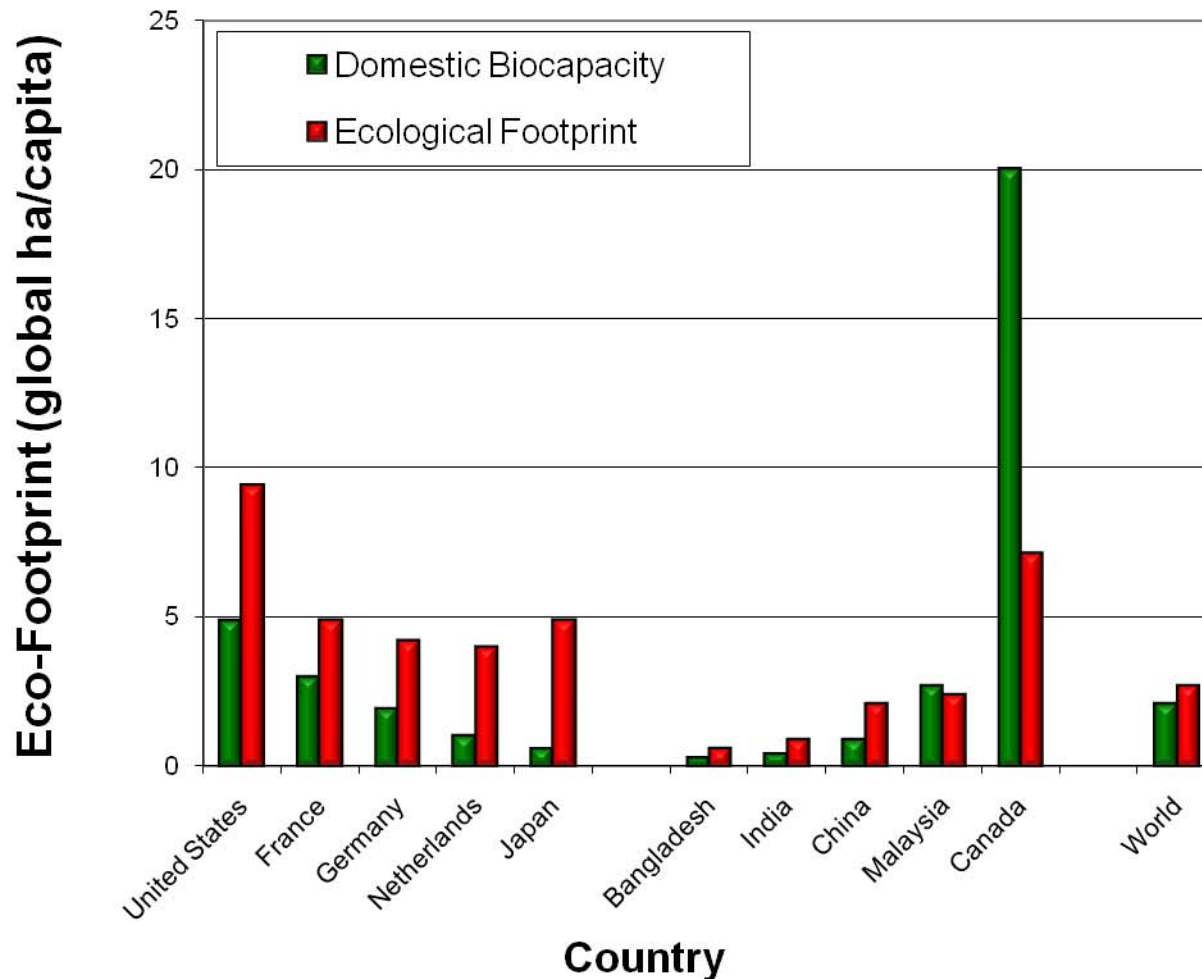
# *Per Capita Ecological Footprints of Selected Countries* (2005 data from WWF 2008)



# What's Really Going On: Globalization as Neo-Colonialism

- ❑ Globalization enables rich countries to use paper wealth to acquire the real wealth (the remaining accumulations of energy and resources) of developing and resource-rich countries.
- ❑ Rich, powerful nations now achieve through globalization and trade what used to require territorial occupation.
- ❑ Poverty reduction, if it occurs, is incidental.

# Depleting the Planet – Bio-capacities and Eco-Footprints of Selected Countries



- Globalization enables countries that run eco-deficits to extract ‘surplus’ biocapacity from low density countries (like Canada) and the global commons and use it to sustain their destructive consumption habits.
- Such countries exist in a state of ‘overshoot’ but are blind to the consequences.

