

# Beacon Hill Seminars – 2016

## “Earth’s Changing Climate: What is Causing It? What Will It Mean for You?”

### Session 5 – Climate Change, Food Strategies And our Global Water Circumstance



**Timothy C. Weiskel**

**3 November 2016**

**Transition-Studies**

**Fall Semester 2016**



**BBC, Newshour, 13  
September 2009**

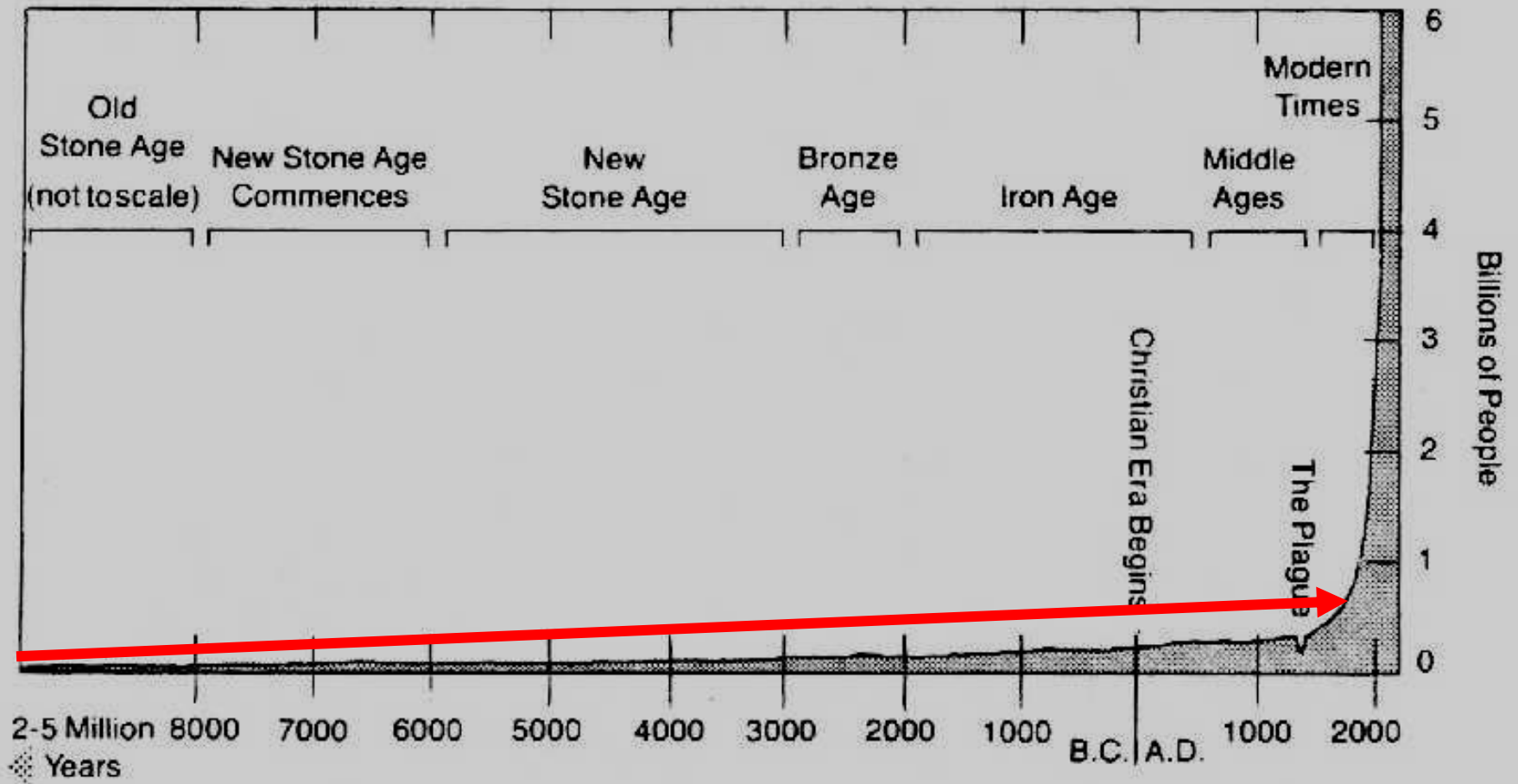
**<http://www.climate-talks.net/2008-ENVRE130/Audio/20090913-BBC-Borlaug-Newshour-obit.mp3>**

**Norman Borlaug  
(1914 – 2009)**

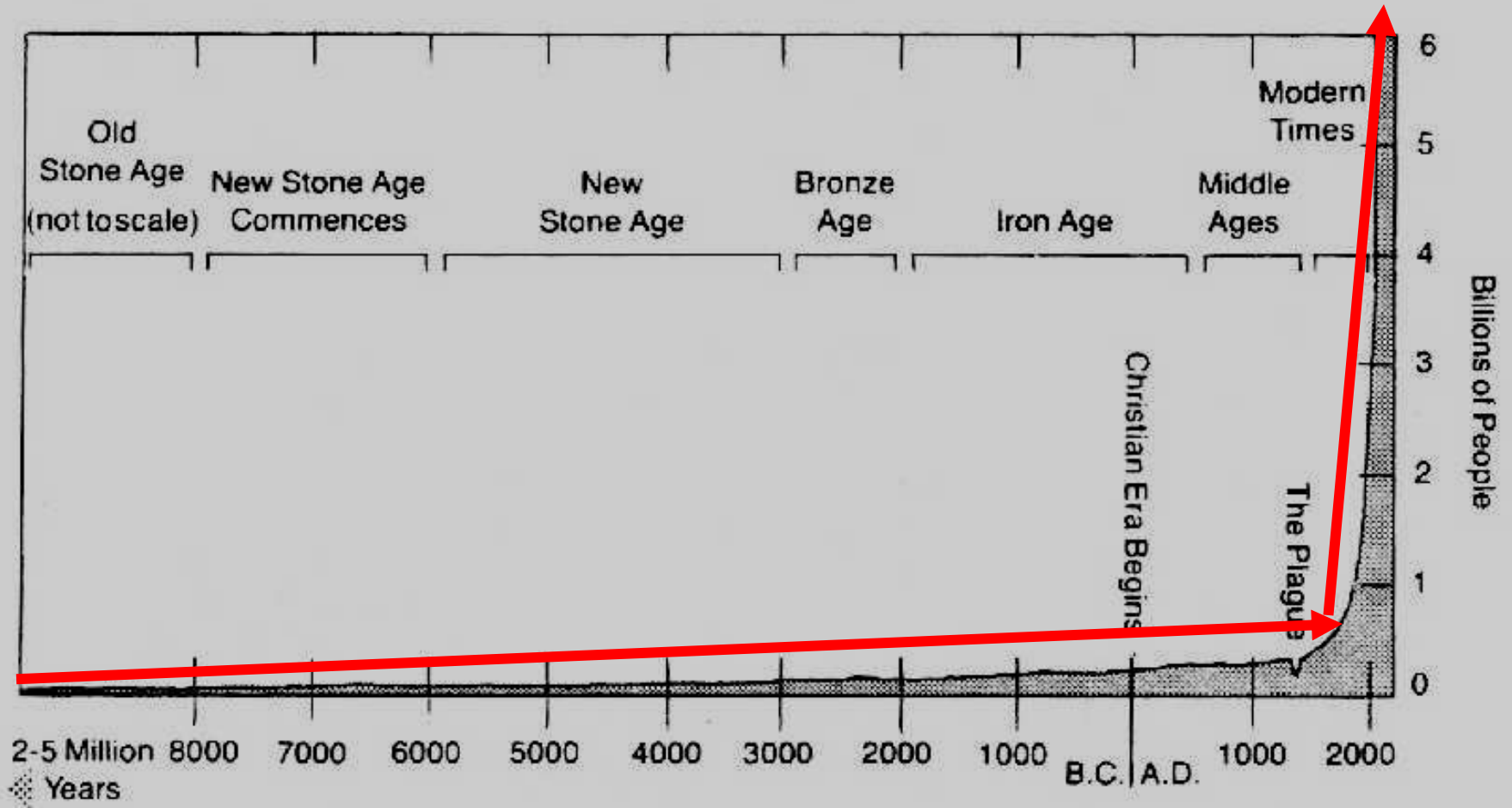


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# World Population Growth Through History

