

# Why do You Think You/We can Make Improvements In Society?

Wednesday, October, 15, 2014

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MINISTRY OF EDUCATION,  
SCIENCE AND SPORT



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European Social Fund

# Outline of this presentation

*What are the roles*

- *Of history in guiding us to sustainable futures?*
- *Of crises?*
- *Of good examples?*
- *Of alternative paradigms?*
- *Of creativity?*
- *Of ethical/spiritual values?*
- *How can we integrate all of these elements into holistic and integrated approaches to achieve equitable, post-fossil carbon societies, which are truly sustainable??*

# Janus, the Roman God of gates and doors, beginnings and endings



# **“Collapse: How Societies Choose to Fail or Succeed”**

**&**

## **“The World Until Yesterday”**

**Diamond focused upon “societal” collapses due to environmental, climate change, hostile neighbors and trade partners in **assessing their responses or lack of responses**”**

**He hoped we will learn from history!**

*What can we  
learn from  
history?*

*What can we  
learn from  
history?*

*What can we  
learn?*

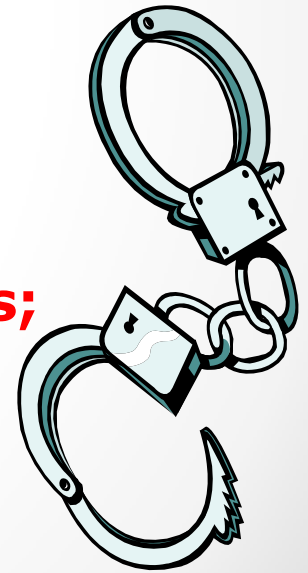
*What can we  
learn from  
history?*

*What can we  
learn?*

*Can we learn?*

# What are some Indicators of Unsustainable Patterns?

- **Climate Changes;**
- **Ozone layer destruction;**
- **Species diversity losses;**
- **Water insecurity, spreading deserts, sea-level rising;**
- **Food insecurity;**
- **Toxic substances in food and water;**
- **Human population growth;**
- **Poverty, disease & corruption;**
- **Economic, Ecological and Political Crises;**
- **Human and Ecological Terrorism.**





# What Roles have Crises had as Motivators for Making Changes?

- Carson's "Silent Spring" – pesticides-(1962)
- Ozone layer thinning- halogenated substances-(1974 -1985)
- Bhopol – (1984)
- Colburn's "Our Stolen Future"- endocrine disrupters-(1995)
- Three Mile Island (1979) Chernobyl (1986)  
Fukushima (2011) Nuclear reactor meltdowns-
- Smogs and Climate Change (1930 – Present)
- <http://www.worldwatch.org/brain/features/timeline/timeline.htm>

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Crisis

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**Danger**

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Opportunity

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Crisis

# Air Pollution Episodes

- **Many of the air pollution challenges that have been addressed were chronic, long-term problems;**
- **Sometimes we also had short-term smog episodes (Crises!!??)**
- **Did they motivate us to make changes?**

# Six of the Top Ten Environmental Crisis Incidents in 20<sup>th</sup> Century

1930.12	Belgium	Meuse Valley fog
Causes	Combination of industrial air pollution and climatic conditions & pollutants: <b>SO<sub>2</sub>, SO<sub>3</sub>, Particulates</b>	
Consequence	<b>Sixty-Three human deaths in one week; main symptom was dyspnea (shortness of breath);</b>	



1943	Los Angeles, USA	Photochemical smog
Causes	Emissions of <b>CH<sub>4</sub>, NO<sub>x</sub>, CO</b> from <b>vehicles</b> , emissions from oil <b>refineries</b>	
Consequences	<b>75%</b> of the citizens were seriously affected by respiratory and eye infections, <b>millions of trees</b> died in the high mountains; <b>\$1.5 billion</b> loss due to air pollution	



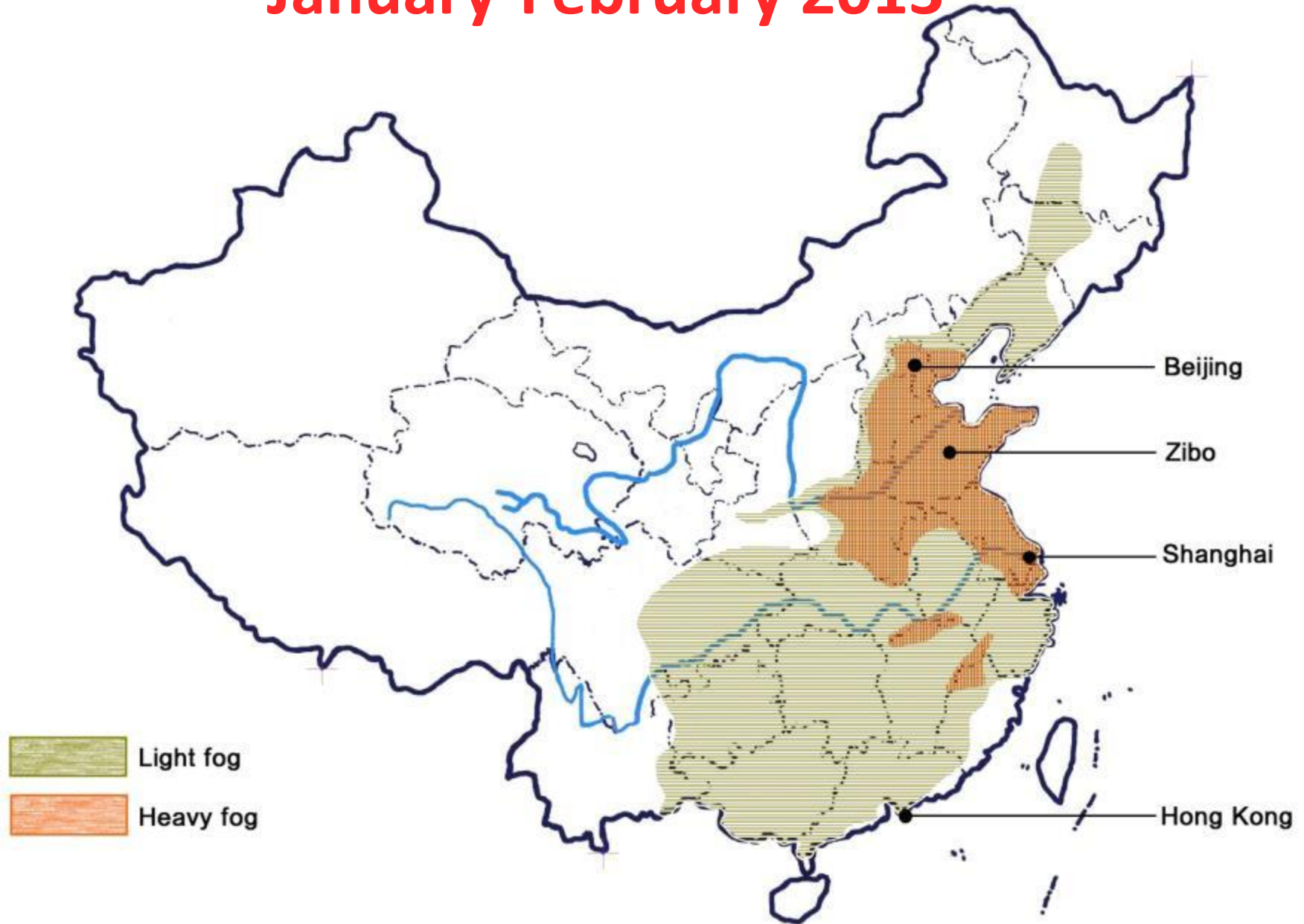


1952.12.5-9	London, UK	Great Smog
Causes	<b>CO<sub>2</sub>, CO, SO<sub>2</sub>, TSP</b> emissions from <b>coal burning; vehicle exhaust</b> —particularly from diesel-fuelled buses; & heavily polluted air from <b>continental Europe</b>	
Consequences	<b>Four thousand human deaths</b> in four days; symptoms: <b>bronchitis, acute respiratory failure, heart failure,</b>	



# Great Smog of China

## January-February 2013



Tian 'an Men  
Square



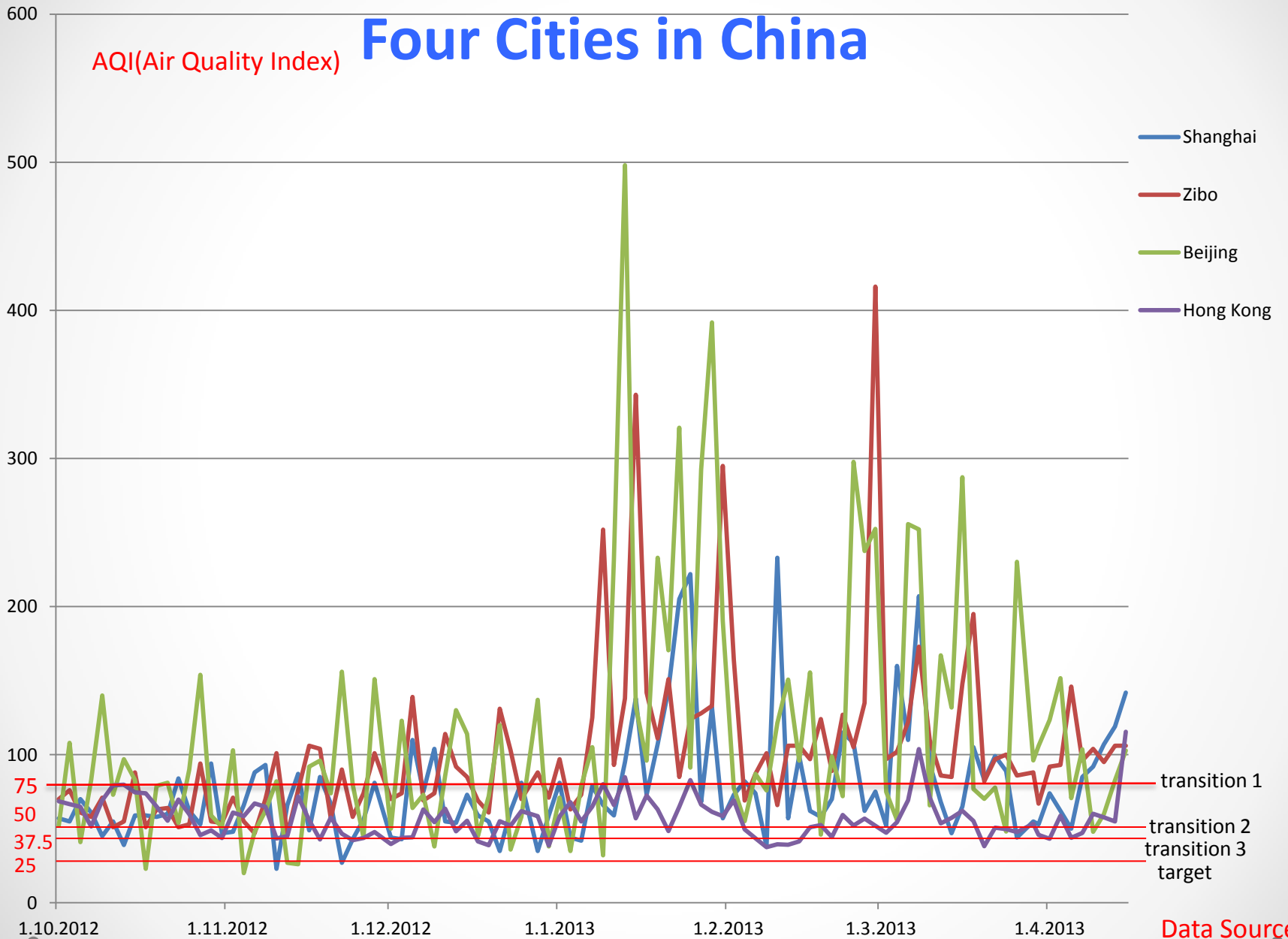
The Oriental Pearl TV  
Tower

## Zibo City



## Shandong University

# The Air Quality Index of Four Cities in China



Data Source: EPA

**The Chinese Government  
is supporting its citizen's  
involvement in SD with  
the theme: “Cherish the  
Earth's Resources: Change  
the Developmental Model”**

