

# Challenges to Global Sustainability

# First Questions

Why? – Why are we doing this?

Cassandras or doom mongers

What? - What are the problems?

# What problems?



- Anything that challenges our policy objective:

“Our policy is to create global sustainability which is: humanity constantly reflecting on and revising its systems to enable it to meet its spiritual, emotional and physical needs whilst also maintaining harmony with the ecosphere, and bringing mutual enrichment and evolution to all in this generation and all future generations.”

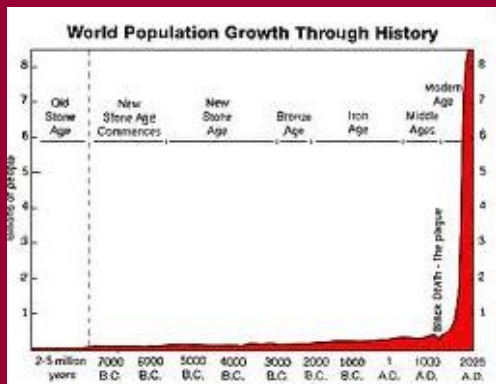
OR

“ Global Sustainability means effectively identifying and eliminating all threats to the perpetuity of natural resources.”

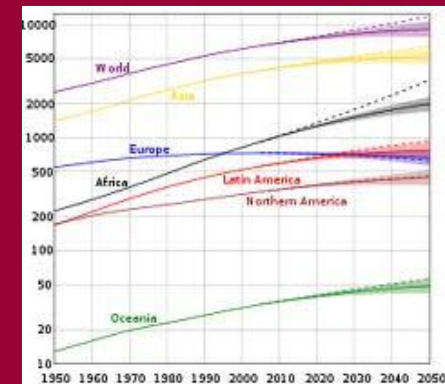
# Analysis and Evaluation

- Look for trends, not events
- Quantification and a sense of scale
- Causality v coincidence
- Statistics
- Feedback mechanisms
- Axe grinders
  - vested interest?
  - Inner motivations?
- Keep in mind the big picture





# Population

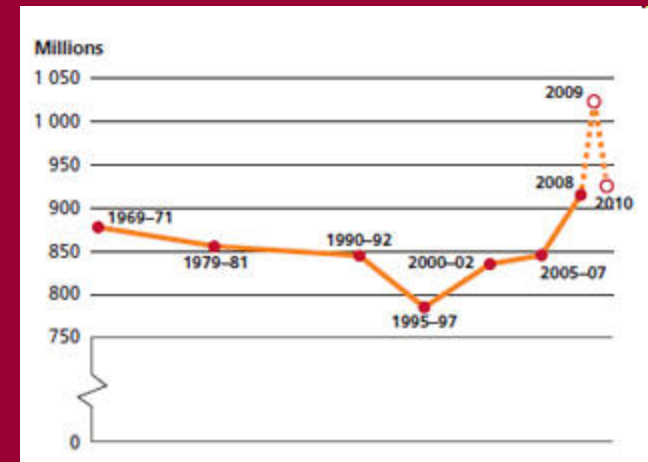
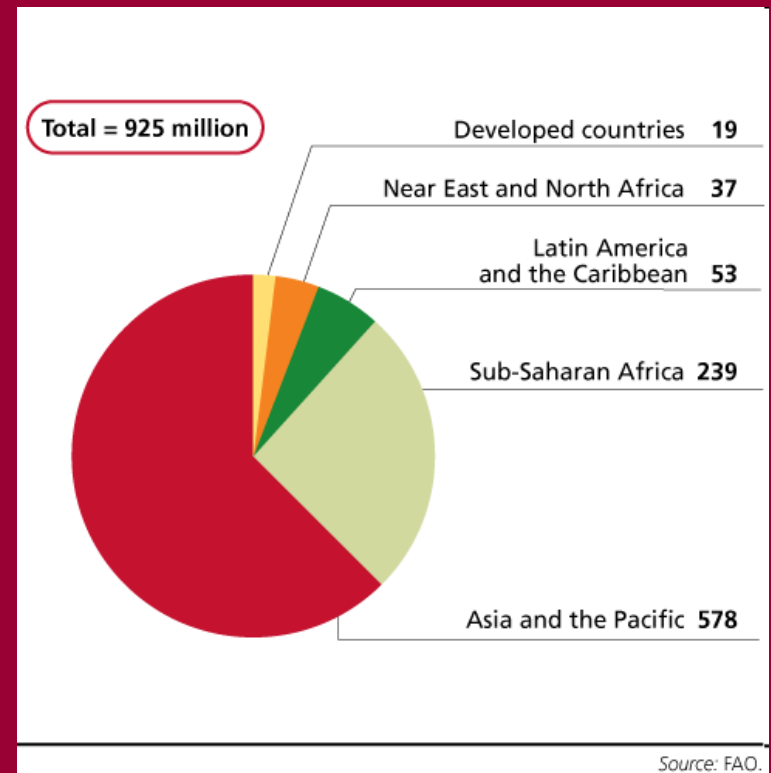


- A fundamental driver of sustainability issues
- In 110 years the human population has grown from 1.6 billion to 7.0 billion
- Annual net growth rate peaked in 1989 at 88 million and is now about 78 million
- UN mid range projection: annual birth rate reduces to 45 million in 2075, at which time the population of 9.2 billion will stop growing.
- Carrying capacity
- Evaluation

# Food and Hunger

- Population pressure and bad farming leading to poor and eroding soil
- Rising demand and falling supply of water
- Land grabbing and conflicts
- Grain for SUV's or people
- Environmental refugees

Source: <http://www.worldhunger.org/articles/Learn/world%20hunger%20facts%202002.htm>



