

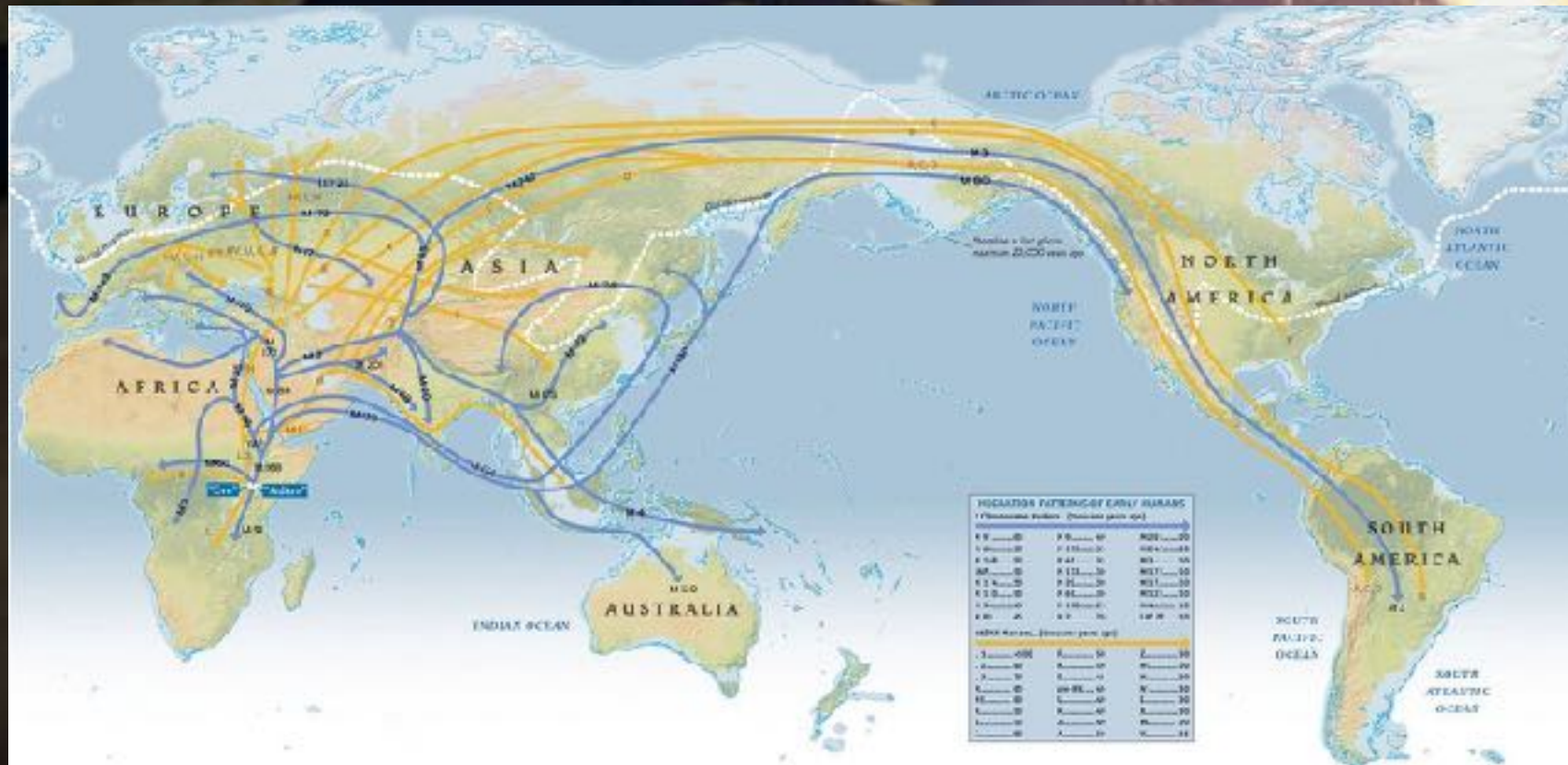
PROJECT



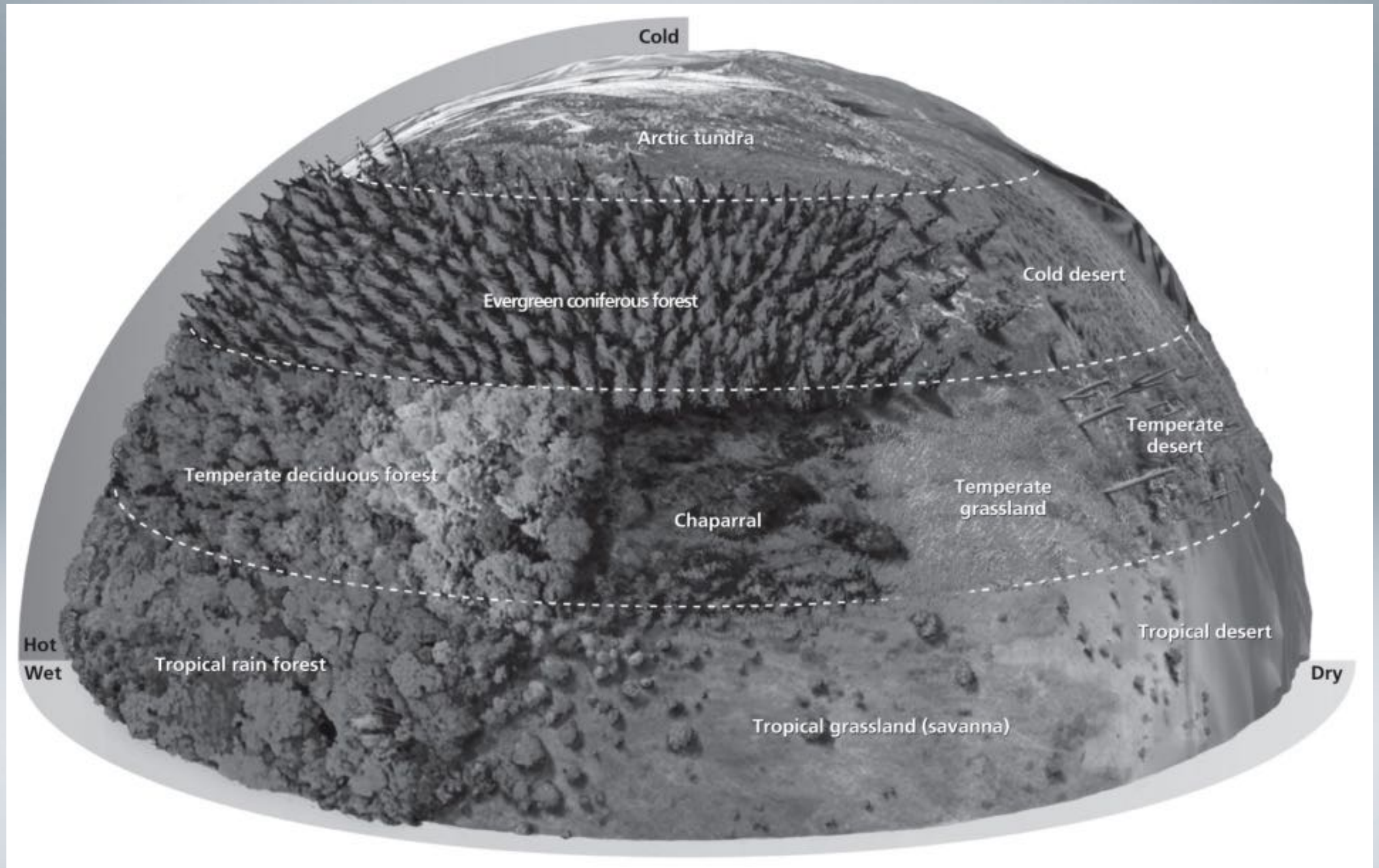
DRAWDOWN

IS BASED ON METICULOUS
RESEARCH THAT ANALYZES HOW
AND WHEN WE CAN REVERSE
GLOBAL WARMING.