# **We were invited to develop special volumes of the Journal of Cleaner Production**

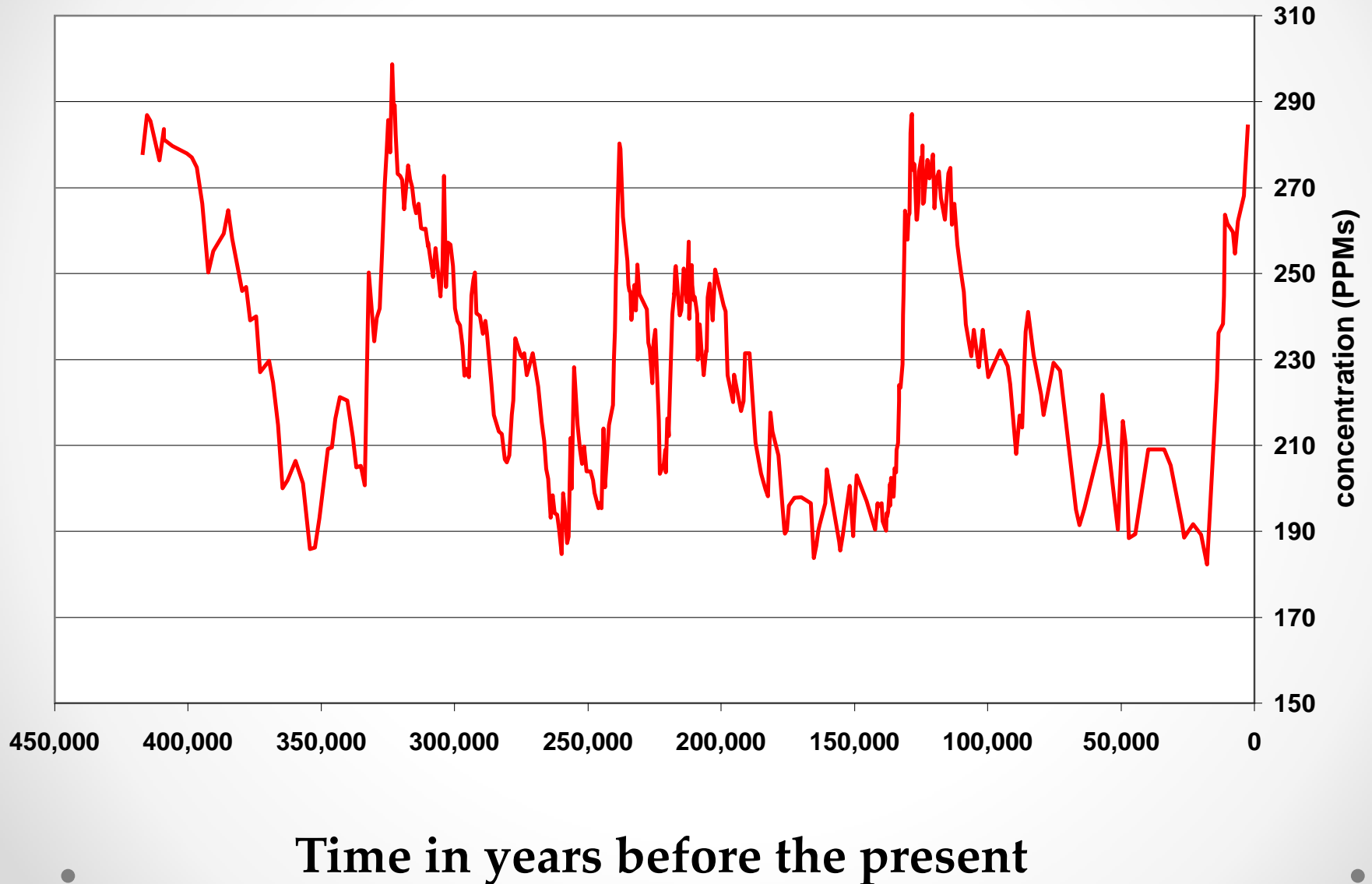
- **How to prevent future smogs for China and other nations?**
- **How to reduce reliance upon fossil carbon-based systems**