# The Greenhouse Effect

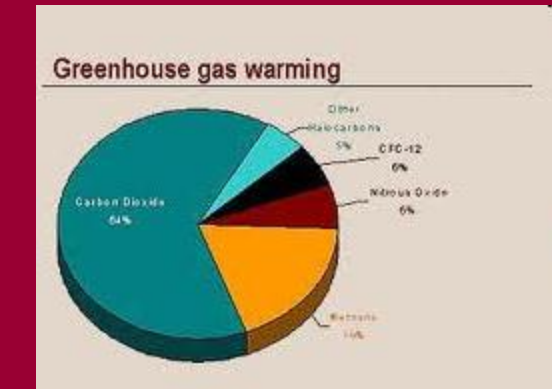
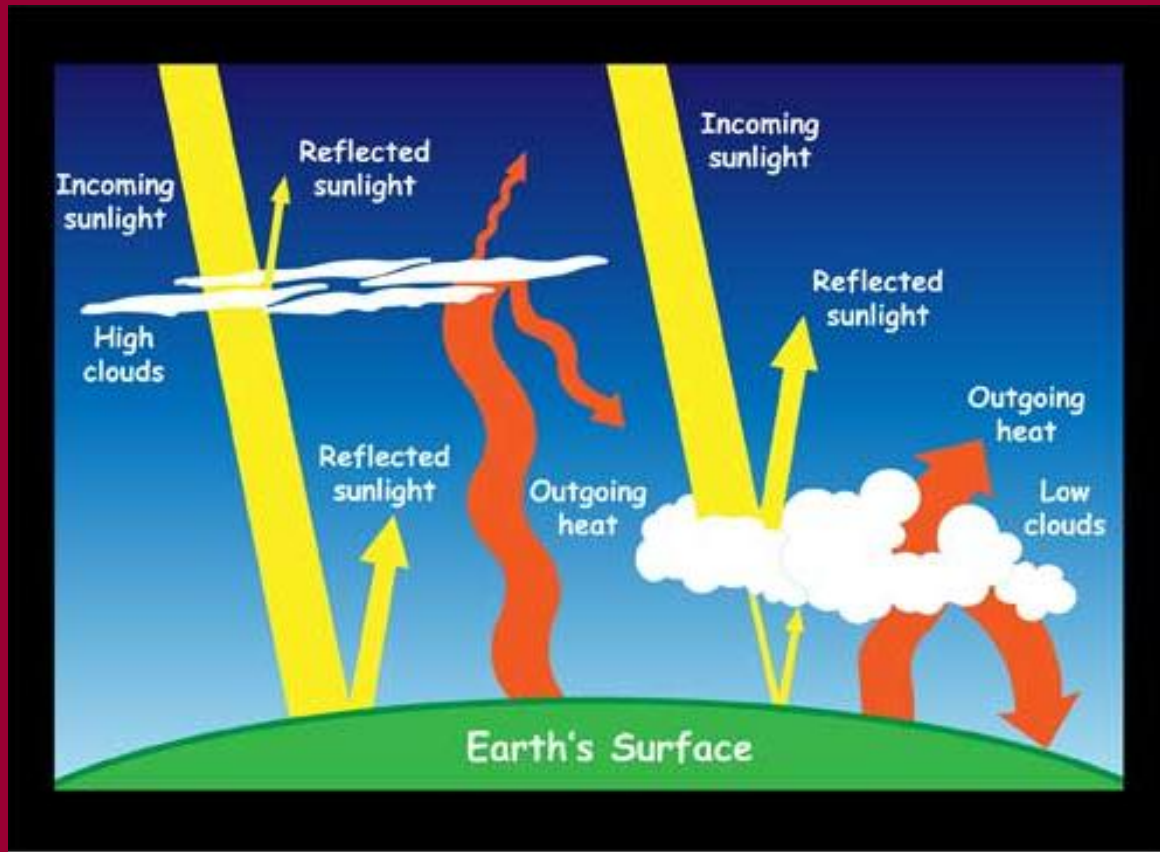
Carbon Dioxide – CO<sub>2</sub>