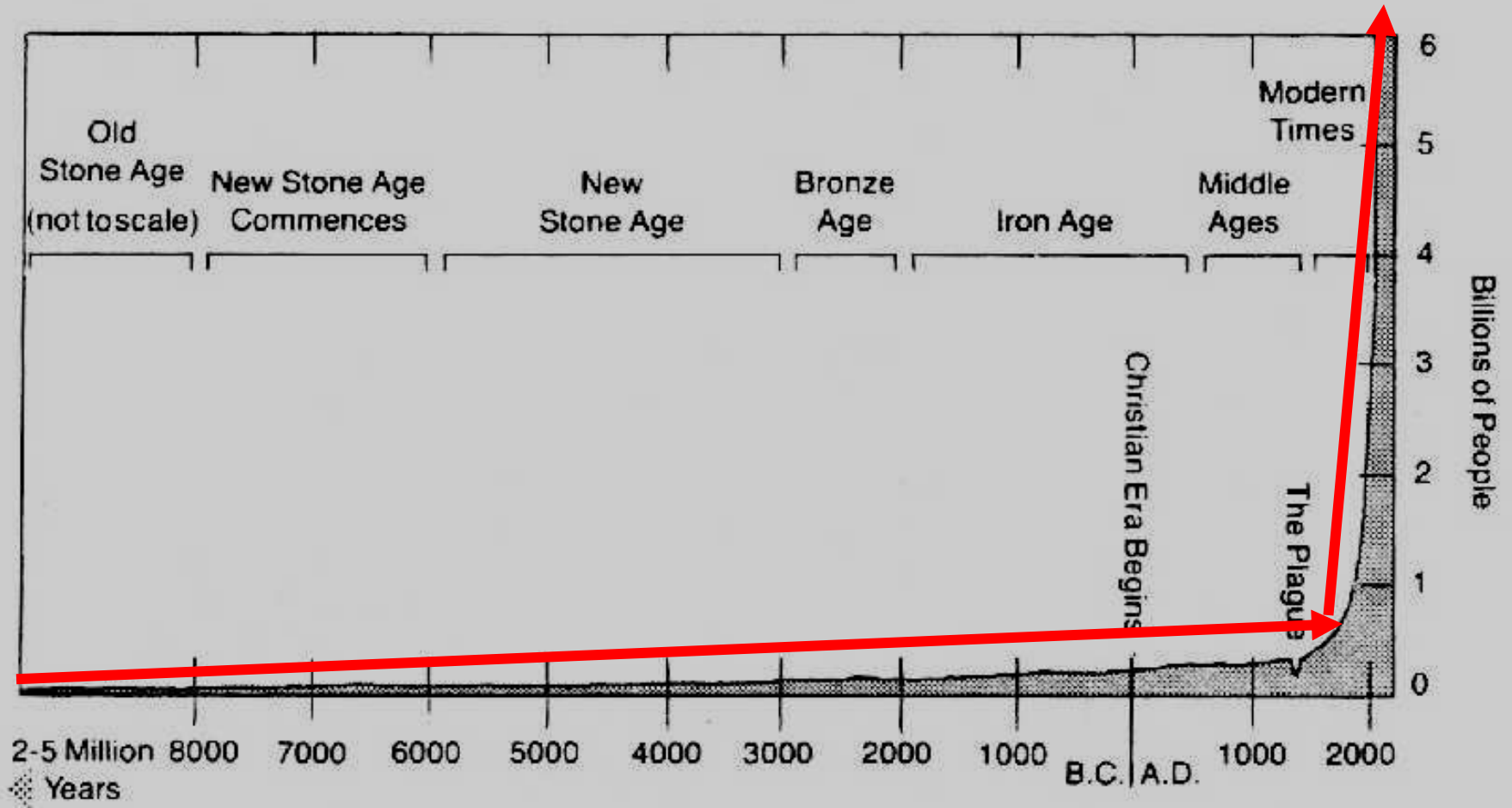


# World Population Growth Through History





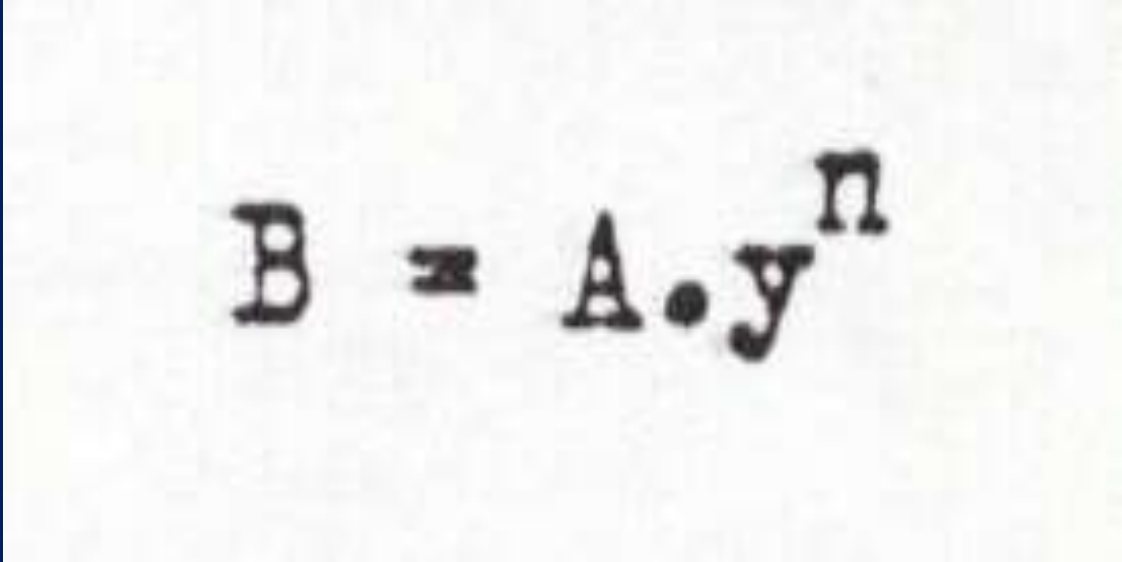
# World Population Growth Through History



Never before....and never again.