# Janus, the Roman God of gates and doors, beginnings and endings

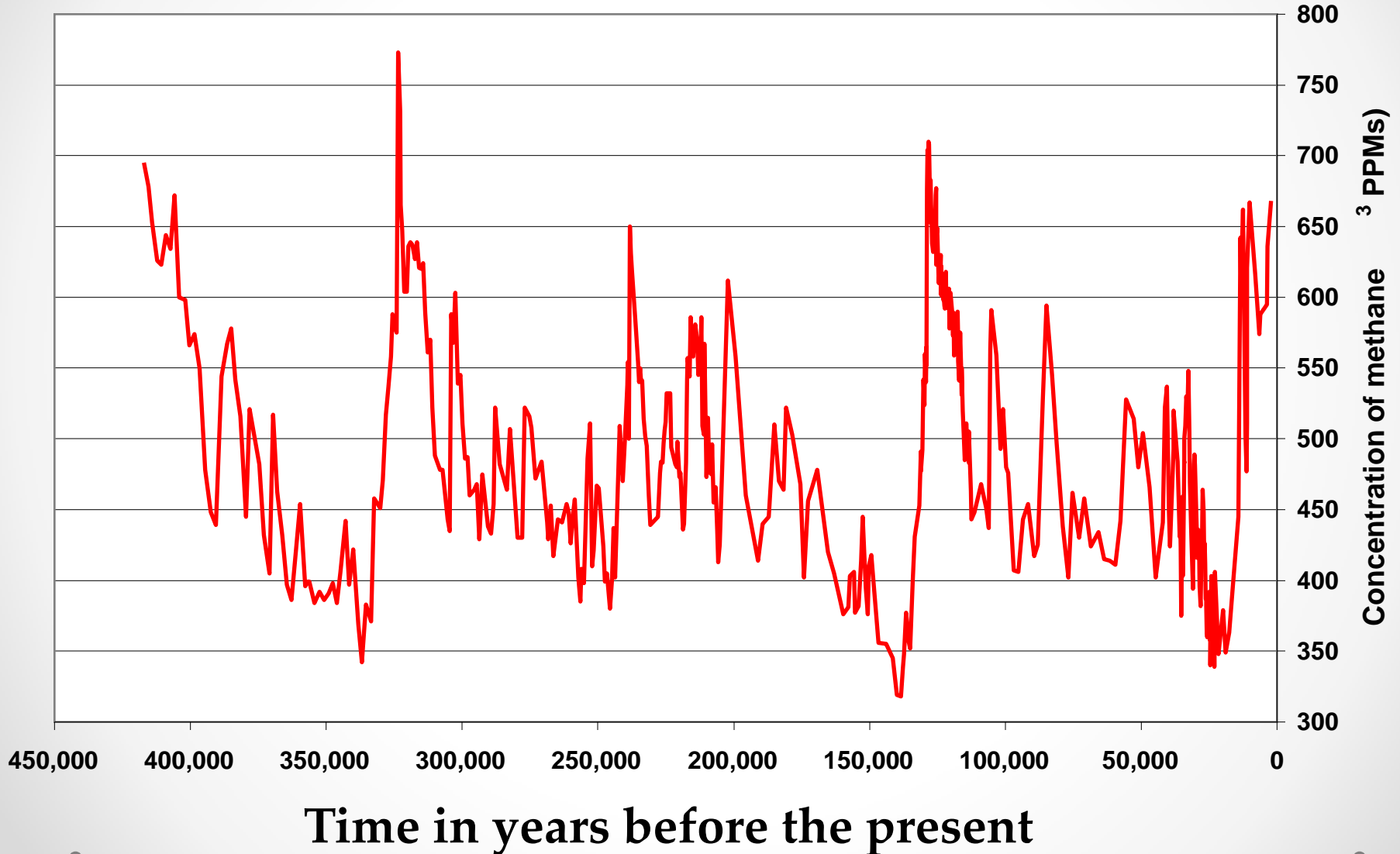




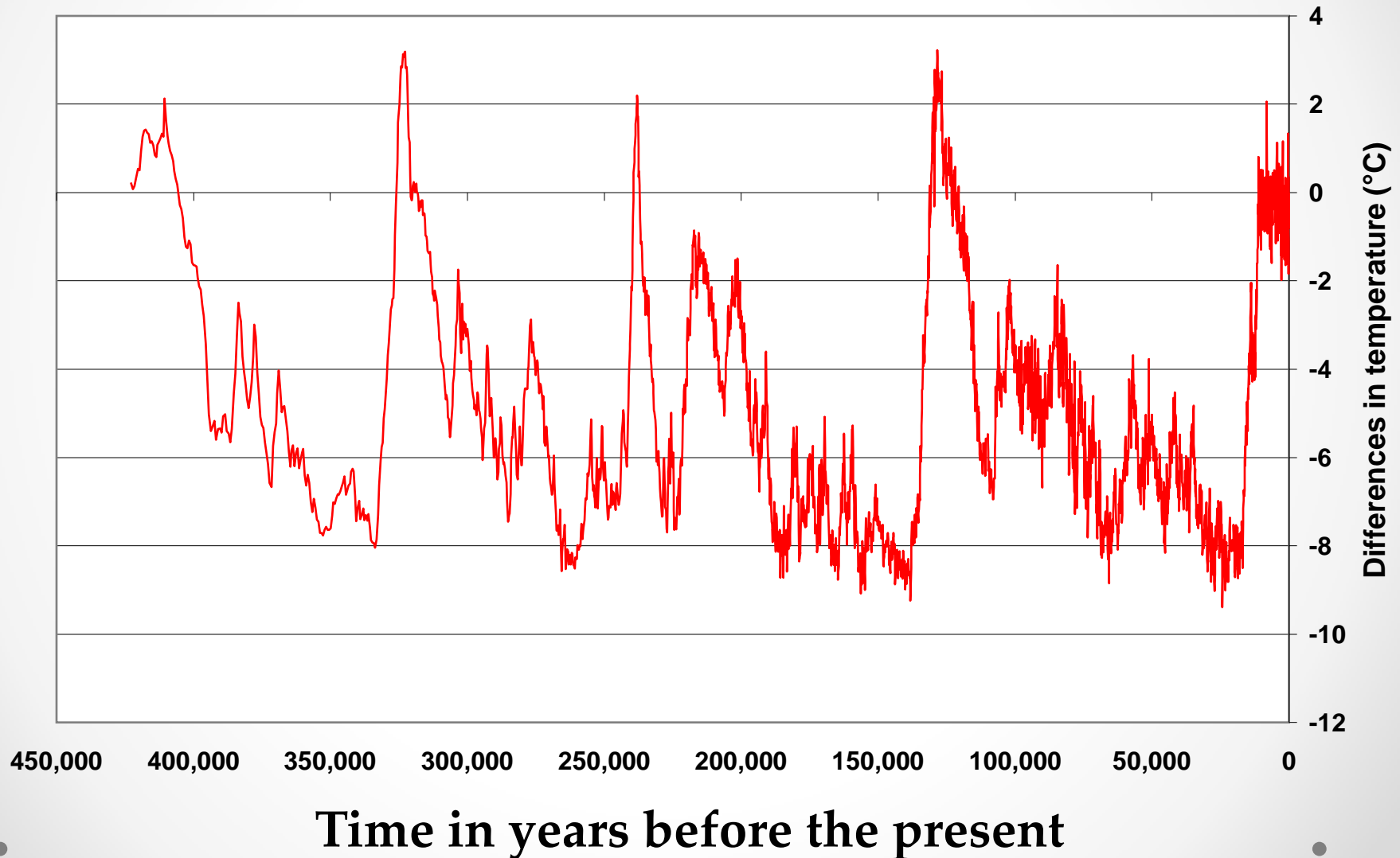
# Concentration of carbon dioxide in the Antarctic ice



# Methane concentration in the ice in Antarctica



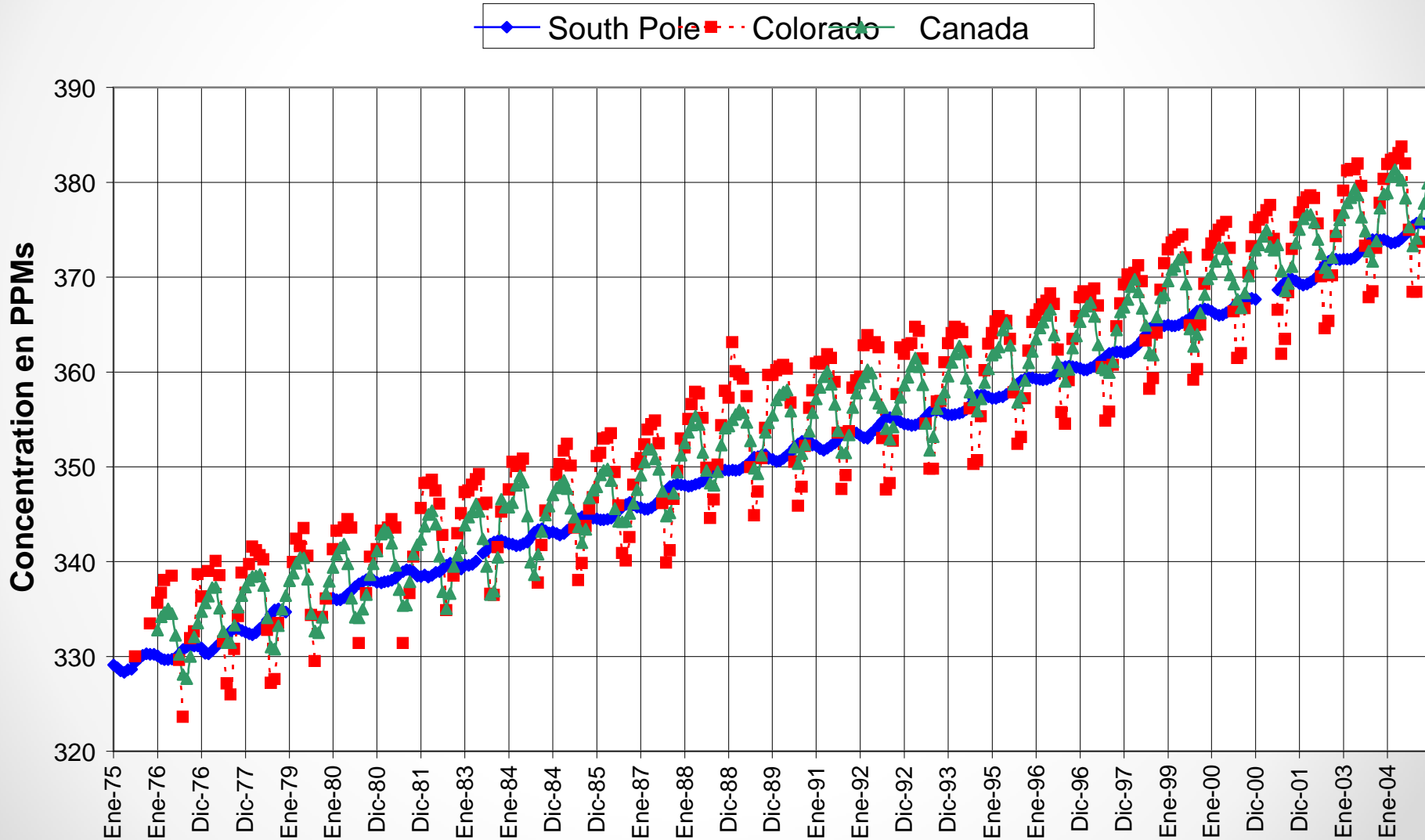
# Atmospheric temperature variations as detected from the ice in Antarctica



# Ranges and concentrations during 450,000 years

- **Carbon dioxide concentration range =**  
**(185 – 295 PPM) (2004 380 PPM)**  
**Projected by 2050 to**  
**be between 450 & 750 PPM!**
- **Methane concentration range =**  
**(340 -760 PPB) (2004 1700 PPB)**  
**Projected by 2050???**
- **Average temperature range**  
**during this period = 10° C; how much**  
**higher will it be in the next 100 – 300 years**  
**is a big question??**

# Concentration of Carbon Dioxide as measured in Colorado, Canada and at The South Pole



# Increase in Carbon Dioxide Concentration at Mauna Loa, Hawaii

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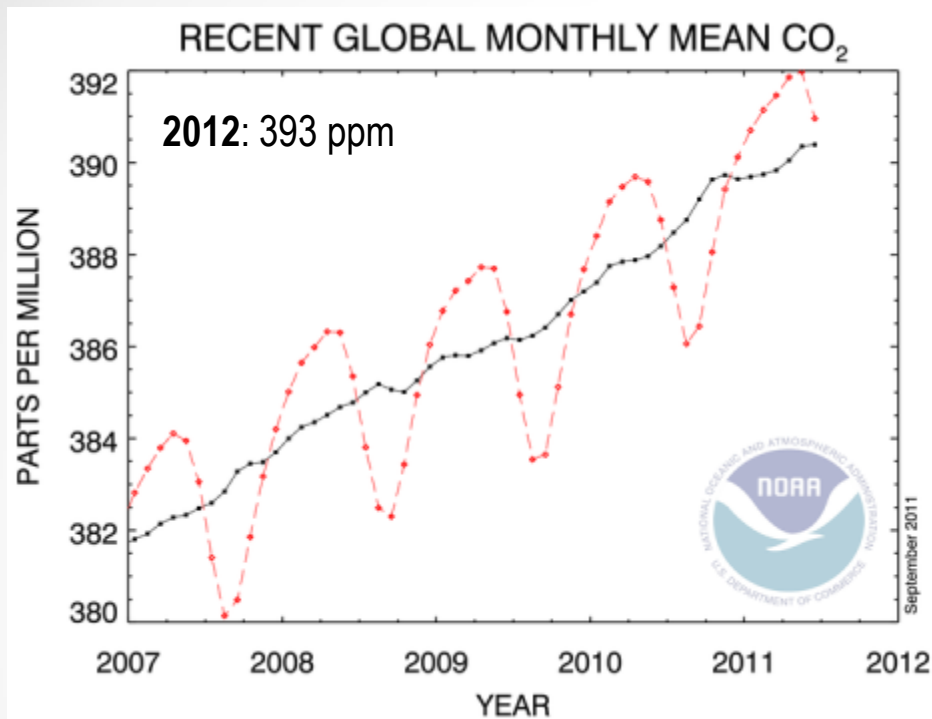
1880      285 ppm (Est.)

1958      315 ppm

2012      393 ppm

Increase of 108 ppm in 132  
years      = .82 ppm/yr.

# Atmospheric CO<sub>2</sub> Concentration



Annual Mean Growth Rate (ppm y<sup>-1</sup>)

**2010 2.37 (3x)**

2009 1.63

2008 1.81

2007 2.11

2006 1.83

2005 2.39

2004 1.58

2003 2.20

2002 2.40

Annual Growth Rates  
(decadal means)

1970 – 1979: 1.3 ppm y<sup>-1</sup>

1980 – 1989: 1.6 ppm y<sup>-1</sup>

1990 – 1999: 1.5 ppm y<sup>-1</sup>

**2000 - 2010: 1.9 ppm y<sup>-1</sup>**

# News, May 12, 2013

- 400 PPM  
Carbon  
Dioxide!
- Mauna Loa,  
Hawaii
- Which is the  
highest it has  
been in the  
last
- two million  
years!



What is the net quantity of carbon dioxide that is being added each day to the atmosphere, globally?