Nitrous Oxide – NO

Methane – CH<sub>4</sub>

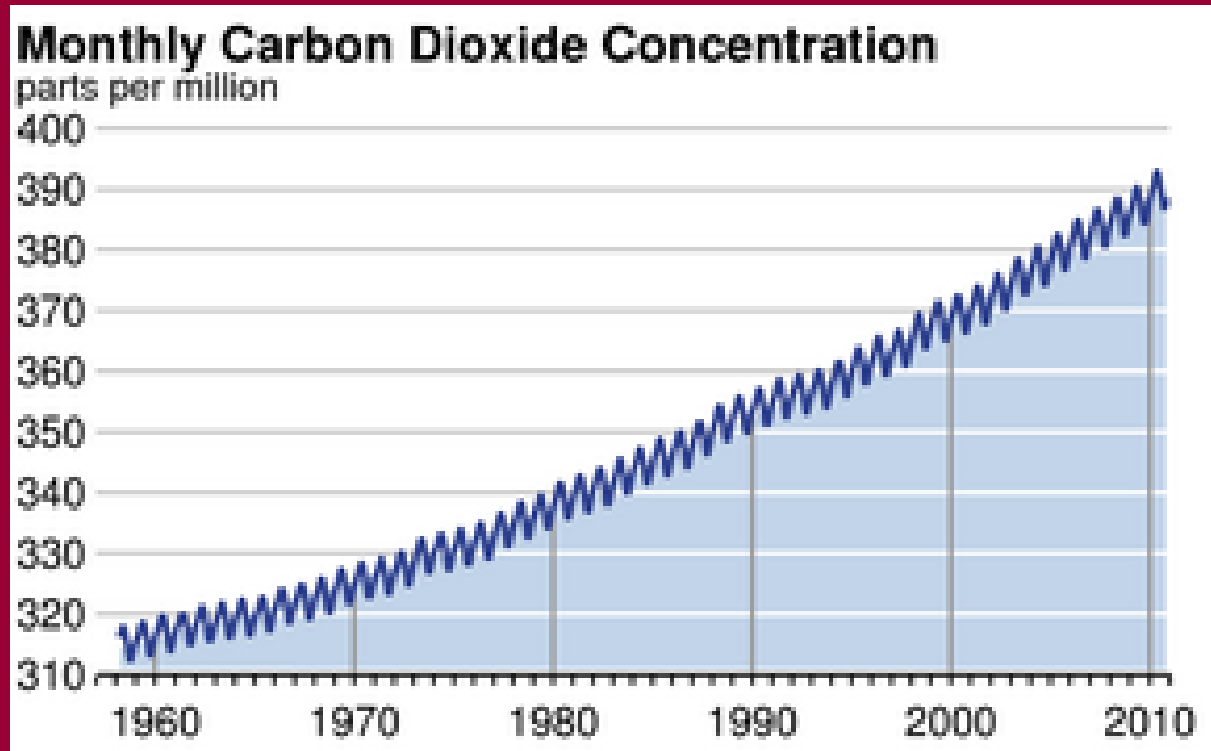
Water vapor – H<sub>2</sub>O

CFC's and HFC's



Source: NASA

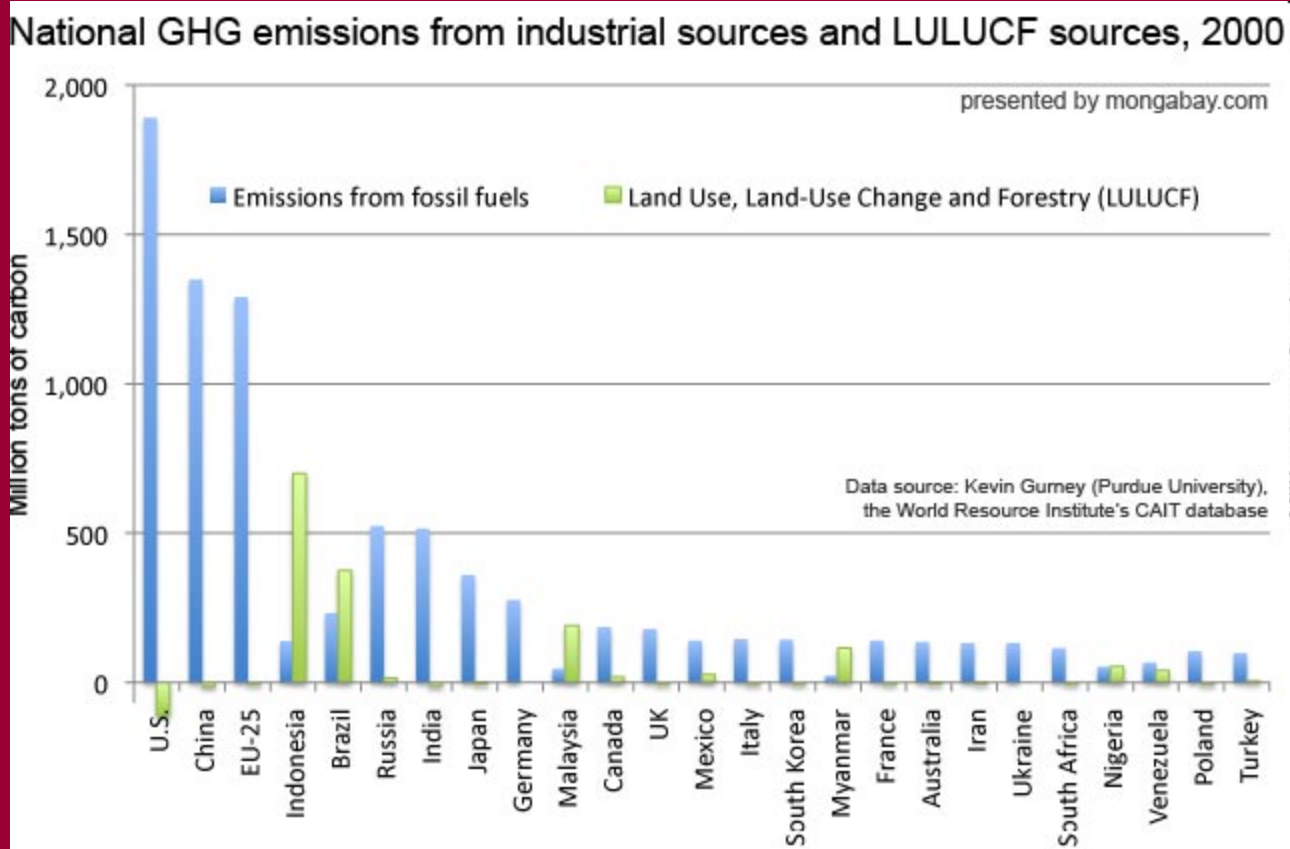
# Concentrations of Carbon Dioxide



Original source – Charles Keeling, Mauna Loa Observatory, Hawaii



# Who is Responsible?



# Who is responsible?

Columns 1 & 2 show 2004 data from the US Carbon Dioxide Information Analysis Center. Column 3 shows 2000 data presented in the 2004 Pew Center report, "Climate Data: Insights and Observations".