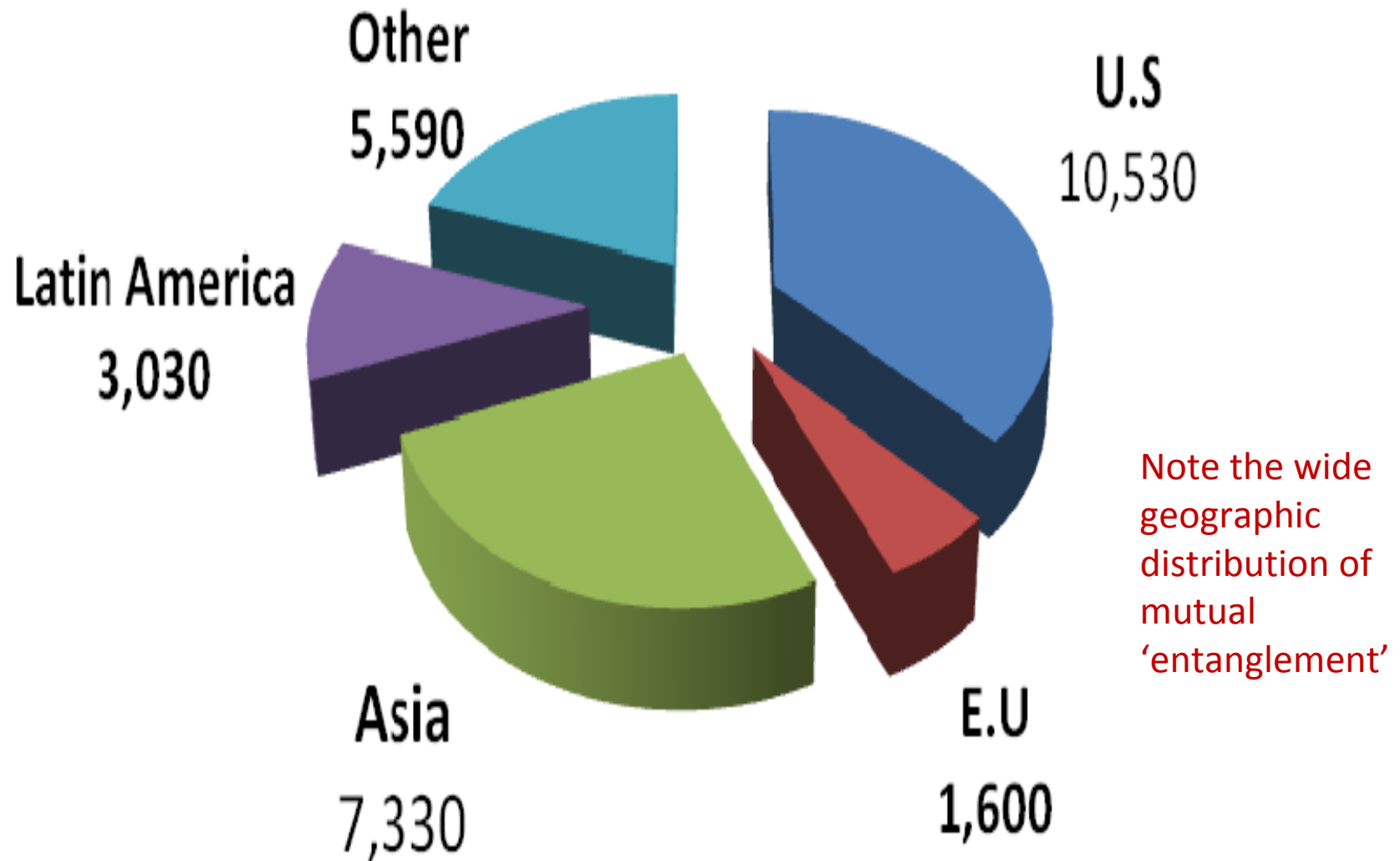
# The Increasing 'Entanglement of Nations' and Global Security

- ❑ Trade in biocapacity stimulates material and population growth, enabling all trading partners to exceed their domestic carrying capacities even as they dissipate resource gradients elsewhere.
- ❑ Specialization and trade makes every country dependent on others for various essential goods and commodities.
- ❑ This means:
  - *Every trade-dependent region is increasingly vulnerable to supply or price shocks. Meanwhile:*
  - *Globalization accelerates the entropic dissipation of the ecosphere.*
  - *All nations reach global carrying capacity at the same time and there is no surplus capacity or fall-back position.*

# Exporting the Canadian Prairies (Kissinger and Rees 2009)

- ❑ On average from 1989 to 2007, 65% of Canadian prairie cropland was effectively ‘exported’.
- ❑ During this period, the total foreign eco-footprint on the prairies reached almost 34 million hectares, an area equivalent to the area of the United Kingdom, the Netherlands and Denmark combined.
- ❑ 50%-70% of the natural organic matter and essential nutrients of prairie soils have been permanently dissipated; biodiversity is devastated.
- ❑ Half or more of this entropic depletion is attributable to production for export.