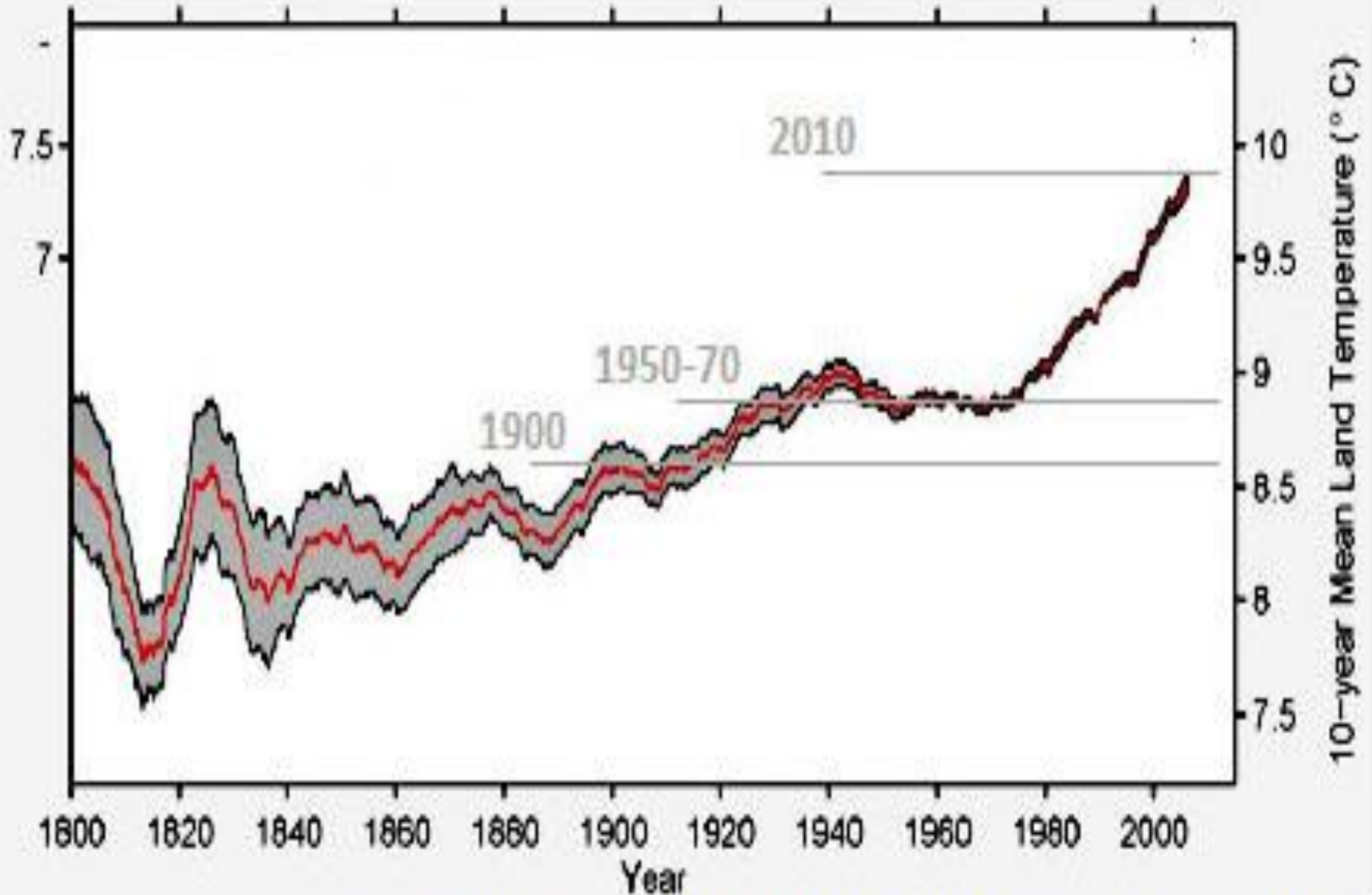
Estimates vary from  
100,000,000 to more than  
1,000,000,000 tons per day!



# **GLOBAL WARMING**

**Climbing temperatures.  
Melting glaciers. Rising seas.  
All over the planet we're feeling  
the heat. Happy Earth Day!**

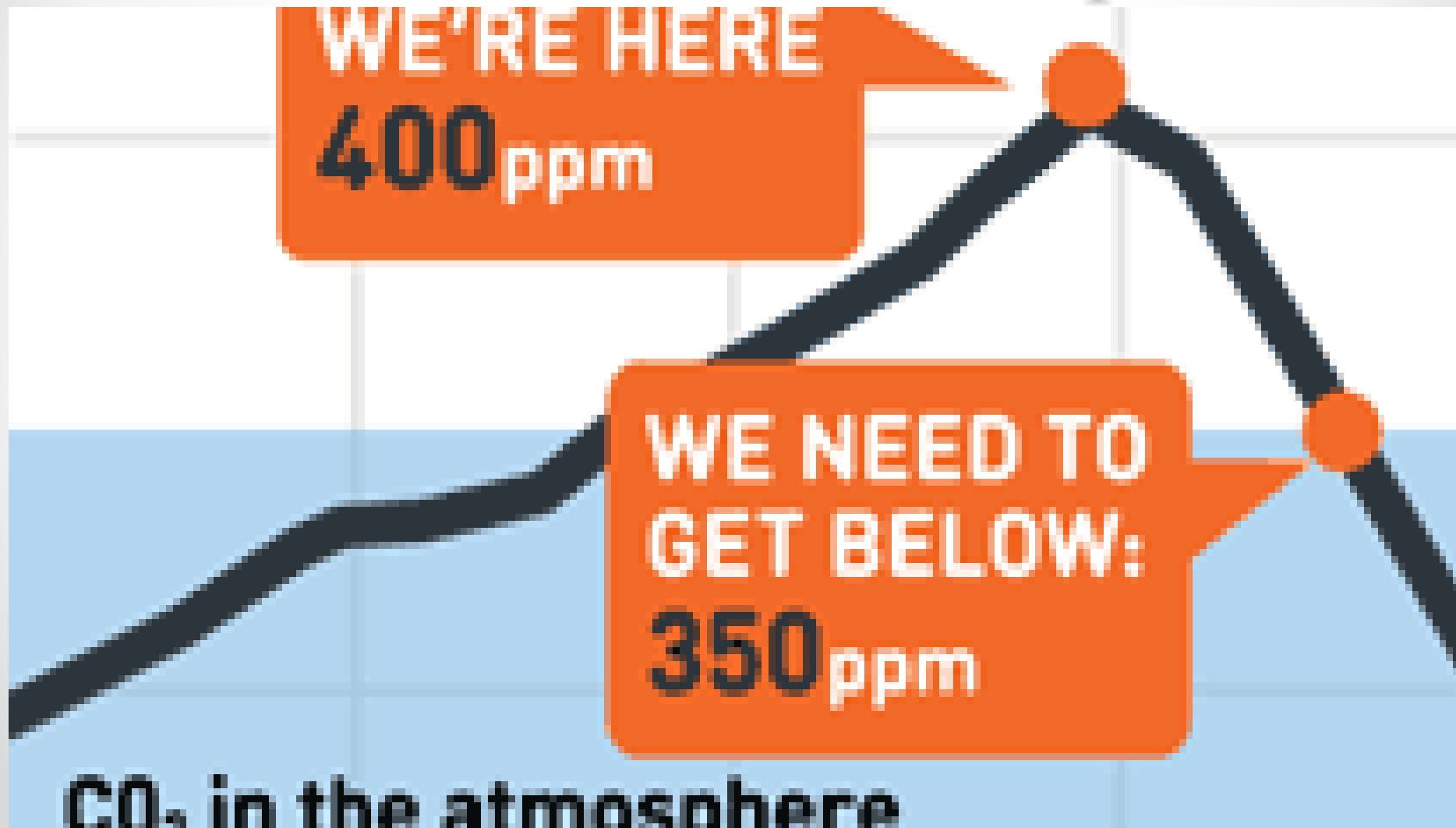
# Increasing Average Temperatures



# This is what global warming sounds like when converted to music

- 130 years of global temperature data, converted to music, io9

# 285, 400, 350 PPM Carbon Dioxide in the Atmosphere



# 350.org

- International effort to raise awareness of the need to decrease carbon dioxide concentration in the atmosphere to 350 parts per million.
- <https://www.youtube.com/user/350org>

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# The Earth is Shrinking!!!

- The Human Population continues to increase:
  - 70,000,000+ per year!
  - **That means that 35X the population of Slovenia is being added to the earth each year!**
  - From, “The Earth is Shrinking: Advancing deserts and Rising Seas Squeezing Civilization,”  
by Lester Brown  
<http://www.earthpolicy.org/updates/2006/update61.htm>

# The Earth is Shrinking!!!

- **Desserts are spreading;**
  - **China is losing productive land to deserts at an accelerating rate**
    - **1950 – 1975 they lost 1,560 sq km/yr.**
    - **By 2000 they lost 2,480 sq km/yr**
  - **In recent years Afghanistan lost 100 villages and Iran lost 124 villages due to advancing deserts;**

Half of the world's forests have been destroyed by human activity.

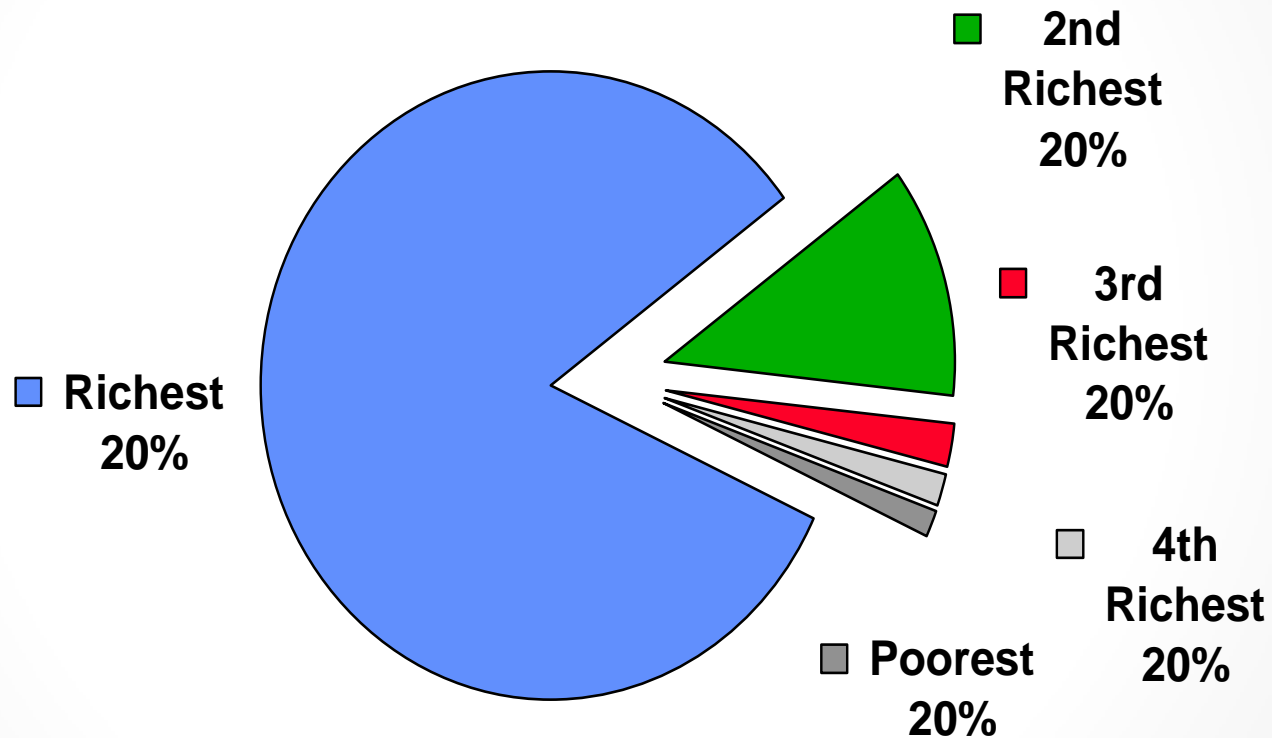
Annually, 9 million hectares of forests are being cut; this is an area equal to the size of Portugal