<i>Percentage of global CO<sub>2</sub> emissions (fossil fuels, cement and gas flaring only)</i>		<i>Emissions per capita (tonnes of CO<sub>2</sub> emissions from fossil fuel use, per person)</i>		<i>Carbon intensity (tonnes of carbon emitted in CO<sub>2</sub> per millions of dollars in GDP/PPP)</i>	
United States	20.9	Qatar	21.6	Ukraine	483
China	17.3	Kuwait	10.1	Russia	427
Russia	5.3	UAE	9.3	Saudi Arabia	260
India	4.6	Aruba	8.3	Poland	230
Japan	4.3	Luxembourg	6.8	Iran	223
Germany	2.8	Trinidad/Tobago	6.8	China	201
Canada	2.2	Brunei	6.6	South Africa	200
United Kingdom	2.0	Bahrain	6.5	Australia	193
South Korea	1.6	United States	5.6	South Korea	185
Italy	1.6	Canada	5.5	Canada	172
Mexico	1.5	Norway	5.2	United States	162
South Africa	1.5	Dutch Antilles	5.1	Turkey	149
Iran	1.5	Australia	4.4	Indonesia	127
Indonesia	1.3	Falkland Islands	4.1	Mexico	125
France	1.3	Faroe Islands	3.9	Pakistan	112
Brazil	1.1	Estonia	3.8	Germany	111
Spain	1.1	Oman	3.7	United Kingdom	110
Ukraine	1.1	Saudi Arabia	3.7	EU (collectively)	107
Australia	1.1	Gibraltar	3.9	Japan	104
Saudi Arabia	1.1	Kazakhstan	3.6	Spain	104



# Feedback



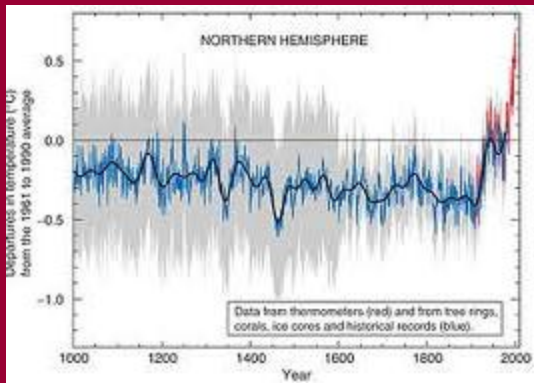
- Reinforcing feedback
  - Eg. Falling Arctic albedo as ice melts
- Balancing feedback
  - Eg. United Nations Framework Convention on Climate Change? Renewable Energy Portfolios
- Tipping points or phase transitions

# Impacts of Climate Change

1. Measurement, baseline and statistics
2. Global warming
3. Heat waves
4. Melting of ice caps and glaciers
5. Sea level rises
6. Acidification of oceans
7. More violent storms; more of them
8. Rainfall disruption – droughts and floods
9. The revenge of Gaia
10. Evaluation

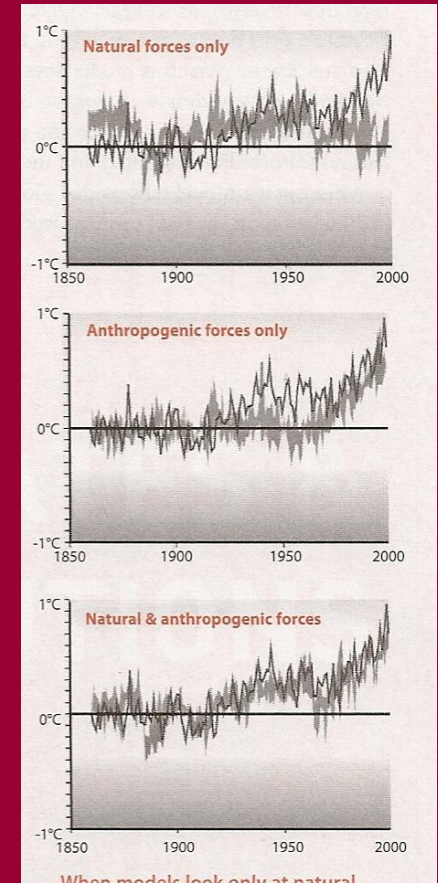




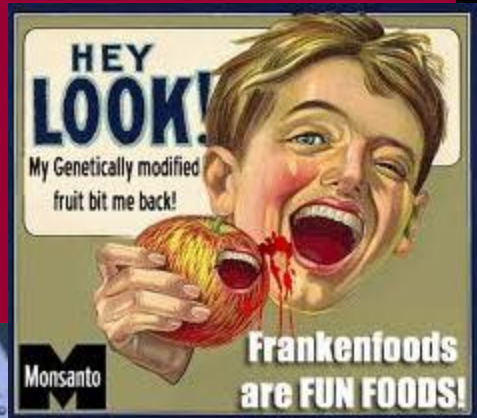


# The Big Picture

- Climate has always been changing
- Axes to grind on both sides
- Sharp warming 1970 to 1999
- Leveled off since 2000
- Anthropogenic change 95% cert.
- Uncharted territory: UNCERTAINTY AND RISK
- Still needs to be compared to other risks to sustainability