# Equation for Understanding the Dynamic of Exponential Growth

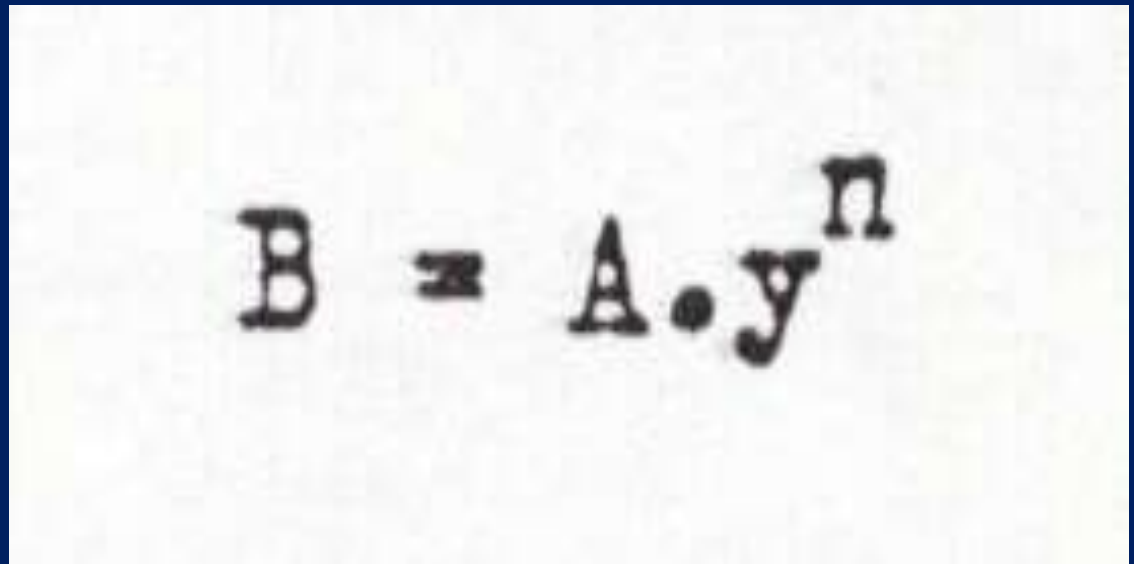
You can use this formula to calculate any phenomena at time “B” with initial input of “A” at an earlier point which is known to grow at an fixed rate “y” over a known period “n.”


$$B = A \cdot y^n$$

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*...this cannot go on indefinitely.*

A photograph of a handwritten equation on a piece of paper. The equation is  $B = A \cdot y^n$ . The letters are in a dark, possibly black, ink. The 'y' has a superscript 'n'. The equation is centered on the page.

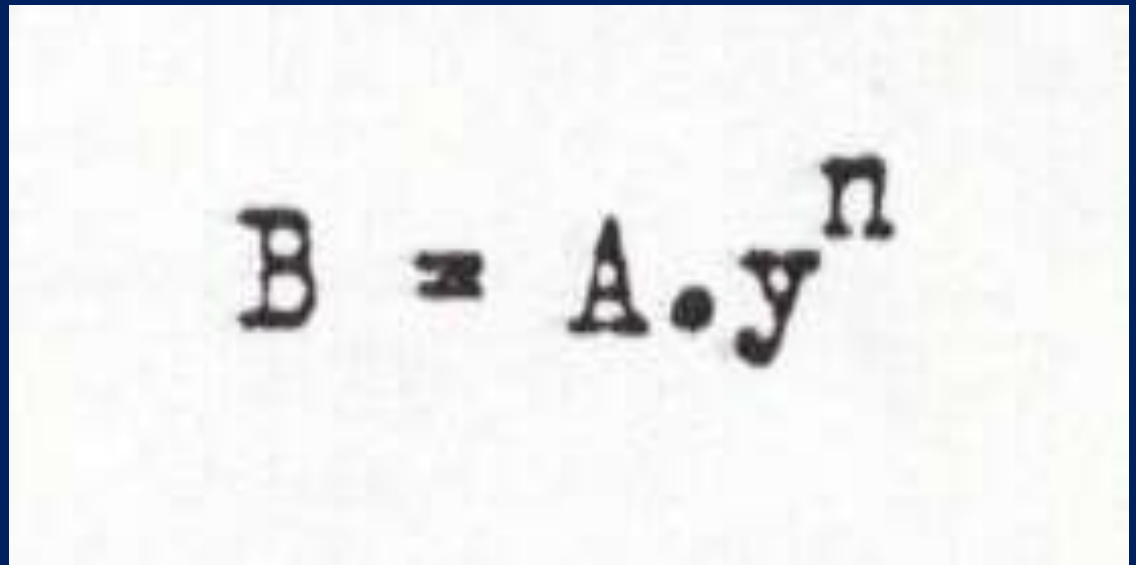
**High-school algebra is sufficient here -- no need for rocket science.**