**We are now in a period of  
mass species extinction.**

**104 species become extinct  
every day.**

***We must find solutions for  
these problems?***

# Global Income and Economic Disparities In Distribution of World Income



Source: [Agenda for Change](#), Center for our Common Future. 1989 figures from UNDP

**Over 1.5 billion (25%)  
of the world's  
population is  
impoverished and  
malnourished.**





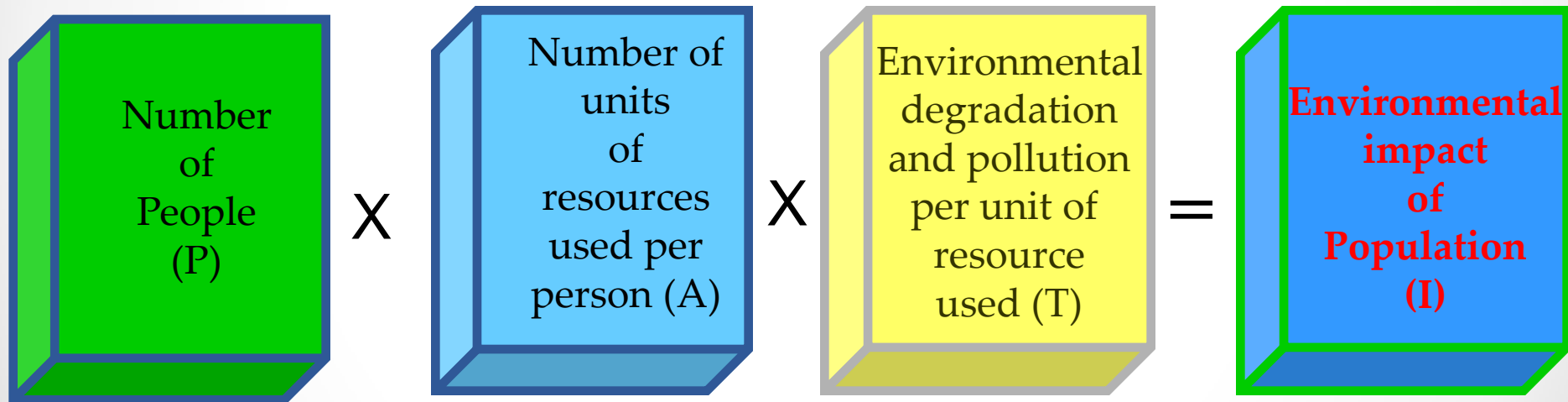


# Decline of the Middle Class

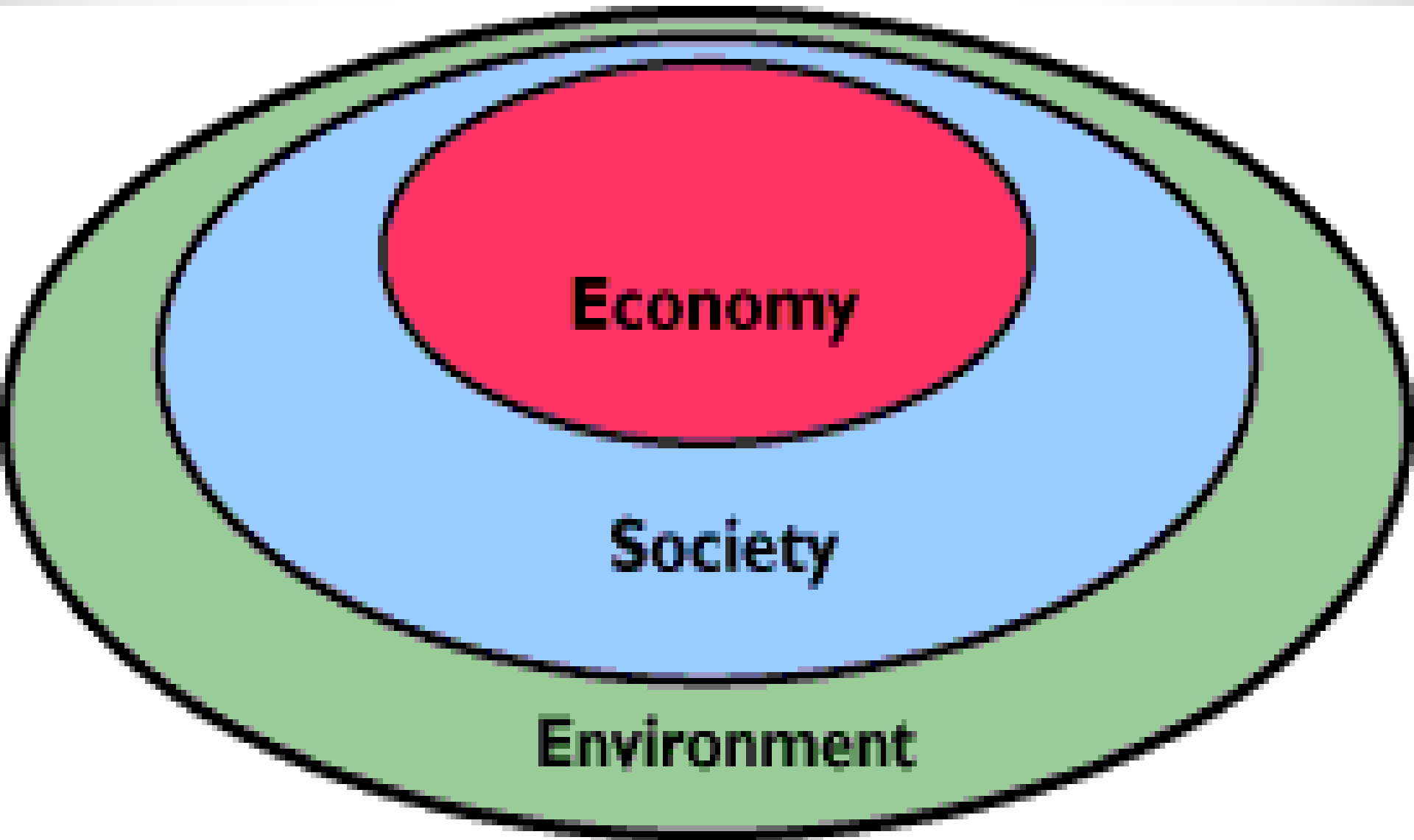
- Between 1945 and 1973, productivity of American workers grew **96%** and they **received a 94% increase in wages**
- Between 1973 and 2011 , the middle class has decline. While American workers' productivity grew by **80%**, and they **only received a 10% increase in wages.**



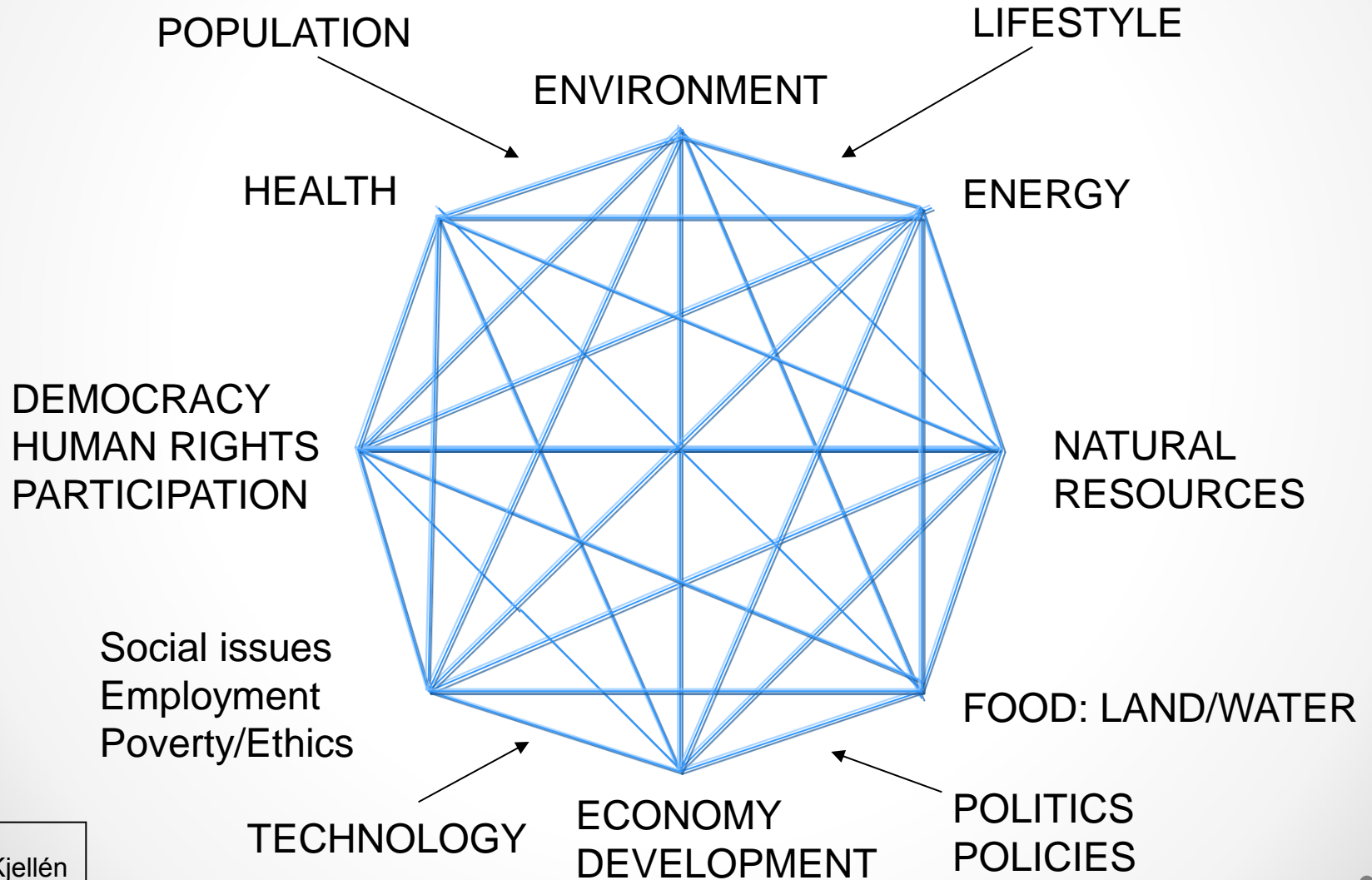
# Interconnectedness of Population, Affluence & Technology



# Sustainable Development?



# Development? Diamond of Sustainability



**BUILT  
CAPITAL**

Buildings  
Equipment  
Information  
Infrastructure

**Human made Material**

**SOCIAL  
CAPITAL**

Skills  
Health  
Abilities  
Education

Family  
Neighbours  
Community  
Companies  
Government

**People**

**Connections**

**NATURAL  
CAPITAL**

Food  
Water  
Metals  
Wood  
Energy

Fisheries  
Fertile Soil  
Water Filtration  
CO2 → Oxygen

Sunlight  
Rainbows  
Mountains  
Seashores  
Bird Songs

**Natural Resources**

**Ecosystem Services**

**Beauty of Nature**

# Trans Generational Perspectives



Changes are  
happening all  
over the world!