# Other Challenges to Global Sustainability

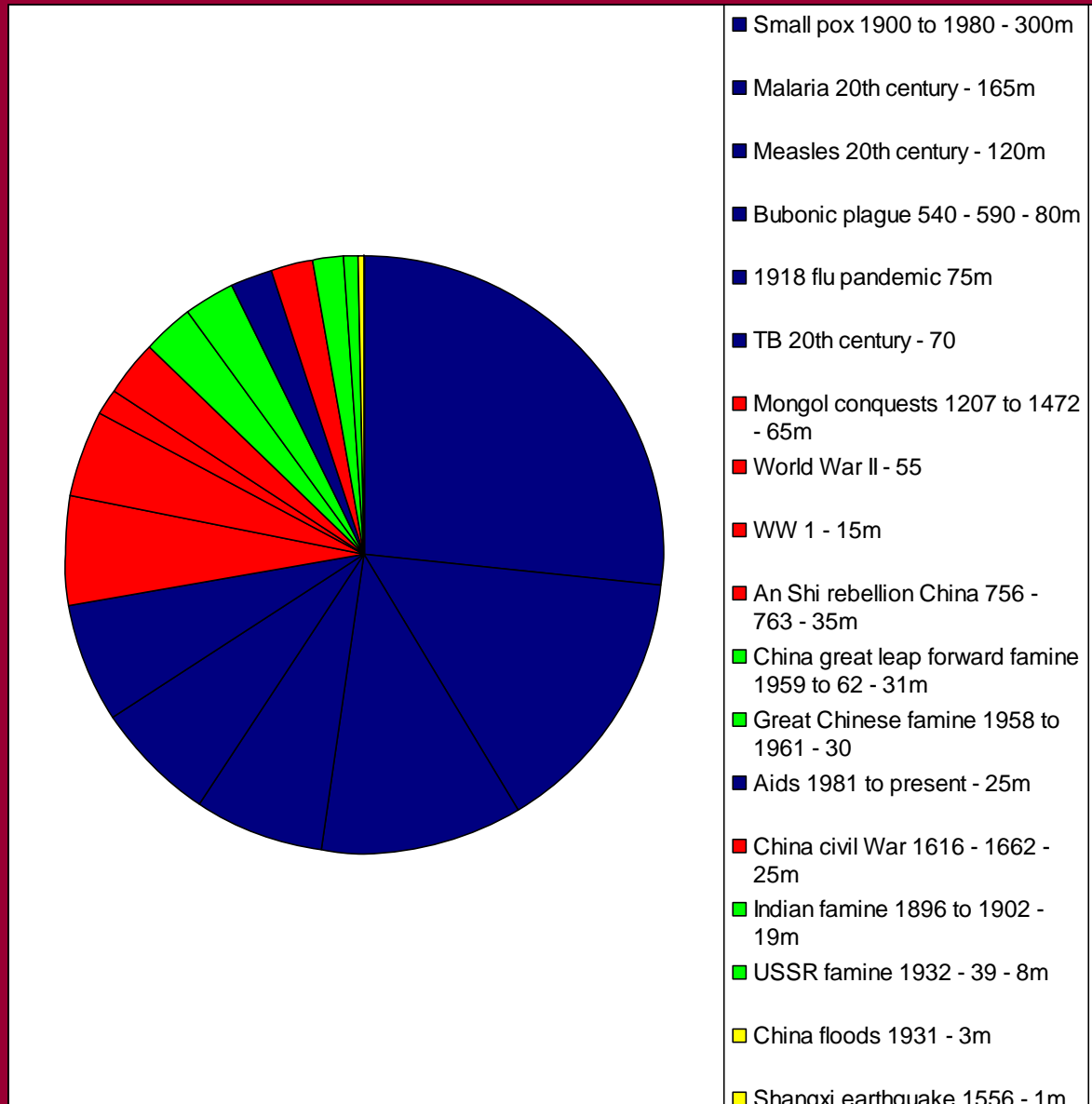


# Other Challenges to Global Sustainability



- Militarism / war
- Disease
- Asteroids
- Aliens
- Genetic modification
- Others?
- Problems often define solutions; solutions are often found on a different level from the problem

# Acute loss of sustainability in recent centuries



Source: rough research by JC



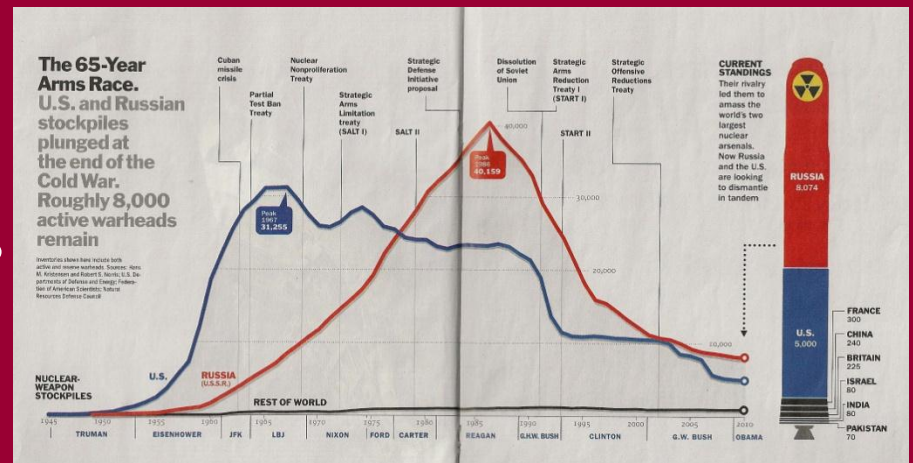
# Disease - Problems Define Solutions

- The perfect storm?
  - Globalization
  - Antibiotics in factory farming
  - Deliberate release dangers?
- Solutions
  - Reduce travel – unlikely
  - Revise farming practice urgently - easy
  - Maharishi Effect – easy, and anything to reduce stress



# Warfare – Problems Define Solutions

- Why?
  - Competition for resources (water, land, energy)
  - Economic and political control
  - Mistakes
  - Accumulation of stress in collective consciousness
- Solutions
  - Better farming practice and distributed, renewable energy
  - Regain control of your government; establish value boundaries around capitalism
  - Dismantle WMD
  - Maharishi Effect and anything else that works



# Genetic Modification 1

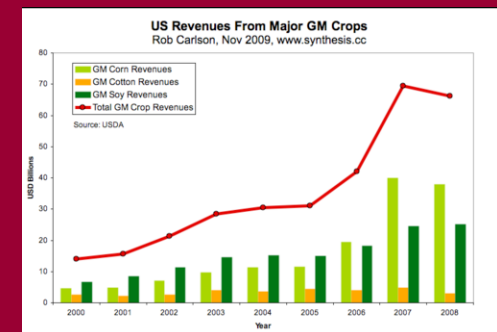
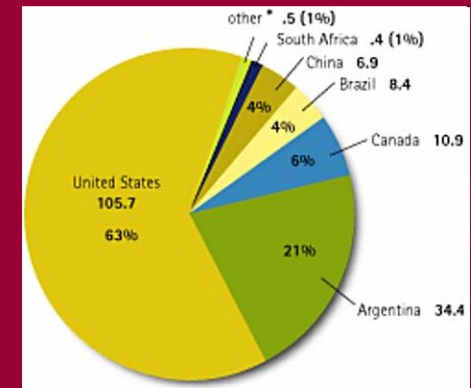