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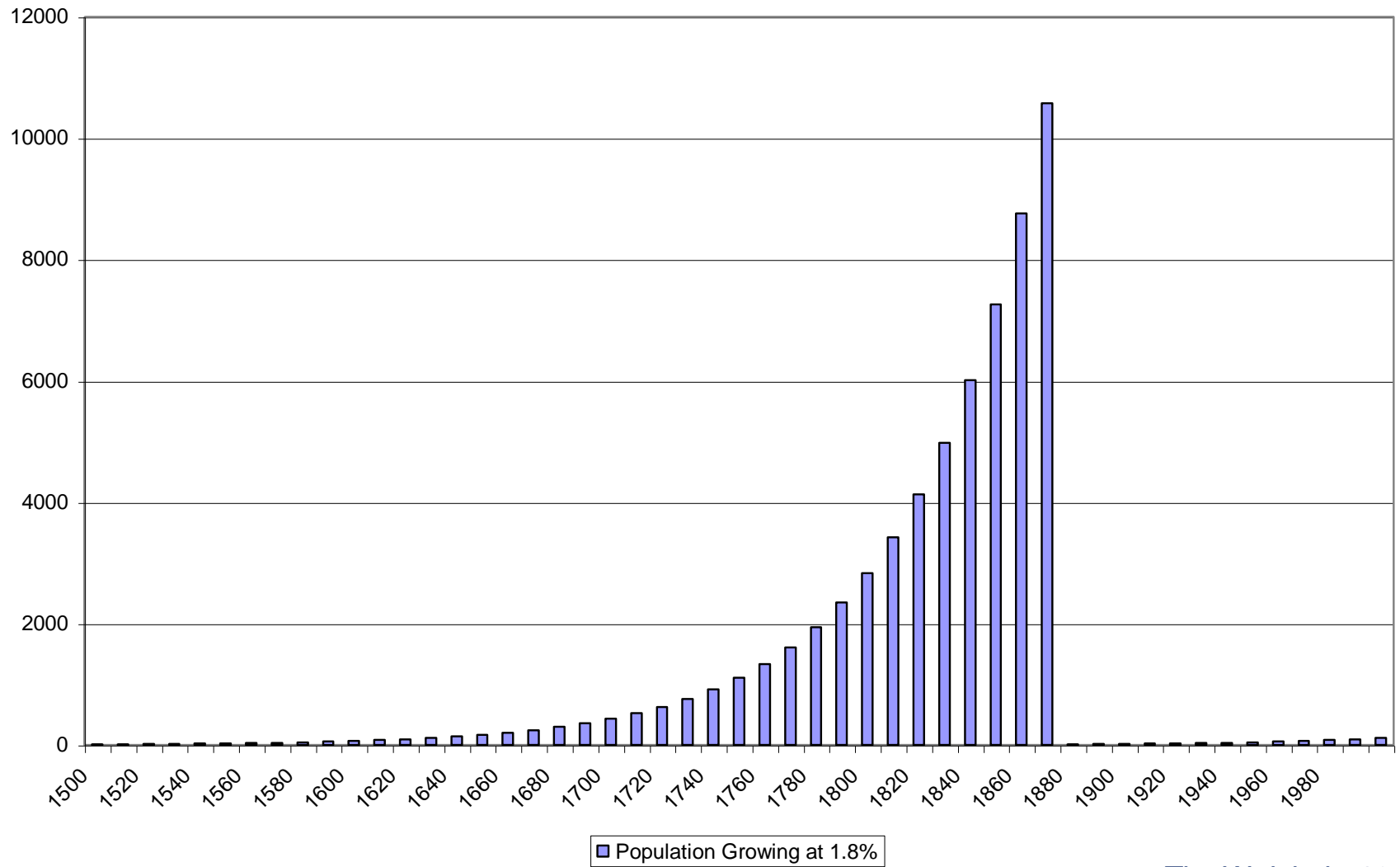
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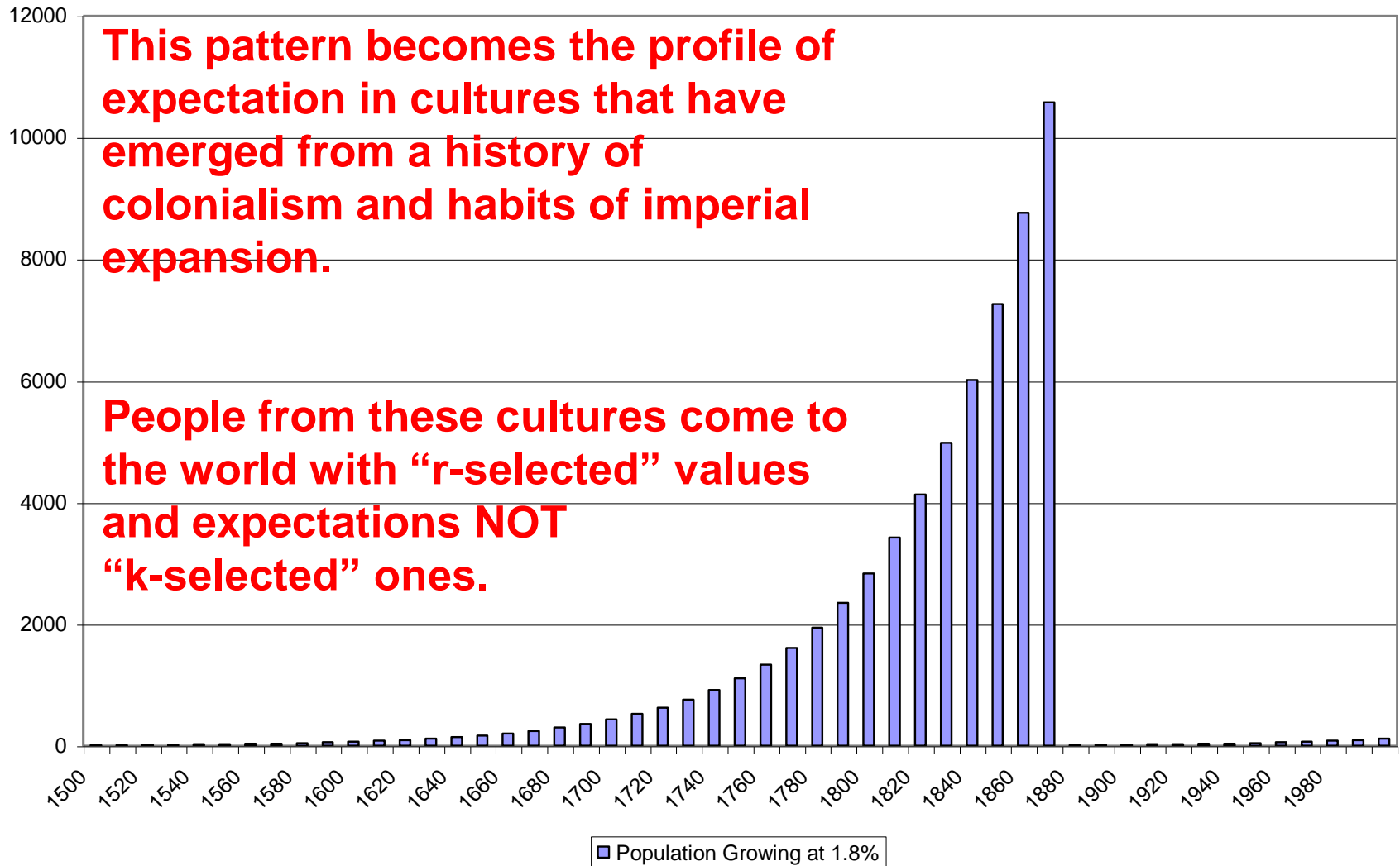
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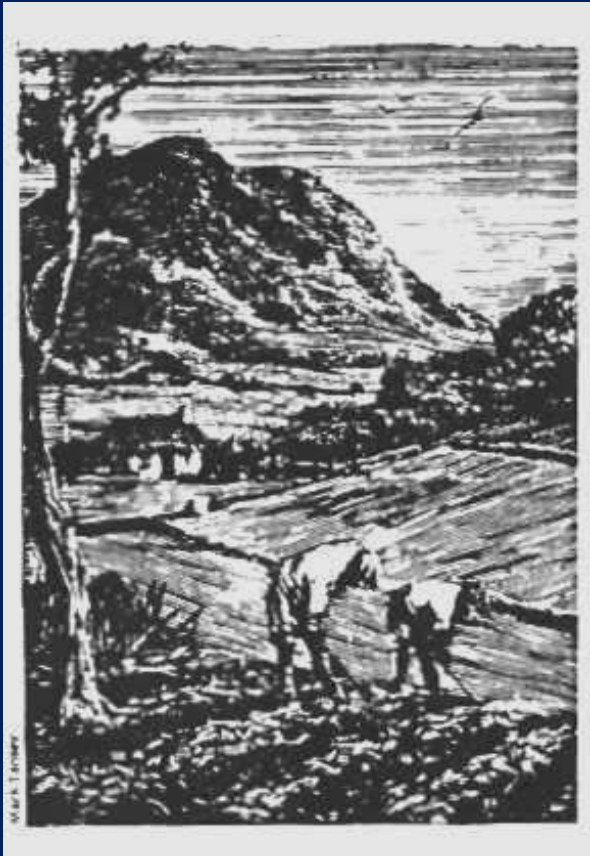
Population Growing at 1.8%