# **Some of the Preventive Environmental Protection Inputs**

- **Agenda 21;**
- **The Earth Charter;**
- **Millennium Development Goals**
- **The Precautionary Principle;**
- **The Natural Step Principles;**
- **The Melbourne Principles;**
- **Pollution Prevention Pays**
- **Cleaner Production/Leaner Production/Greener Production**
- **Sustainable Consumption and Production**
- **The Decade of Education for Sustainable Development (EfSD) 2005 – 2014;**
- **The Equator Principles for Sustainable Finance.**

# Bhutan – Gross National Happiness

- “The gross national product (or Gross Domestic Product)...measures everything, in short, except that which makes life worthwhile.” -- JFK
- Instead of focusing on throughput measured by GNP or GDP, Bhutan measures and seeks to optimize Gross National Happiness, (GNH).



PP

Gross National Happiness  
is more important than Gross  
National Product.

By: HM. Jigme Singye Wangchuk.

# **Bhutan's Four Pillars of Gross National Happiness**

- 1. Good Governance**
- 2. Balanced Economic Development**
- 3. Environmental Preservation**
- 4. Preserve and Promote Culture**

# Alternatives to Gross National Product (GNP)

## or Gross Domestic Product (GDP)

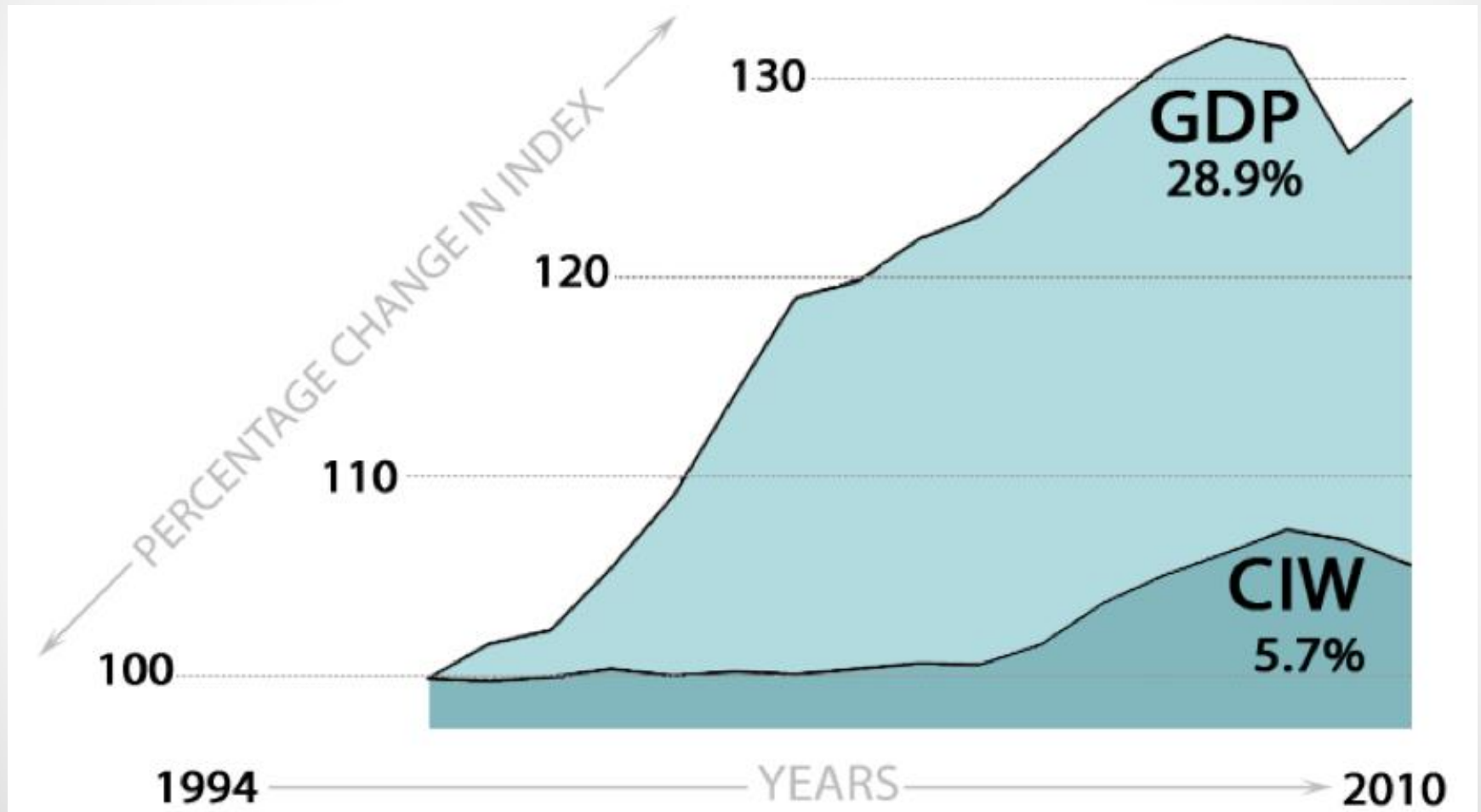
- The Happiness Index (HI);
- The Quality of Life Index (QoLI);
- The Wellness Index (WI);
- The Inclusive Wealth Index (IWI);
- World Happiness Index (WHI);
- The Happy Planet Index;
- The Gallup World Poll (QWP);
- The World Values Survey (WVS)
- The European Social Survey (ESS)
- The OECD Better Life Index
- The UNDP's Human Development Index (HDI);
- The True Sustainability Index;
- Country Futures Indicators;
- Human Development Index (HDI);
- The Calvert-Henderson Quality of Life Indicators;
- The Canadian Index of Well-Being.
- The UN's Quality of Life Index

# Canadian Index for Well-Being

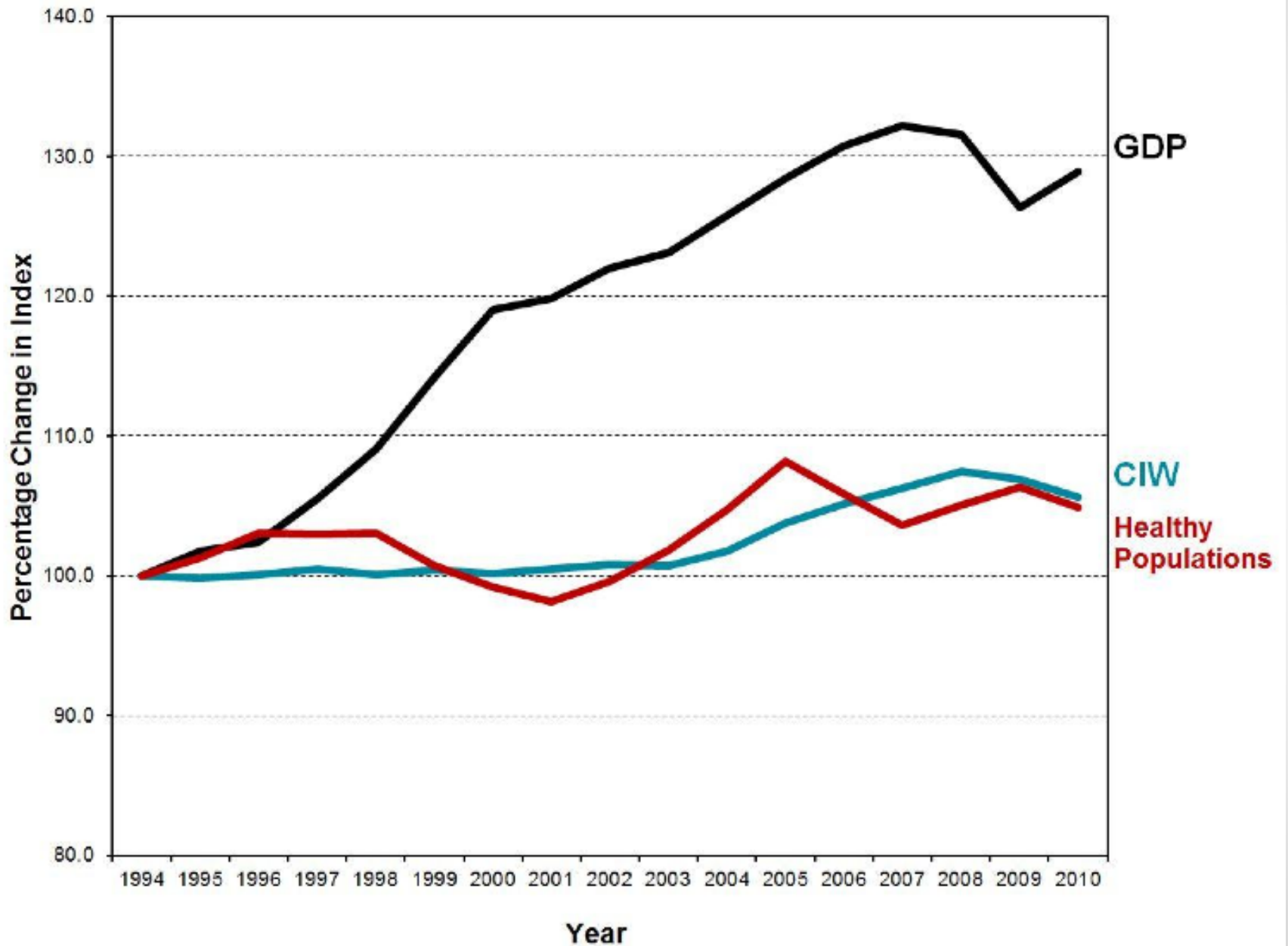
- Using a range of indicators measure Canadians' overall well-being
- The CIW uses 64 indicators
- Studies have been done using the CIW in Victoria, Fort McMurray, Kingston area, Guelph, and Waterloo region



# CIW vs. GDP – Last Recession



Trends in *Healthy Populations*, CIW, and GDP (per capita) from 1994 to 2010





**The Chinese Government  
is supporting its citizen's  
involvement in SD with  
the theme: "Cherish the  
Earth's Resources: Change  
the Developmental Model"**

# Support for use of True Wealth Measures

- **Approximately, 1,000 respondents in each of the ten countries were asked which of two points of view was closest to their own:**

**1. That governments should measure national progress using money-based statistics because economic growth is the most important focus for the country;**