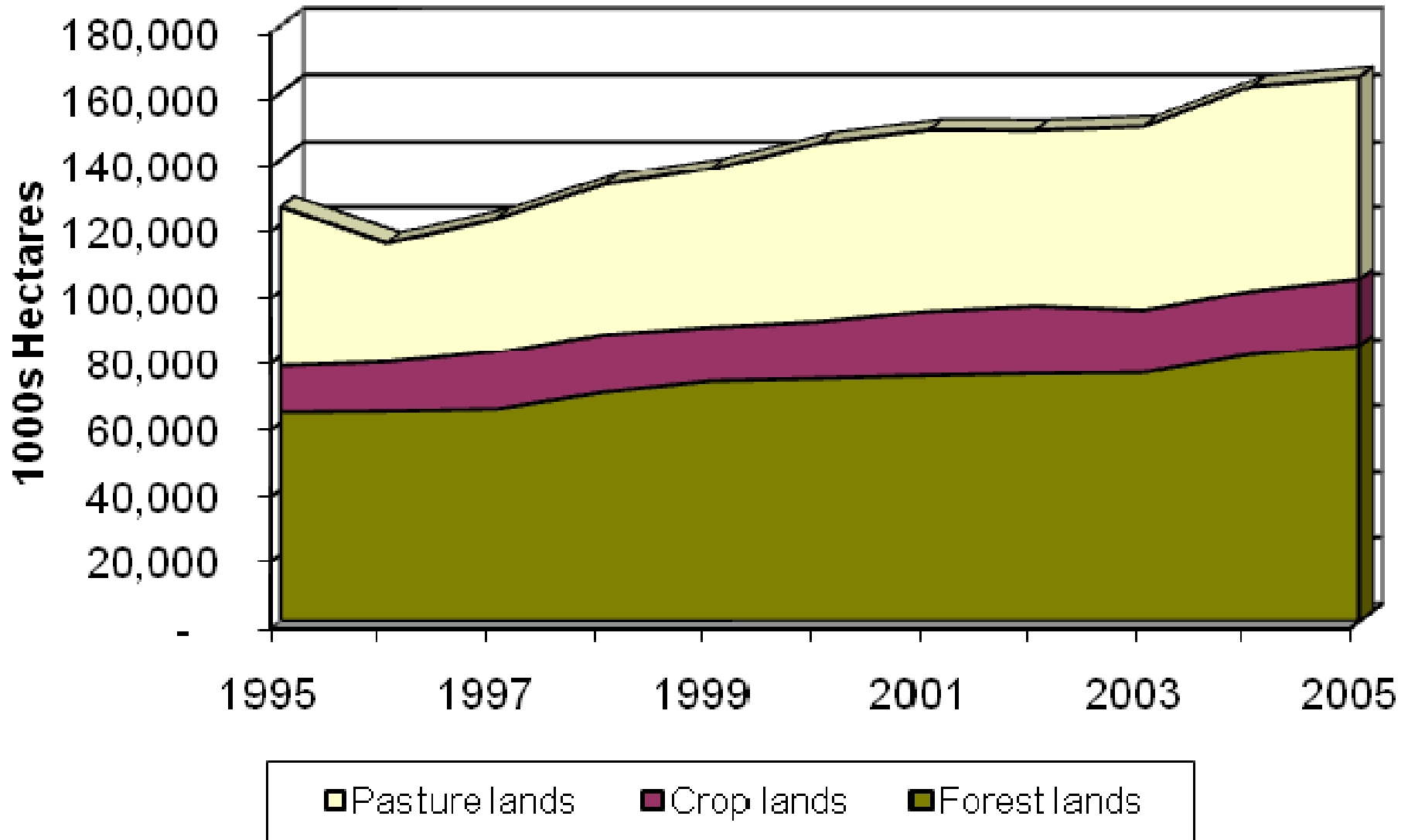
# The Average Area of Prairie Agricultural Land (1000s ha) Devoted to Foreign Consumers



# The flip-side: The US as growing importer (Kissinger and Rees 2010)

- ❑ Between 1995 and 2005, food-crops, meat and forest products imported to the US represented an average of 141,000,000 ha.
- ❑ This is an area of land equivalent to 18% of the lower forty-eight states or approximately the size of Germany, Italy, Spain, and the United Kingdom combined.
- ❑ Most of this area is forest, followed by pasture and cropland.