Population Growing at 1.8%



**Our evolving relationship to the land manifests our underlying colonial and imperial worldview.**



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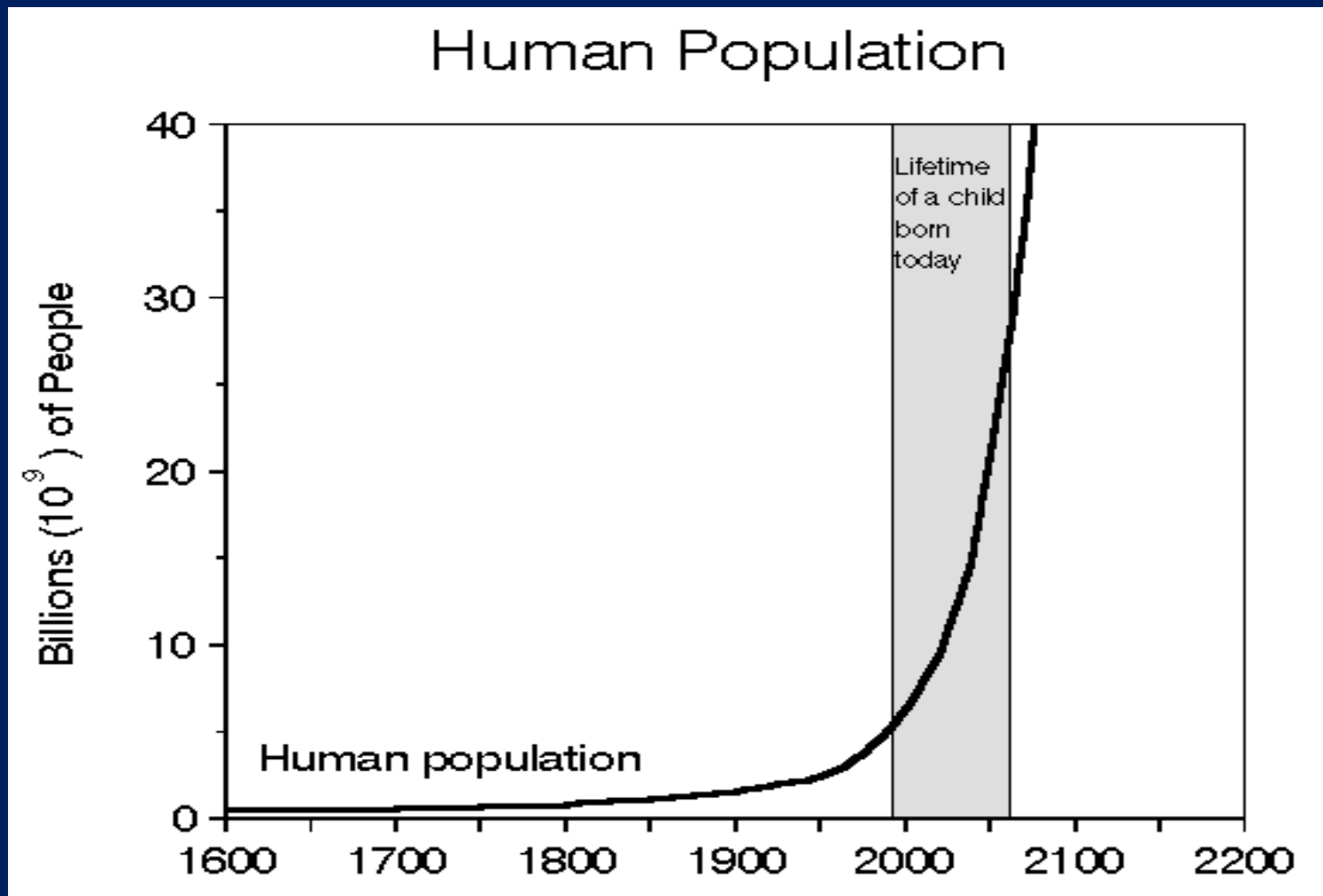
**Indeed, all of our sprawl culture with its economy based on Wal-Marts, and global resource extraction depends on carbon fuels.**





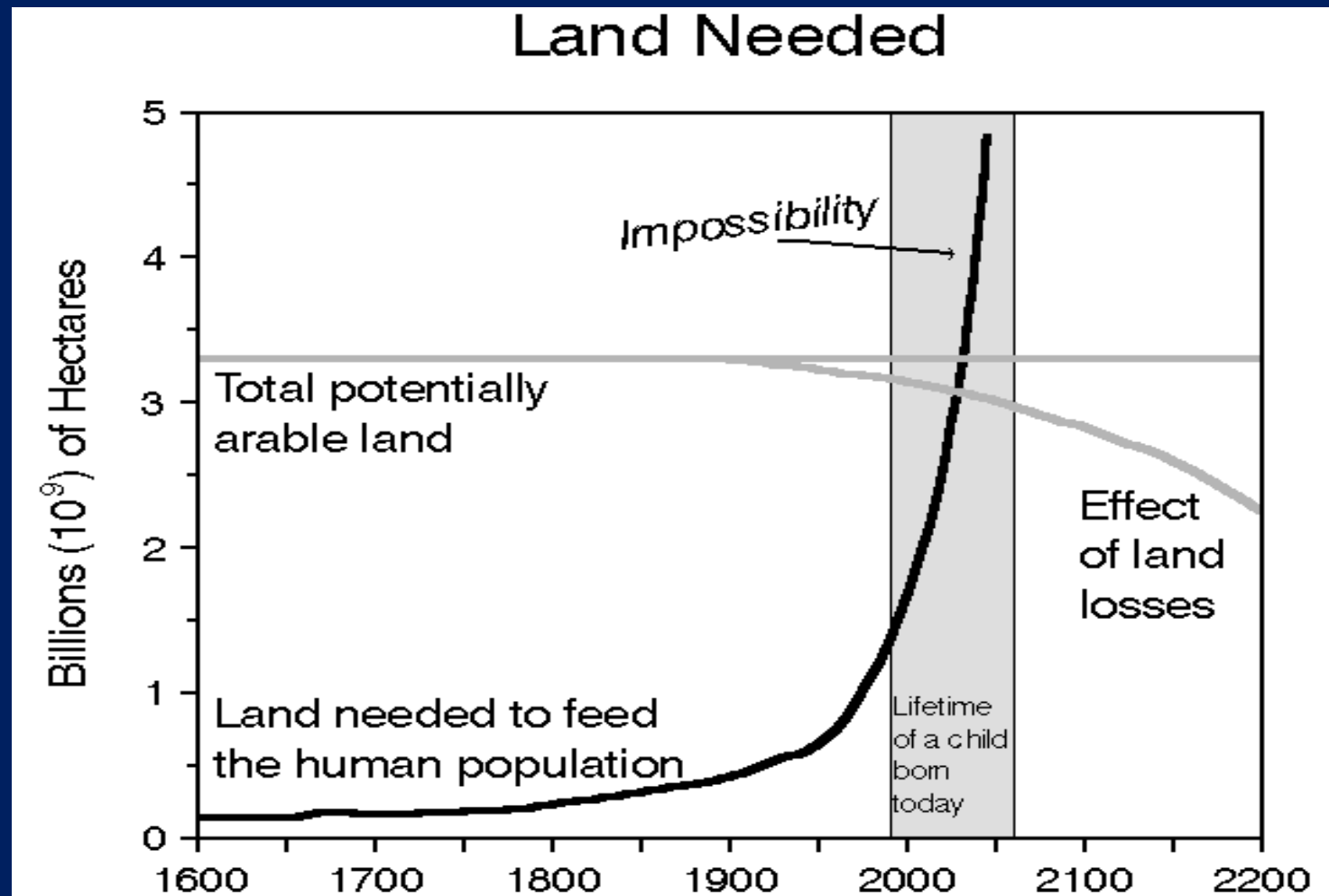
## But How Much is Enough in an Ecosystem ..?