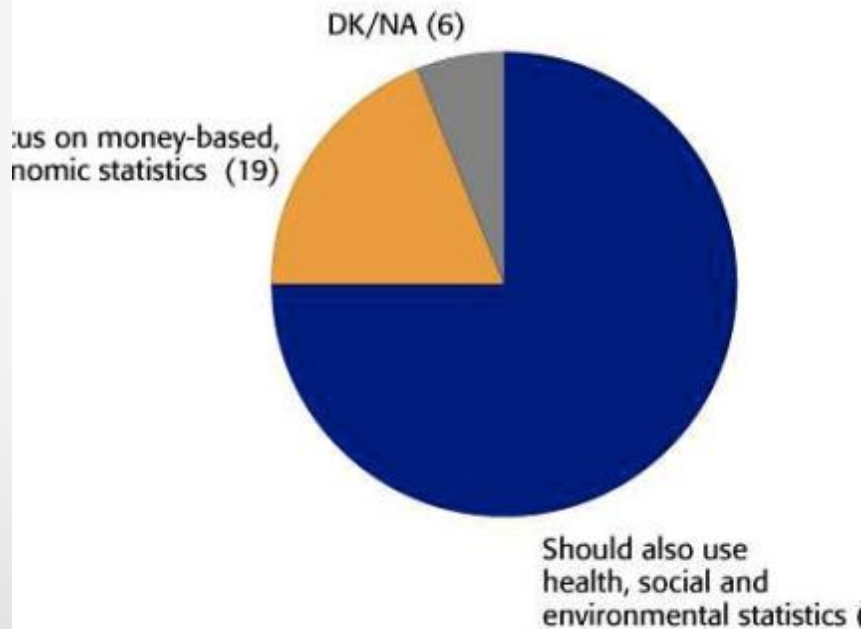
**2. That health, social and environmental statistics are as important as economic ones and that governments should also use these for measuring national progress.**

- Mr. Chris Coulter, Vice-President
- GlobeScan Incorporated
- London, UK
- +44 20 7253 1441
- [chris.coulter@GlobeScan.com](mailto:chris.coulter@GlobeScan.com)

# Worldwide Support for True Wealth Measures:

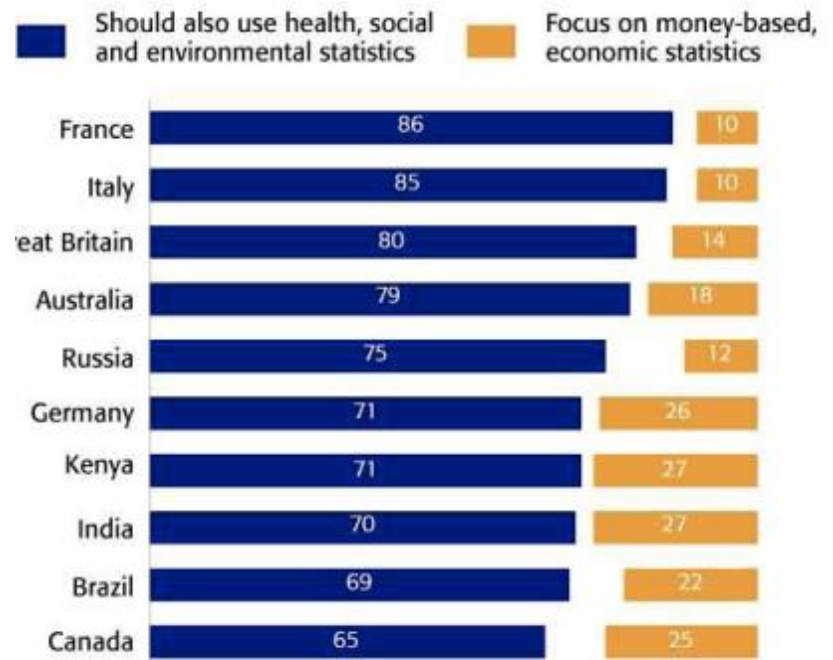
## Best Approach to Measure National Progress and Development

10 Country Average, 2007

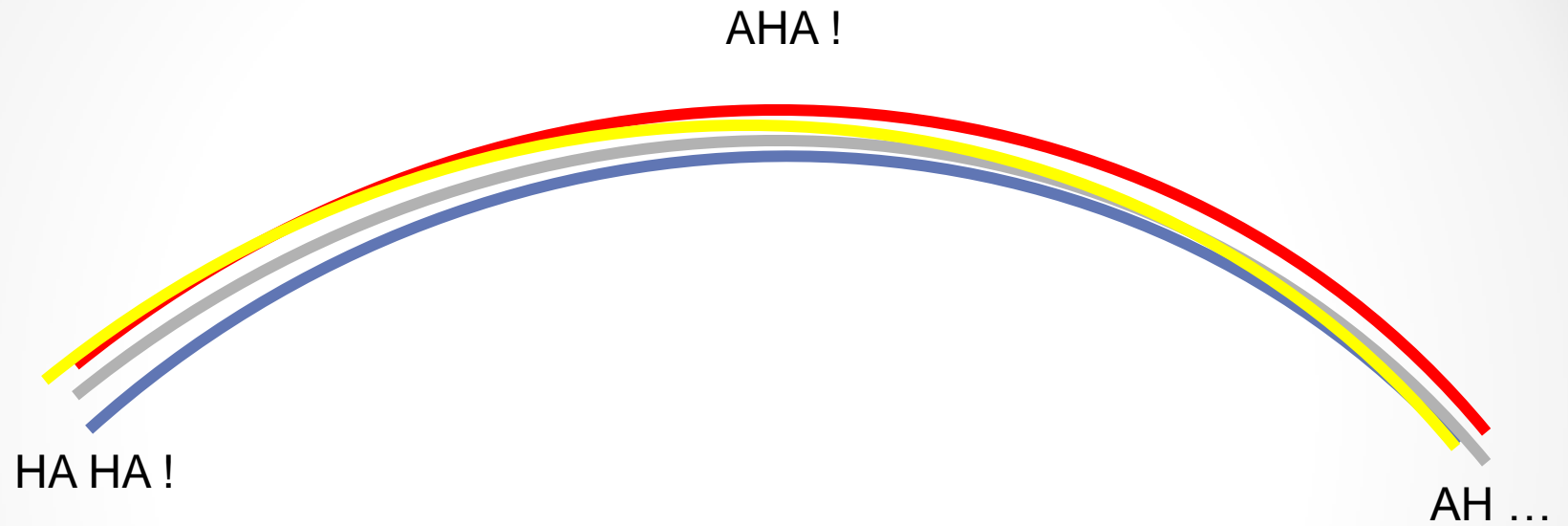


## Progress and Development

By Country, 2007



The white space in this chart represents "DK/NA."



# “haha-aha-ah” curve

-after Arthur Koestler

# Bottom Up Solutions

Given the trends around productivity and the lack of employee remuneration, numerous models are being used to create more equitable & sustainable communities

1. Place-based companies
2. Worker ownership
3. Social enterprises
4. Traditional Co-ops
5. B-Corporations
6. Community Development Corporations
7. Land Trusts

# Place-Based Enterprise

- Paul Shrivastava and James J. Kennelly are critical of “the **“placeless” character of enterprise sustainability research**”



# Characteristics

- Local ownership/control. Patient capital for long-term
- Production activities are interdependent with a place
- A strong and holistic understanding that place is more than location, locality, or landscape, but is also socially created in a nexus of meaning



MAIN STREET

# Worker Ownership

- Employees own the organizations
- 11,000 companies employing 10 million people in Canada
- Hy-Vee, a large supermarket chain with almost 70,000 employees and \$8B in sales ranks 48<sup>th</sup> on Forbes list of the largest U.S. private companies:





# Co-operatives

- Co-ops are owned and run by those using its services or by those working at the organization;
- Some 130 million people or over 40% of Americans belong to one or more co-operatives.



# B Corporations

- Most companies pursue short-term profit and externalize negative costs
- **Benefit Corp** is to business what Fair Trade certification is to coffee

**Certified**



**Corporation™**



# B Corp – 3 Step Process

1. **Assessment:** meet standards for social and environmental performance, accountability, and transparency
2. **Governance requirements:** Expand serve stakeholder interests
3. **Declaration of Interdependence**



# Sample B Corporations

- Warby Parker: for every pair of eye glasses sold, a pair is given to someone in need
- Revolution Food: 1 million meals for low income public school students each week

A photograph of a young woman with dark hair, wearing glasses and smiling broadly. She is positioned on the right side of the image. The background is a dark, textured surface, possibly a chalkboard, with some faint white markings.

Buy a Pair,  
Give a Pair

For every pair purchased,  
a pair is distributed to someone in need.

# Land Trusts

- By removing land from the speculative market and “democratizing ownership,” trusts can stop gentrification and support low income housing with development profits.
- By 2012 it was estimated that 255 land trusts were operating in 45 states



# Changing Directions

- Ontario 1<sup>st</sup> province in North America to phase out coal-based electricity generation
- Had been home to NA's largest coal mine
- **“While the politicians could ignore the environmentalists when they said that smog kills, they couldn't ignore Ontario's doctors.”**



# Reinvestment

- Norway's Sovereign Wealth Fund - was set up to invest part of the country's oil revenue to save for future generations
- It is the "largest state investor in the world"
- Under pressure to divest from fossil fuels and invest in green projects
- **In June 2014, they decided to double their environmentally related investments to about \$8 billion**



# Fossil Fuel Divestment

- Largest academic sector divestment: **Stanford University promised in May 2014 that its \$18+ billion endowment no longer invests in coal**
- Rockefeller and 180 other organizations have agreed as of Sept. 2014 to **divest \$200 billion from coal, tar sands and oil and invest in renewables;**
- Numerous religious groups are **similarly divesting from fossil and investing in renewables**
- **Some believe we are at the tipping point!**





# Crowdfunded, Creative Solutions

- Crowdfunding websites, like Indiegogo and Kickstarter, are enabling people to share great ideas and to obtain funding from people they have never met
- In five years over 7 million people pledged \$1 billion, for funding 71,000 creative projects using Kickstarter

The image shows the logo for Kickstarter, which consists of the word "KICKSTARTER" in a bold, sans-serif font. The word "KICK" is in black, and "STARTER" is in a bright green color. The logo is centered within a white rectangular box.

**KICKSTARTER**

# Solar Roadways

- A couple in Northern Idaho have a vision to create Solar Roadways
- The idea is to create 'intelligent' roads made of solar panels that generate power, melt snow and warn drivers of potential accidents, etc.
- The goal was to raise \$1M – they raised \$2M+!!!



# Crowdfunded, Creative Transit

- Toronto is struggling with incredible challenges to overcome gridlock and provide effective transportation
- Two citizens in a fast-growing neighbourhood, frustrated by poor service have crowdfunded a private bus
- Funders get a guaranteed bus can vote on the bus' routes



# Slow Fashion

- A new '*slow fashion*' movement has begun
- “a return to the past as evidenced by models of supply based on proximity of manufacturing and the valorisation of craftsmanship”



# The New Consumer

- “The image of the neo-consumer, increasingly attentive to the environmental and social impact of products, continues to spread.
- *Lifestyles of Health and Sustainability* (LOHS)



# Integrating Ethics & Aesthetics

- “The responsible company’s integration of ethics and aesthetics needs to be continually reaffirmed all along the value chain”
- “The principal opportunities include work on **product traceability**, and on providing the end-consumer with an **emotional narrative** in response to the increasing desire for guarantees and information about a given product’s history”



# “The Responsible Fashion Company”

- “in order to continue being competitive, companies must adopt a new managerial and entrepreneurial model that involves a medium to long-term perspective and takes into account all the parties involved
- from the environment to society, culture, the media, institutions and legislation—placing values and ethics at the centre.”