# Land 'Imported' by US Consumers



# Flagging Confidence in Global Food Markets: Large-Scale Land Acquisitions

- ❑ Between 2006 and 2009, 15-20 million hectares of farmland in developing countries were the subject of sale or long-term lease transactions or negotiations.
- ❑ This is equivalent to all of France's farmland or 20% of the farmland of the European Union (does not include on-going negotiations for 10 million hectares in the Republic of Congo).
- ❑ Demand is highest for prime land close to water for low-cost irrigation.
- ❑ Main target countries include Cameroon, Ethiopia, the Democratic Republic of Congo, Madagascar, Mali, Somalia, Sudan, Tanzania and Zambia, but also Brazil, Cambodia, Indonesia, Kazakhstan, Pakistan, Ukraine, Philippines, Laos, Myanmar and Australia.
- ❑ Investor countries include China, Saudi Arabia, the UAR, Libya, South Korea, and India.

# Bottom Line? Growth-based globalization does not compute!

- ❑ Globalization could be disastrous for everyone if any of its underlying assumptions are seriously violated. For example, consider the effect on the national security of import-dependent nations of if growth-driven human-induced climate change:
  - Undermines the productivity of exporting nations directly (e.g., long-term drought).
  - Induces sea-level rise permanently flooding coastal plains (prime agricultural lands).
  - Displaces millions leading to mass migration, local strife and geopolitical chaos.
- ❑ These things are virtually inevitable. Remember, the human enterprise is a dissipative structure that beyond a critical scale, mainly increases global entropy.

# Could globalization precipitate global collapse?



□ “...what is perhaps most intriguing in the evolution of human societies is the regularity with which the pattern of increasing complexity is interrupted by collapse...”

(Joseph Tainter 1995).

# Think collapse unlikely? Read “The Age of Consequences”

(Washington, Center for Strategic and International Studies, November 2007)

- ❑ “We predict an [inevitable] scenario in which people and nations are threatened by massive food and water shortages, devastating natural disasters and deadly disease outbreaks”  
(John Podesta, contributing author).
- ❑ Rich countries could “go through a 30-year process of kicking people away from the lifeboat” as the world’s poorest face the worst environmental consequences”  
(Leon Fuerth, contributing author).

# Questions that Should Have Been Asked as the World Globalized

- ❑ What are the economic, ecological and even moral implications of encouraging ever-more dependent relationships that may not be sustainable in times of rapid global change and growing resource scarcity?
- ❑ Is it wise for any nation to commit its well-being and future development to foreign production and vulnerable imports?
- ❑ What risks does a nation assume by committing substantial portions of its own limited land-base to extra-territorial consumers?
- ❑ At what point do the benefits of self-reliance, enhanced security balance the assumed gains from trade?

# As Matters Stand: Implications of Excessive Entanglement

- ❑ The sustainability of any region within the global systems is increasingly dependent on the sustainability of various distant regions.
- ❑ No region or country can extract itself from this situation or achieve sustainability on its own. Meanwhile:
- ❑ We are arguably at the point where the costs of global growth exceed the benefits.
- ❑ This represents ‘uneconomic growth’ that makes us poorer rather than richer.

# The Next Step in Human Evolution?

- ❑ For the first time in humanity's evolutionary history, short-term individual and national self-interest have all but converged with humanity's long-term common interest.
- ❑ If humanity is to take its next great leap forward, we must learn to override once-adaptive strategies (e.g., expansionism, short-term self-interest, aggressive tribalism) that have become maladaptive on a crowded, resource constrained planet.
- ❑ Reason (enlightened self-interest) must come to prevail over emotion and instinct in inter-group relationships in the quest for sustainability and survival.

# Making Globalization Work: Re-writing our Cultural Narrative

- ❑ Sustainability is a collective problem requiring a collective solutions. No person or nation can create a globally equitable, ecologically stable world on his/its own.
- ❑ For survival with dignity, the global community must abandon its socially-constructed perpetual growth myth in favour of a 'steady state' economy and learning to live within the thermodynamic means of nature.
- ❑ We must write a new cultural narrative that shifts the values of society from competitive individualism, greed, and narrow self-interest, toward community, cooperation, and our collective interest in restoring the life-support functions of the ecosphere.