The Human Journey: Out of Africa Beginning c.65,000 BP



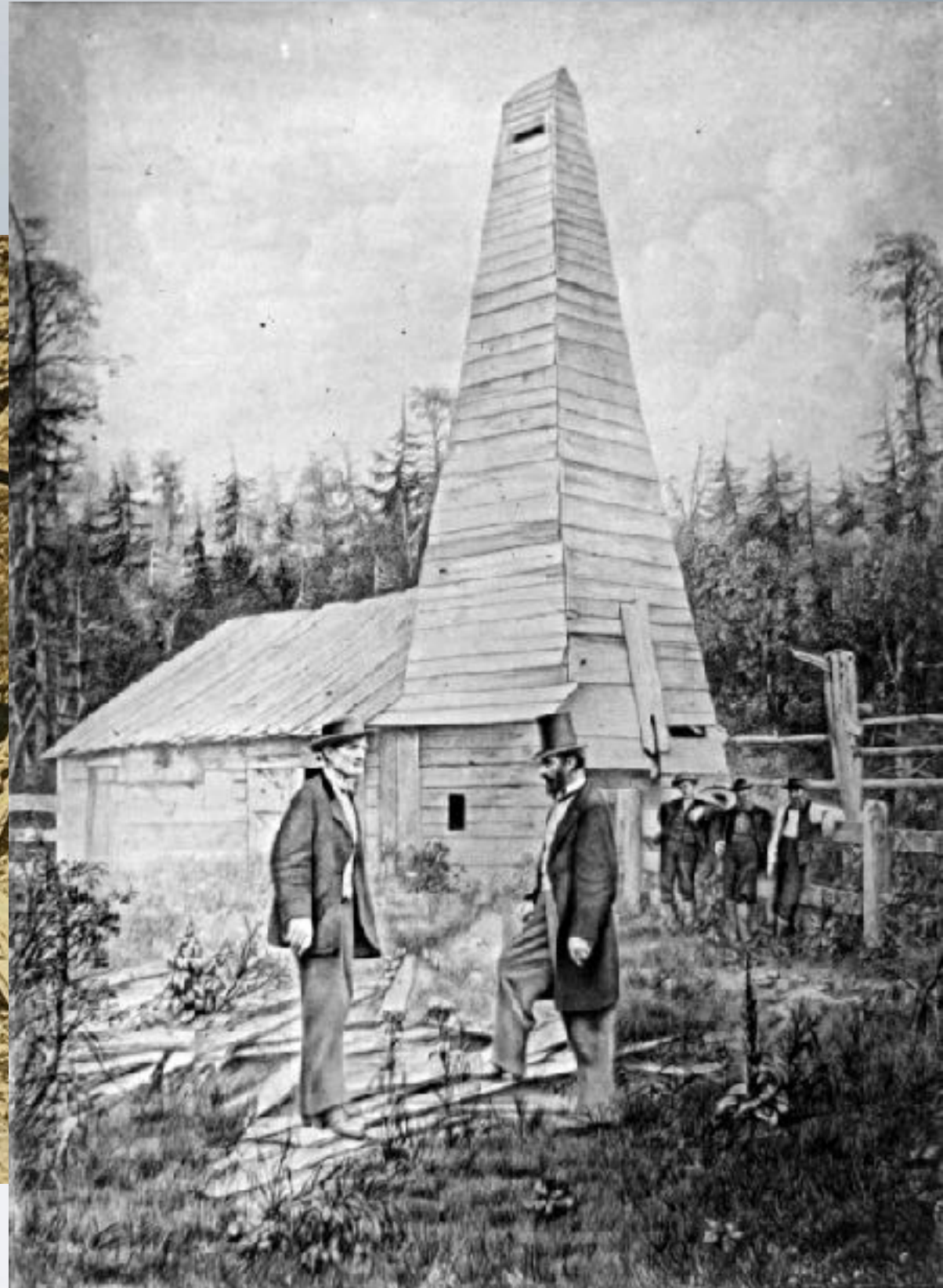
We Adapted to Our Climates



And We Adapted
Genetically & Culturally



And then we Discovered Fossil Fuel
Industrial Coal: late 1700's
Oil: 1869



CREATING A FOSSIL FUEL CULTURE

Western Culture:

- We Consume 400 Quadrillion BTU/yr (14,000 times this falls on the Earth from the sun/yr.)
- 86% of that is derived by Fossil Fuel
- Currently the average American would need 70 people to replace our energy consumption
- One Gallon of Gasoline has the equivalent to 12 weeks or 500 hours of human labor
- We consume 37,000 years of Biomass in one day
- We need to get to one days worth

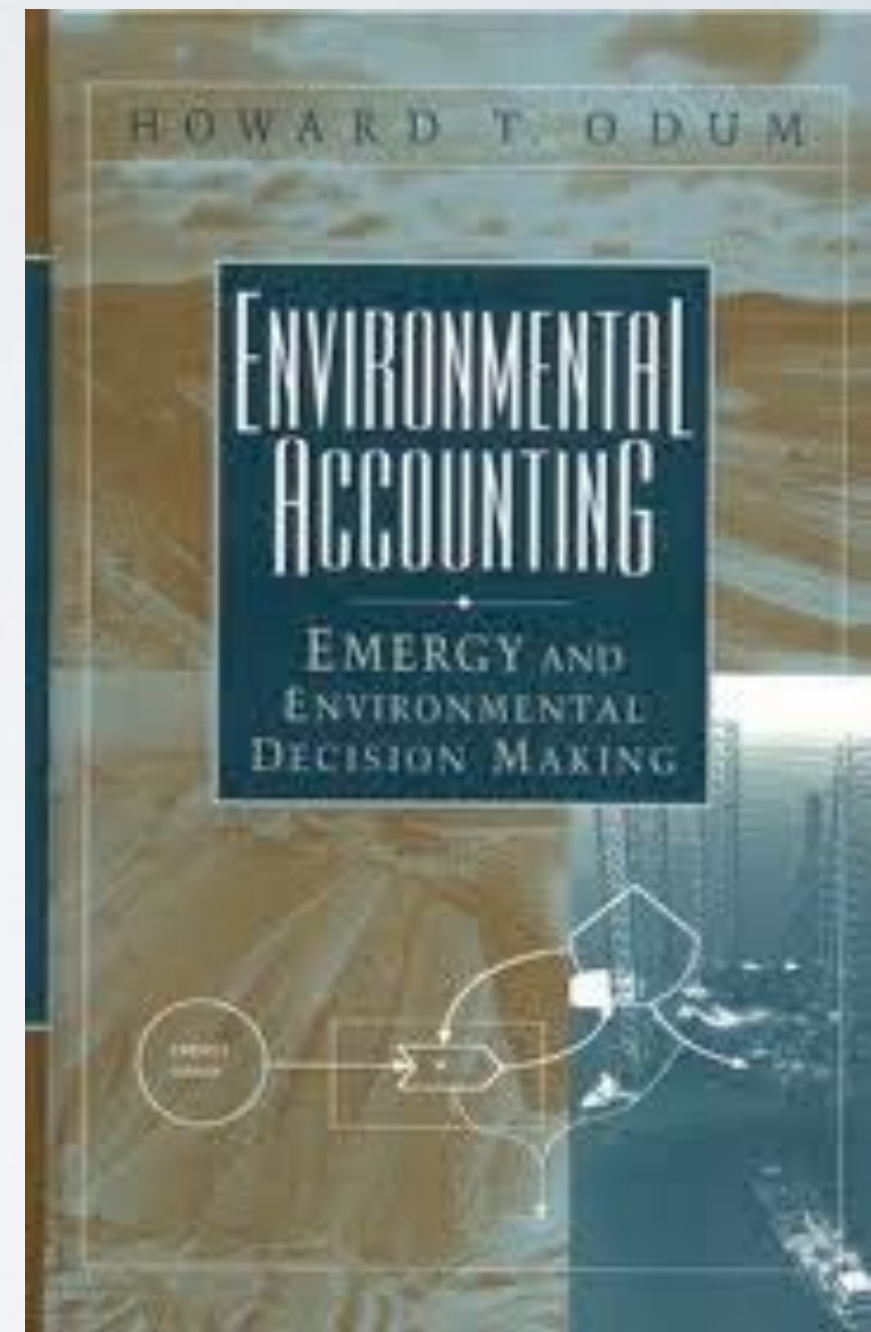
2001 stats Source: LocalEnergy.org

Which has Created:



AWARENESS OF THE NET ENERGY ECONOMY

- Howard Odum: Emergy Accounting
 - Quantifies Energy invested from all inputs including ecosystems & sun to create energy
 - Energy in vs. energy out (energy payback)
- His Book:
- “Environmental Accounting: EMERGY and environmental decision making.”*
- *Seen as the benchmark for Global energy accounting*

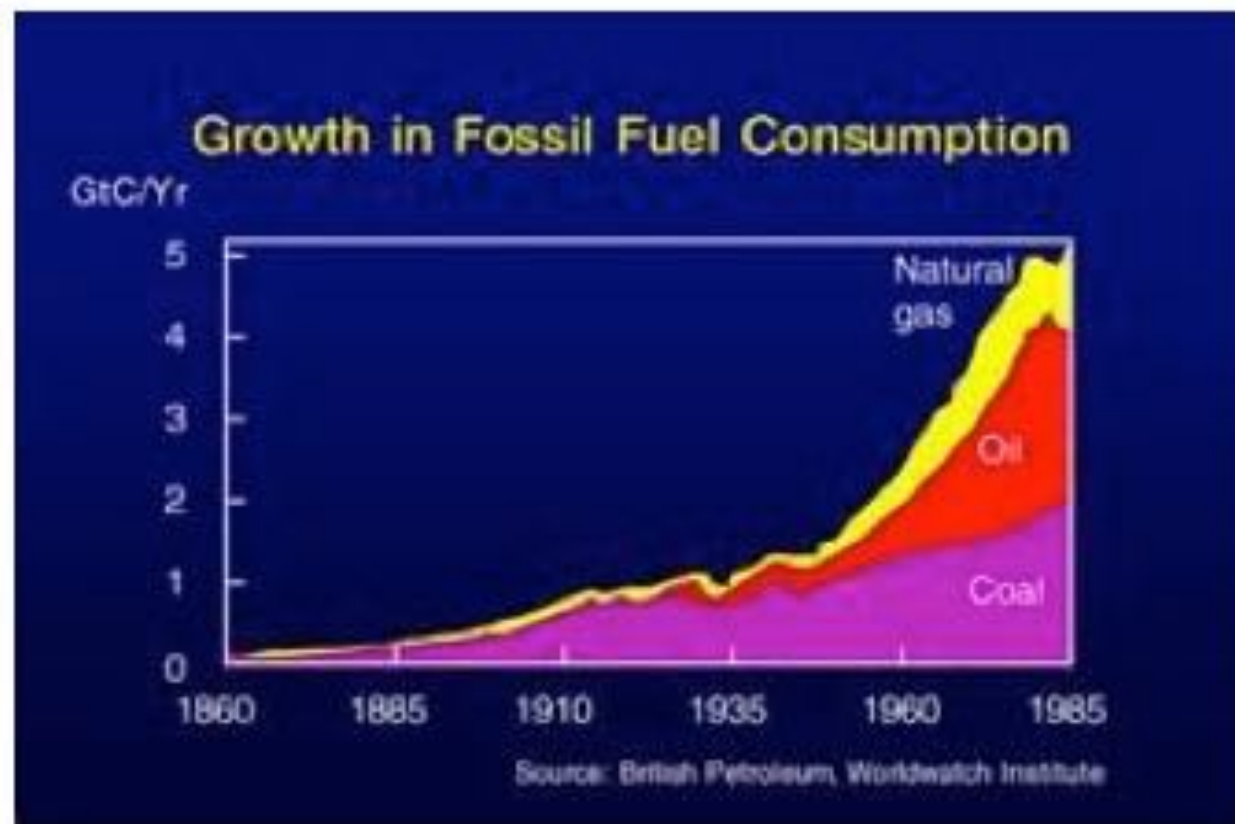


POPULATION GROWTH



Exponential Growth & Desertification:

Accelerated by Fossil fuel



- Managing Population Growth is critical for stability
 - an ethic of 1-3 children per family should keep us stable