- Completely different from traditional breeding
- Suppressed research showing problems
- No significant yield benefits – ‘Feed the starving millions’ con
- Toxicity in food and cloth
- Dangerous reduction of biodiversity of crop types and field life
- Genetic pollution uncontainable & unrepairable
- Unpredicted consequences



# Genetic Modification 2

- Offers huge opportunity for profit and control through seed patents and legal enforcement
- Current realities
  - FDA negligence
  - Political connivance
  - GM is winning



Source: [The Bio-Economist](#) By Rob Carlson on September 9, 2009 "... revenues from GM systems in 2009 will be the equivalent of about 2% of US GDP. That is a big number. As big as mining in the US. And there is no way mining is growing at ~15% a year. The future of the economy is biology."

# Genetic Modification 3

- Precautionary principle
- Evaluation



# Aliens



Is the universe a machine that has learned to think or a thought that decided to grow a body?

Having created it, the  
Creator entered into it.

*Taittirya Upanishad 2.6.1*

Or:

Stephen Hawken –  
Development of life

Ted talk

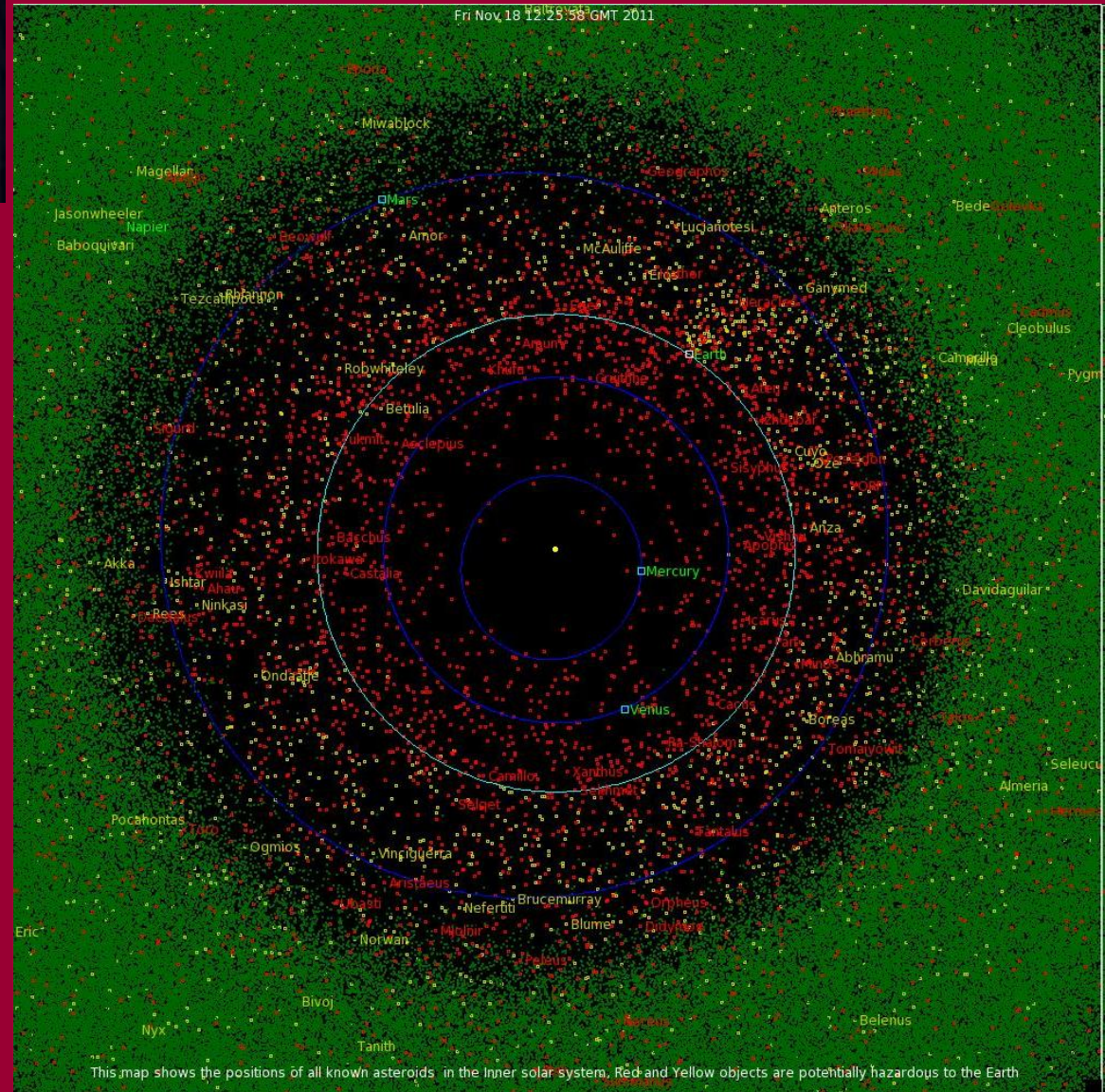
Evaluation?