# **“Changing the Food Game: Market Transformation Strategies for Sustainable Agriculture”**

- Sustainability of global agricultural commodities is at a critical tipping point.
- Collective systematic action that realizes breakthrough impacts with farmers and supply chains is needed.
- This book maps the transformation and offers a path forwards.
- By Lucas Simons
- (Greenleaf Publisher)



# Practical Wisdom in Management

## Business Across Spiritual Traditions

- "Ted Malloch shows how, through the lenses of the world's spiritual traditions, businesses can acquire a clearer picture of the world in which they operate, resulting in more sustainable corporate practices both financially and ethically.

This is practical wisdom in action!"

- By Prof Dr. Claus Dierksmeier,
- Humanistic Management Center, Global Ethic Institute
- Greenleaf Publishing: October 2014 400 pp paperback  
ISBN 978-1-78353-131-8

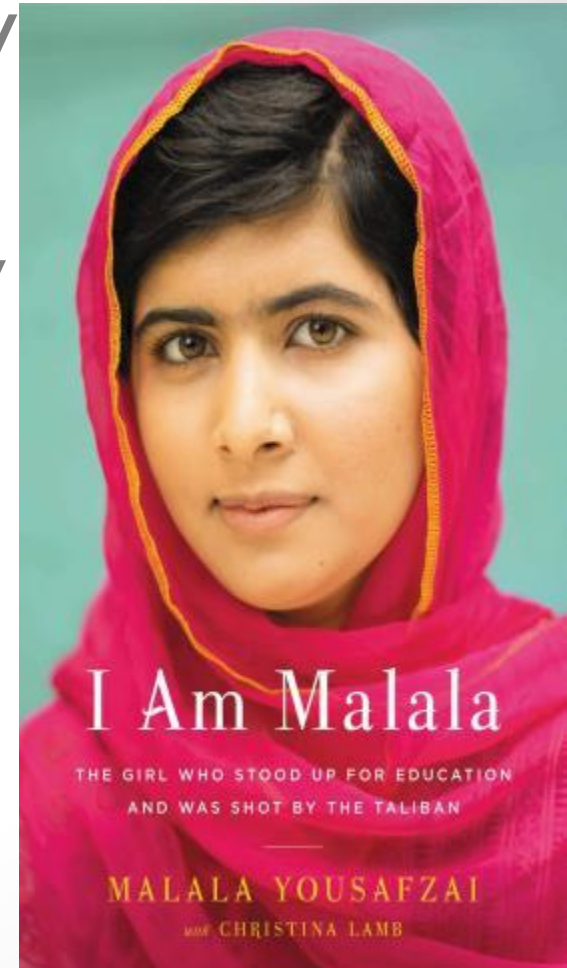
# Mass Participation & Mobilization

- We were only able to reach small numbers with paper petitions, traditional mail and by phone
- The internet and websites like Avaaz and Change.org have completely changed things
- Avaaz helped mobilize 400,000+ people to march in New York and cities around the world to push for climate action during Sept. 2014.



# Nobel Prize for Malala

- Malala Yousafzai was shot in the head by the Taliban
- A Canadian journalist started a massive wave of support demanding that country leaders nominate her for the Nobel Peace Prize
- Half a million people from over 100 countries joined in - over 125 world leaders nominated Malala
- She won the Nobel Peace Prize!





# The Transition Network

*a. The Transition Handbook: From Oil Dependence to Local Resilience,*

*b. The Transition Companion: Making Your Community More Resilient in Uncertain Times,*

*c. The Power of Just Doing Stuff: How Local Action Can Change the World*

<http://www.transitionnetwork.org/>

[about](#) (Founded by Rob Hopkins.)

**How can we work within cities, regional and national governments to help them to become catalysts and role models for change?**

- **Learn how the system really works;**
- **Understand how to work with the system by effectively using leverage points;**
- **Be a role model for the changes you hope to see evolve in society.**

# **Be a catalyst and role model for change**

- **Move increasingly from "site thinking" to "regional thinking";**
- **Move from production thinking to sustainable consumption & production thinking;**
- **Foster integration of ethical and social factors into sustainable city and regional planning;**

# **Be a catalyst and role model for change**

- **Foster the development of Sustainable eco-communities based upon bio-regionalism;**
- **Participate in international networks on sustainable city & regional development.**

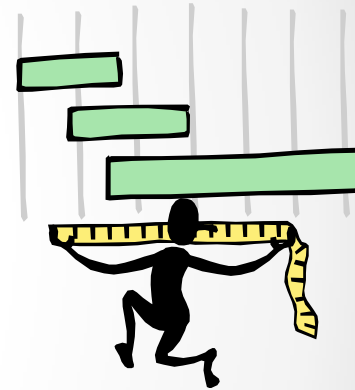


# **Be a catalyst and role model for change**

- **Develop and enforce regulations designed to achieve *sustainable societies*;**
- **Develop ecological, economic and ethical *sustainability performance indicators*;**

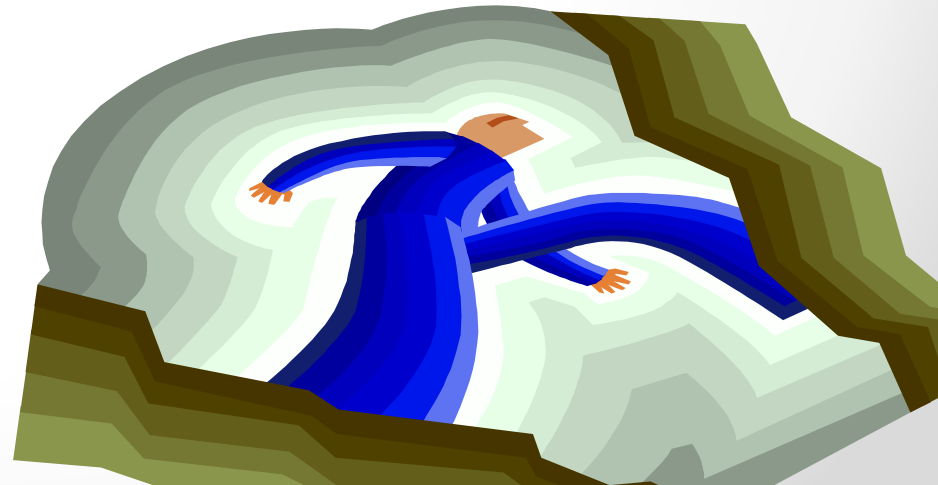
# Be a catalyst and role model for change

- Use sustainability performance indicators to monitor progress toward sustainable societies;
- Report on the progress or lack of progress and correct policies, procedures and processes as needed



# In Conclusion

- We have the responsibility to ensure that our courses, research, outreach and campus operational procedures address present and future challenges to help societies make the transition to equitable and sustainable post fossil carbon societies.



How should we move forward?



# Make the Box Bigger!



**Expand it to include  
the entire campus and  
community**

# And Bigger!



**Expand to include the city  
or region**

# Even bigger!



**Expand to include the entire nation**

# Finally!



- **Expand to include the planet!**









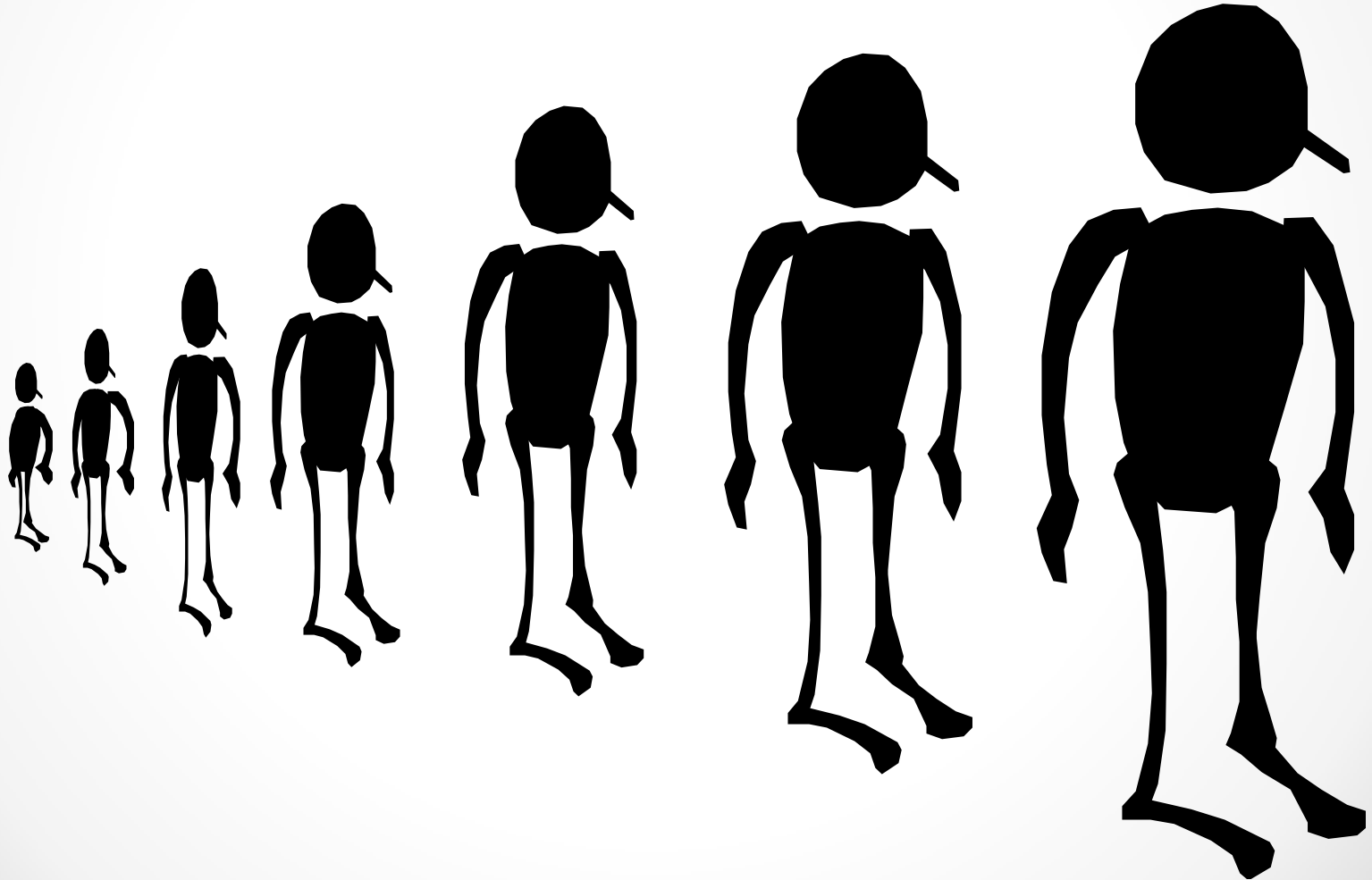








# Who should be empowered to make decisions on international and global welfare issues?





**IT'S AMAZING WHAT PEOPLE CAN ACCOMPLISH WHEN THEY WORK TOGETHER.**





Dec. 4, 1992  
Jemma A. Jones  
"Thinking"