(the nature and pace of changes immediately ahead -1)



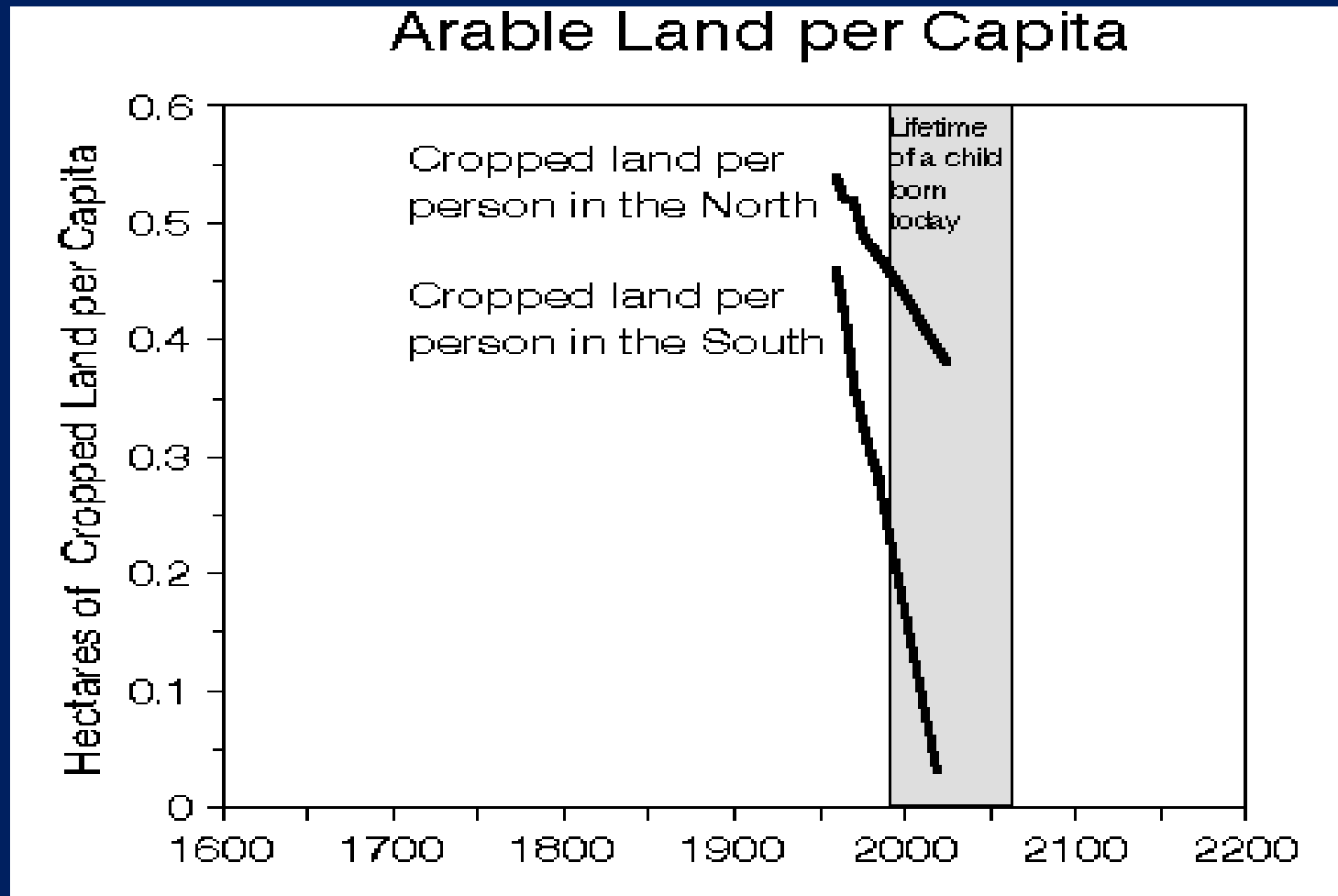
## But How Much is Enough in an Ecosystem ....?

(the nature and pace of changes immediately ahead -2)



## But How Much is Enough in an Ecosystem....?

(the nature and pace of changes immediately ahead -3)





[Course Utility Page](#)

ENVR - E-120 - Fall Semester 2006  
Environmental Ethics and Land Management

[Harvard Extension School](#)

<http://courses.dce.harvard.edu/~envr120>

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No amount of genetic engineering will address the ethical problem of limit posed by the most recent scientific studies.

# World Population – Historical Geography

Posted on [January 31, 2016](#) | [Leave a comment](#) | [Edit](#)



Watch human population grow from 1 CE to present and see projected growth in under six minutes. One dot = 1 million people.

*Anyone who believes exponential growth can go on forever in a finite world is either a madman or an economist.*

Kenneth Boulding, economist







"I Was Wrong! Alan Greenspan," [YouTube](#), (23 October 2008)

MANCHESTER  
CAPITALISM

*'Utterly compelling  
and sobering.'*  
Ho-Joon Chang

# THE ECONOCRACY

The perils of  
leaving economics  
to the experts

JOE EARLE, CAHAL MORAN and ZACH WARD-PERKINS

*with a foreword by Andrew Haldane, Chief Economist at the Bank of England*

# THE ECONOCRACY

The perils of  
leaving economics  
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JOE EARLE, CAHAL MORAN and ZACH WARD-PERKINS

with a foreword by Andrew Haldane, Chief Economist at the Bank of England

Economists have systematically misunderstood the ecology of agriculture and misdirected public policy in the post-War world

**Norman Borlaug addressed the**

**The “Food” Problem**

Norman Borlaug addressed the

## The “Food” Problem

... but we have come to understand  
that this is only part of:

## The Food/Population Problem

Norman Borlaug addressed the

## The “Food” Problem

... but we have come to understand  
that this is only part of:

## The Food/Population Problem

... and that, in turn, is  
only part of:

## The Food/Population/Environment Problem

(This Requires a Paradigm Shift)