# Asteroids





# Asteroids

- Size, Number near Earth, Frequency of impacts, Last impact, Annual probability of impact
- 10 - 50m, 2 hundred million, 1 in every 5 years, Siberia, 1908: area not populated, 0.2%
- 100m, 2 hundred thousand, 1 in every thousand years, China, 1490: 10,000 deaths, 0.001
- 1-2km, 2 thousand, 1 in every 100,000 to 1 million years, Argentina, 3 million years ago: local extinctions and global cooling, 0.00001
- 15km, 50, 1 in every 65 million years, Mexico, 65 million years ago: dinosaur extinction, 0.000000002



# Solutions

- Mapping – eg NASA sky mapping
- Landing propulsion units
- Evaluation



# Underlying Human Values

What are the values that underlie the culture of an organization?

What are the values that underlie the culture of a society?

What are the values that underlie the culture of a nation?

What are the values that underlie the culture of a community?

What are the values that underlie the culture of a family?

What are the values that underlie the culture of an individual?

# Underlying Human Values



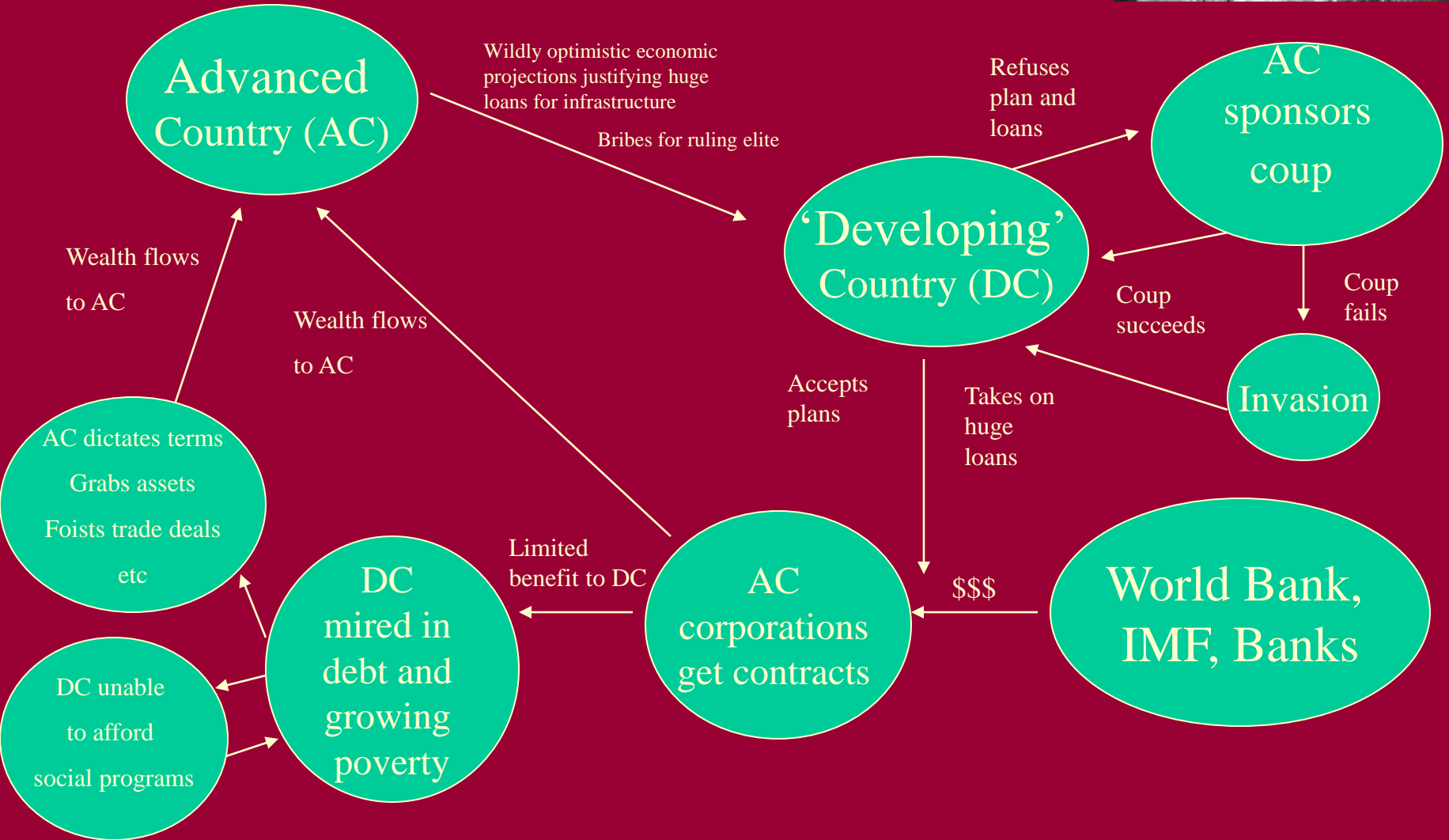
- Greed is good – desire for money and control, cave emptor, economic empires, ignoring external costs
- Cognitive policy – manipulation of internal beliefs, desires, ideas, knowledge, motivations – ‘Freedom and democracy,’ ‘WMD’ ‘War on terror,’ ‘Cult,’ ‘Conspiracy theory,’ ‘Dirty coal.’
- Spiritual malaise – loss of contact with unity of life

# Post War Economic Empires

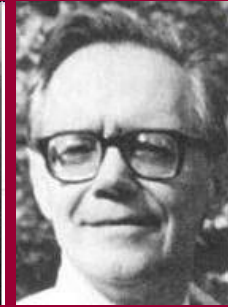
“Economic hit men (EHMs) are highly-paid professionals who cheat countries around the globe out of trillions of dollars. They funnel money from the [World Bank](#), the [U.S. Agency for International Development](#) (USAID), and other foreign "aid" organizations into the coffers of huge corporations and the pockets of a few wealthy families who control the planet's natural resources. Their tools included fraudulent financial reports, rigged elections, payoffs, extortion, sex, and murder. They play a game as old as empire, but one that has taken on new and terrifying dimensions during this time of globalization.”