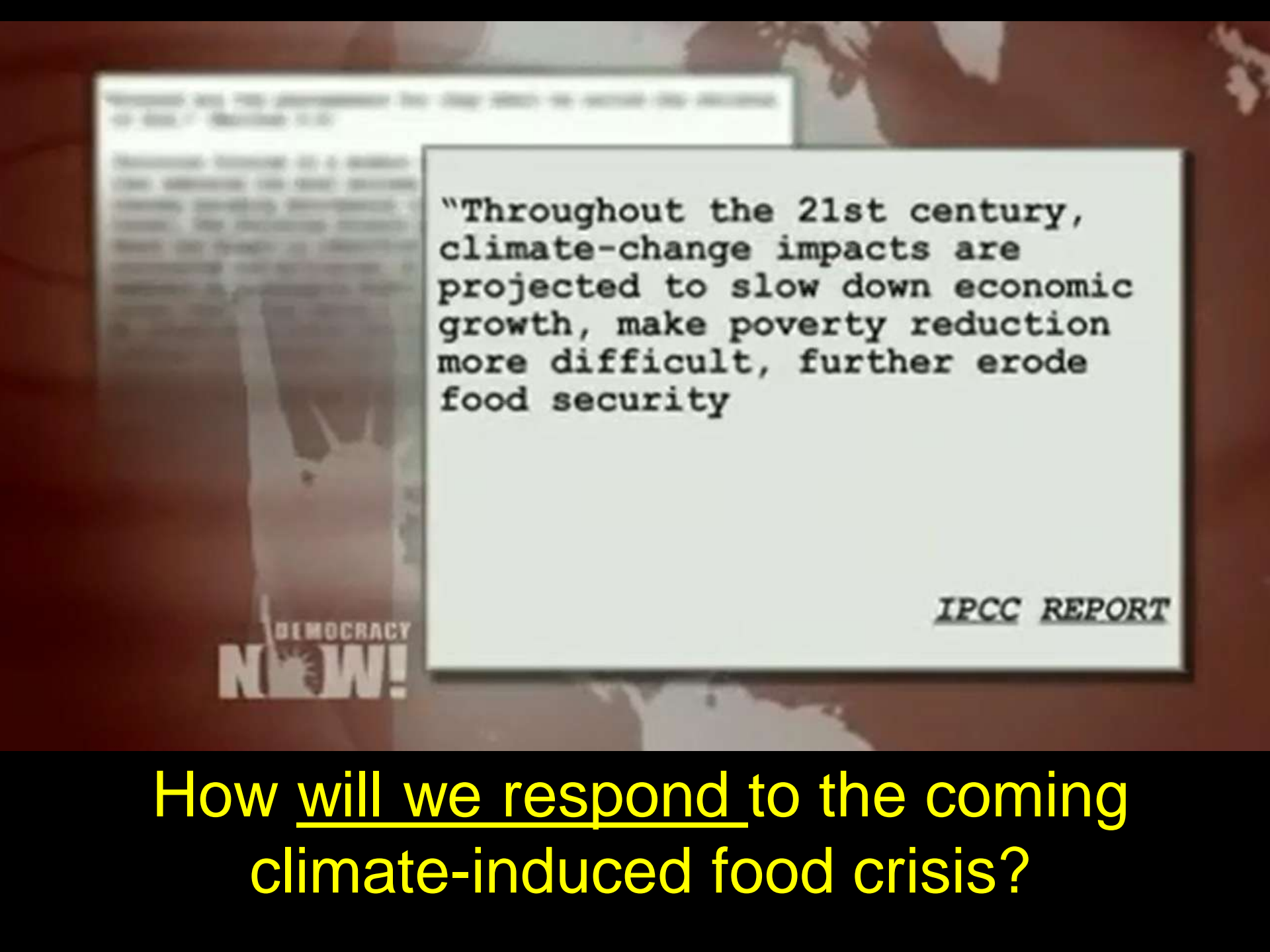




## **Norman Borlaug (1914 – 2009)**

The Crucial Question Is:

Will the students and followers of Norman Borlaug be able to make the paradigm shift to sustainable agriculture that is now required for our collective human survival?



"Throughout the 21st century, climate-change impacts are projected to slow down economic growth, make poverty reduction more difficult, further erode food security

*IPCC REPORT*

DEMOCRACY  
**NOW!**

How will we respond to the coming climate-induced food crisis?

We need to remember, climate physicists know very little about agroecology...



Petro-intensive agriculture *cannot* be sustainable...based on non-renewables. BUT will we move beyond it to regenerative agriculture in the time we have remaining?



DOUBT  
FOOD PRODUCTION  
2050

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# Food Fight 2015: Taking Down the Degenerators

Posted on [October 22, 2016](#) | [Leave a comment](#)

September 3, 2015 Organic Consumers Association by Ronnie Cummins [All About Organics](#),



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Posted on [October 22, 2016](#) | [Leave a comment](#)

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# A Deep Dig On GMO And Crop Yields | On Point

Posted on [November 2, 2016](#) | [Leave a comment](#) | [Edit](#)



# *Doubts About the Promised Bounty of Genetically Modified Crops*

By DANNY HAKIM OCT 29, 2010



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# International Monsanto Tribunal In The Hague - October 2016

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## Program Monsanto Tribunal

**Location:** Institute of Social Studies, Kortenaerkade 12, 2518 AX Den Haag.

Scroll down for the PDF version and the People's Assembly program



# Letter from The Hague: The Long March

Posted on [October 22, 2016](#) | [Leave a comment](#)

Organic Consumers Association by Ronnie Cummins [Genetic Engineering](#)



# Regeneration: Global Transformation in Catastrophic Times

Posted on [October 22, 2016](#) | [Leave a comment](#)

August 4, 2015 Organic Consumers Association by Ronnie Cummins





# Regeneration: Global Transformation in Catastrophic Times

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Can we learn to work *with* biodiversity in nature in a sustainable agriculture....?



Can we devise and implement ***carbon-capturing,*** **sustainable agriculture** in response to the challenges of global climate change?



# Got a Carbon Problem? Fix it !

## Part 1 – Some Prophetic & Enduring Testimony



23 June 1988



14 September 1988

# Got a Carbon Problem? Fix it !

## Part 2 – Global Crisis & Local Responses



permanent + agriculture



**Anna Lappé**



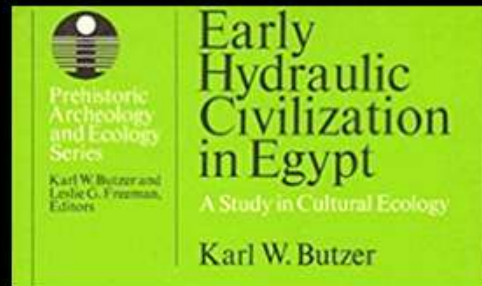
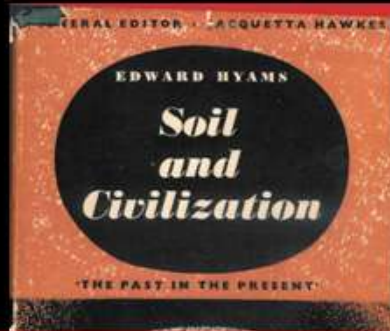
**FRANCES MOORE LAPPÉ**

WORLD RENOWNED AUTHOR: "DIET FOR A SMALL PLANET"

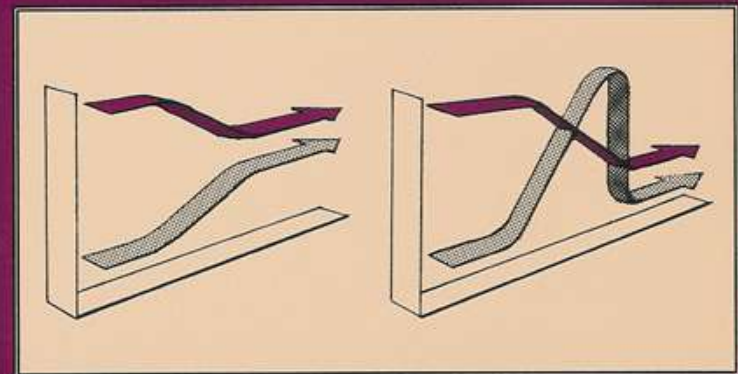
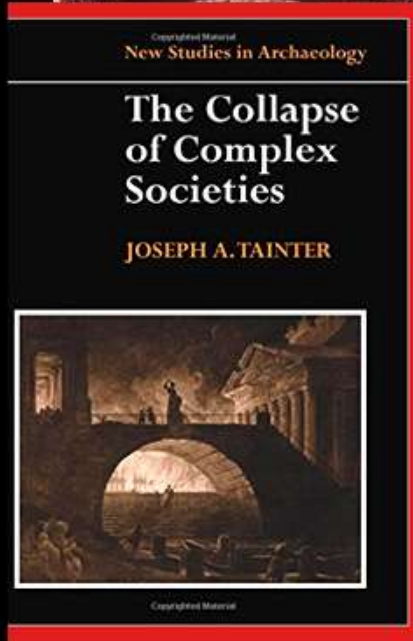


# Got a Carbon Problem? Fix it !

## Part 3 – Growing Soil to Save the Human Prospect

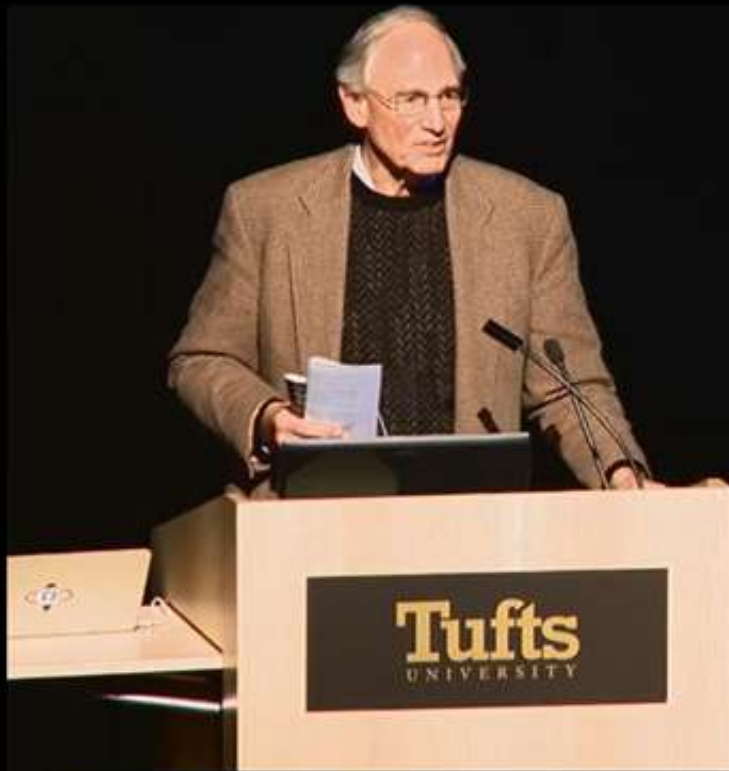


Sustainability vs Ecological "Overshoot" & Collapse

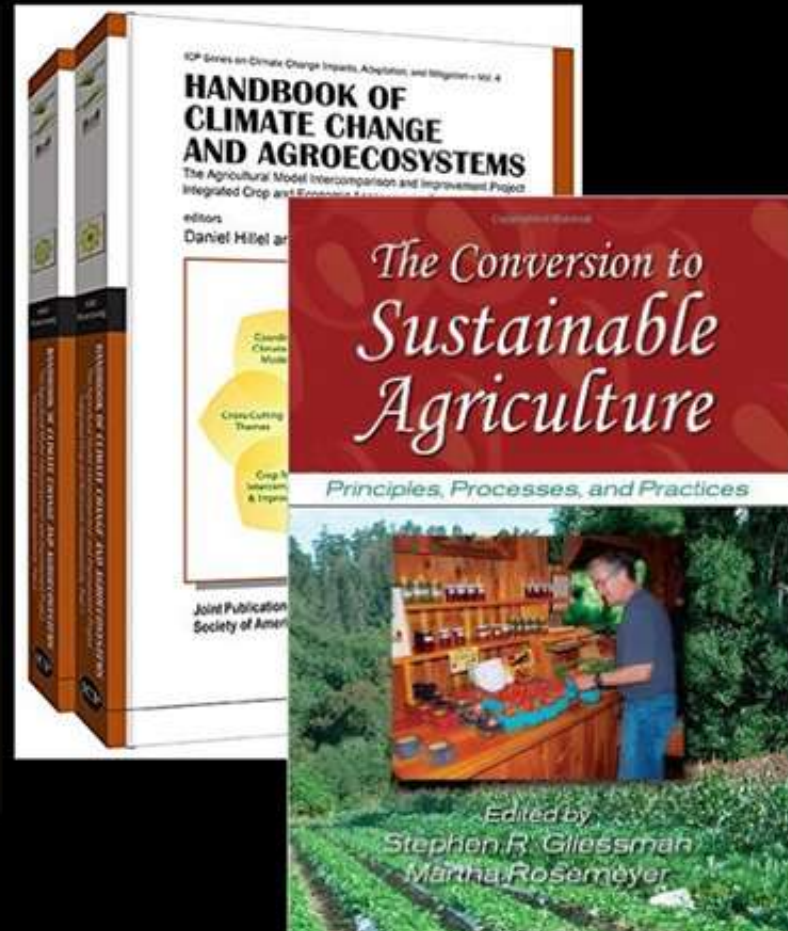


We must move beyond degenerative  
agriculture toward

## Restorative Development: Sustainable Agriculture and the Climate Crisis



Professor William Moomaw



But the problems of food production, oil  
and climate change have other  
dimensions...



But the problems of food production, oil  
and climate change have other  
dimensions...

...climate change and fresh  
water is the really big crisis...





**Let's take a “big picture view” of WATER**





There is something wrong on this water wealthy planet.

We live on the  
only Blue  
planet in the  
known  
universe...

....yet as a  
species we  
may be  
“running out”  
of water.





We need to address the ethical, scientific, public health, and policy dimensions of this crisis...

...to avoid  
massive  
human  
suffering.





























**“That image of the earth has become, like the Cross and the Crescent, an icon of almost religious significance.”**

**James Lovelock, 1996**



# Water

- Two thirds of the world is covered with water
- 97% of that water is salt water
- Of the remaining 3% that is fresh water, roughly,  $\frac{2}{3}$  of that is locked up in the polar ice sheets.
- The world's population is competing in increasingly vicious rivalries for the use of the remaining 1% of water on the planet.

# Competing Uses of Water

- Agriculturalists - water is irrigation
- Industrialists - water is input to industrial process
- Municipal authorities deal with “drinking water” and “sewage.”
- Energy Companies - water as a source of power
- Environmentalists - water is basis of wetlands and vital to ecosystemic health

## Emerging Conflicts:

Small farm agriculture vs. corporate agriculture

drinking water vs. agriculture

Sanitation (humans vs. microbes)



# Water Issues Are Already in News

Shortages will be experienced in agriculture, just when expanded food production is required.

Studies have appeared, warning of water scarcity around the globe (BBC News). Point to conflict.

In the last few months, UN has pointed to water scarcity and pollution problems in:

Africa; in Asia - especially India; the Middle East and in Brazil. (BBC Report on India's 50 Million without water)

Populations outrunning water supplies - ENN News 1 November 1999. And deserts are expanding.

# World Commissions Have Been Established

World Water Forum March 2000 Meetings in the  
The Hague, Netherlands

Overview of Problem (Conference Video).

CBC Report on the Hague World Water Forum meetings. (Summary reports emphasize shortage).

BUT “Solutions in short supply at World Water Forum” - ENN, 28 March 2000. ( Extended BBC report on the Hague Conference )

## Earth's Changing Climate: What is Causing It? What Will It Mean for You?

# Thank you....

# Beacon Hill Seminars – 2016

## “Earth’s Changing Climate: What is Causing It? What Will It Mean for You?”

Session 5 – Climate Change, Food Strategies  
And our Global Water Circumstance



**Timothy C. Weiskel**

**3 November 2016**

**Transition-Studies**

**Fall Semester 2016**