# Building Empire

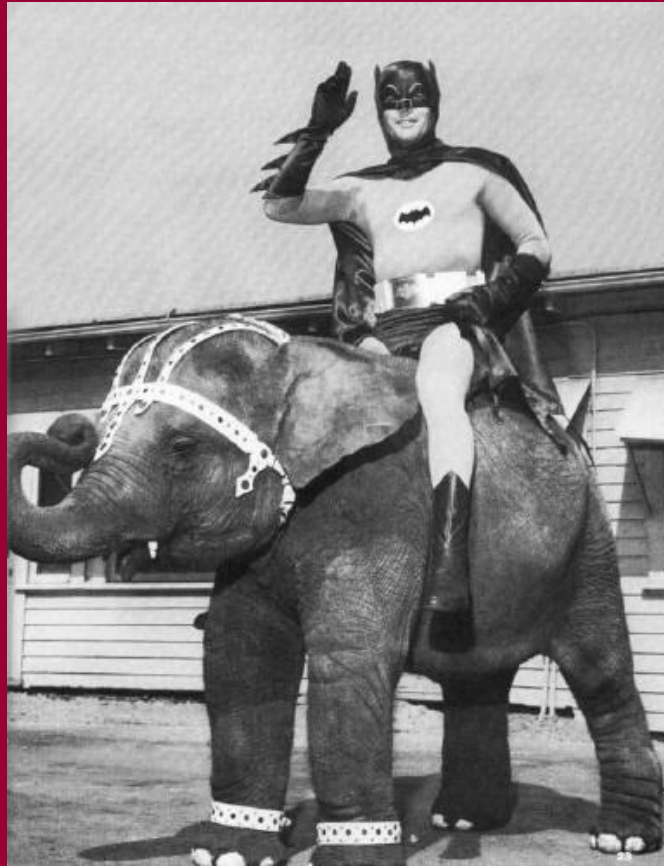


# Cognitive Policy



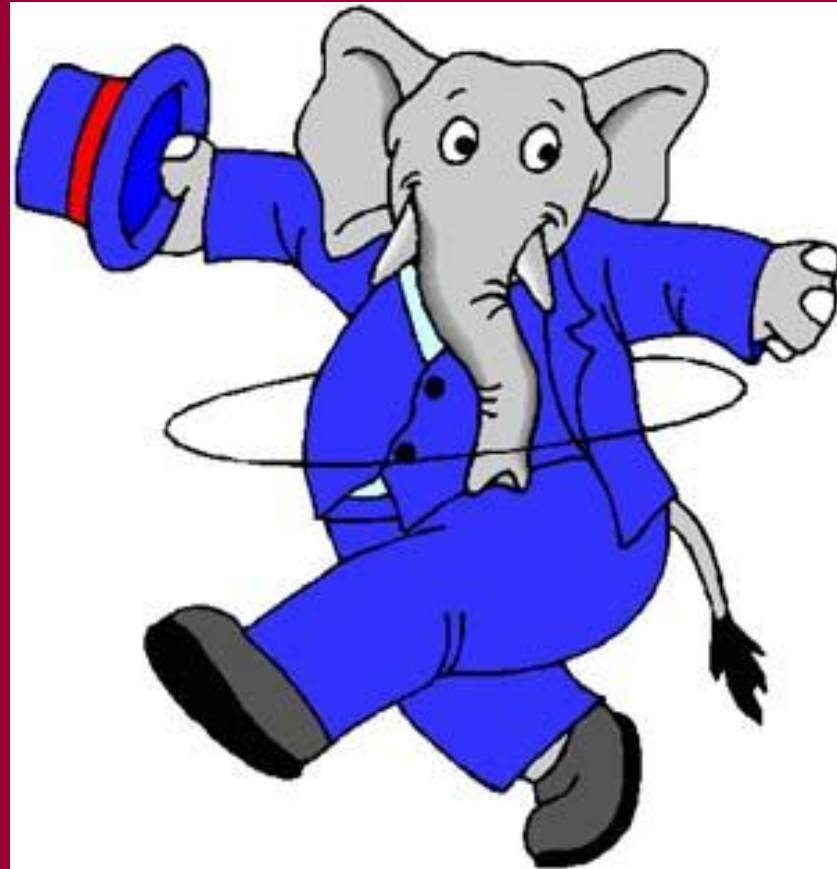
- Bernays, Anna Freud, Neisser, Lakoff
- Cognition involves all processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used.
- Widespread use for manipulative purposes since 1920's

# The Cognitive Un-conscious



# About the elephant

- Associative
- Metaphorical
- Emotional
- Embodied
- Reflexive
- 98% of mental activity





# How does it work

- It's not what you say...
  - Narratives
  - Metaphors
  - Values
  - Neural Binding

# Talking to the Elephant

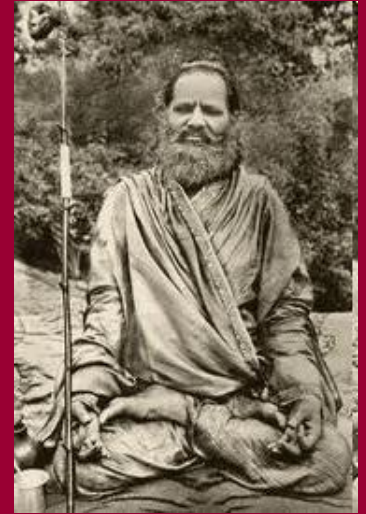
- Death Tax
- Climate Change
- Energy Exploration
- Stewardship of the Earth
- Entitlement

# Group Exercise

- Pick a fact
- What story/narrative do you associate with this fact
- What previously held ideas/ emotions/ memories did you draw on to create this story
- Re-frame the fact: Tell a different story



# Spiritual Values



- Loss of contact with unity of life
- Absolute determinism of evolution
- Degrees of creative intelligence / freedom
- Karma and Dharma