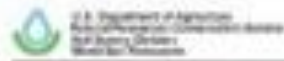
SPECIES EXTINCTION: 6X



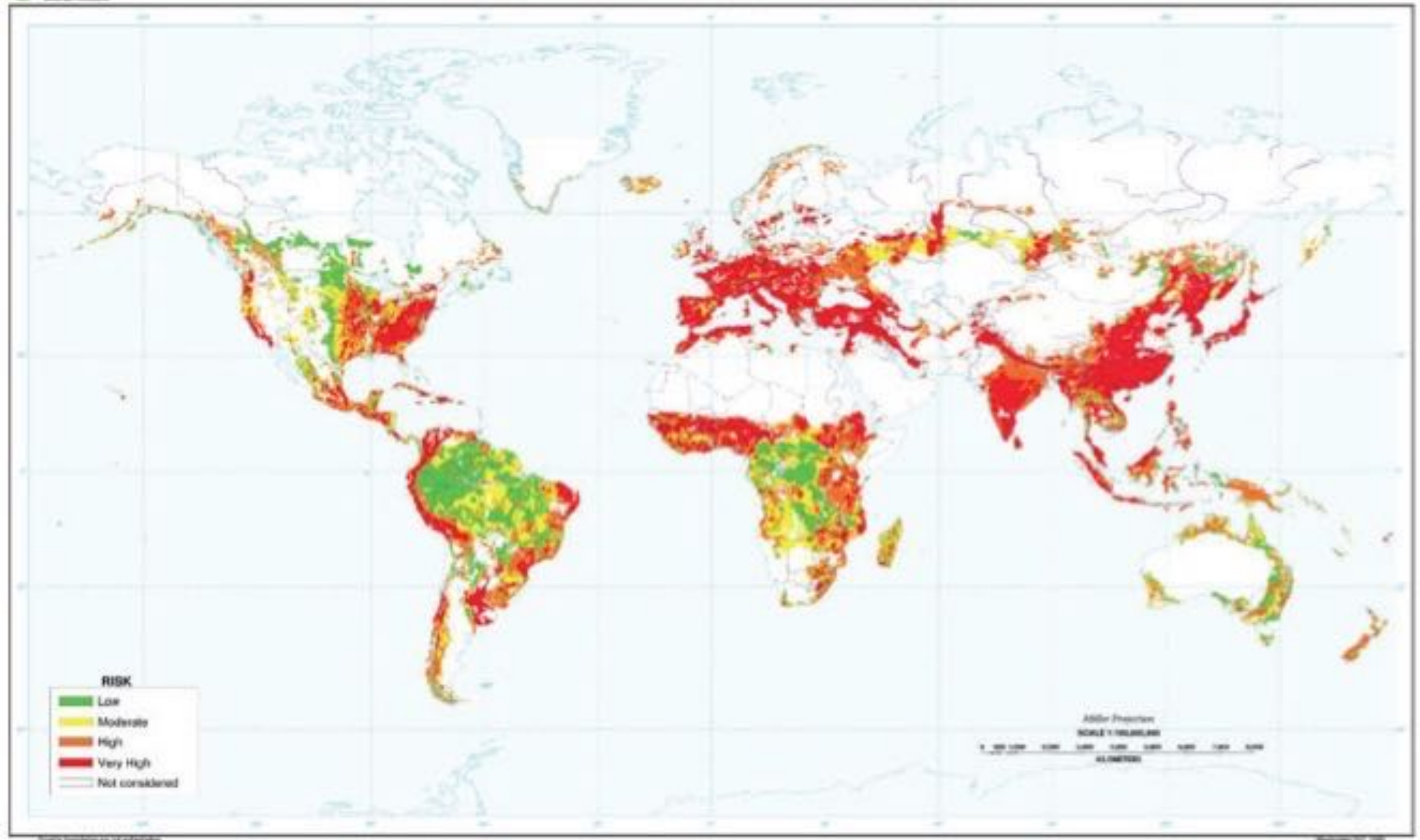
SOIL LOSS/DESERTIFICATION



Rand Corporation Soil Erosion Study



Risk of Human Induced Water Erosion



EXPONENTIAL GREED: PETRO-CAPITALISM

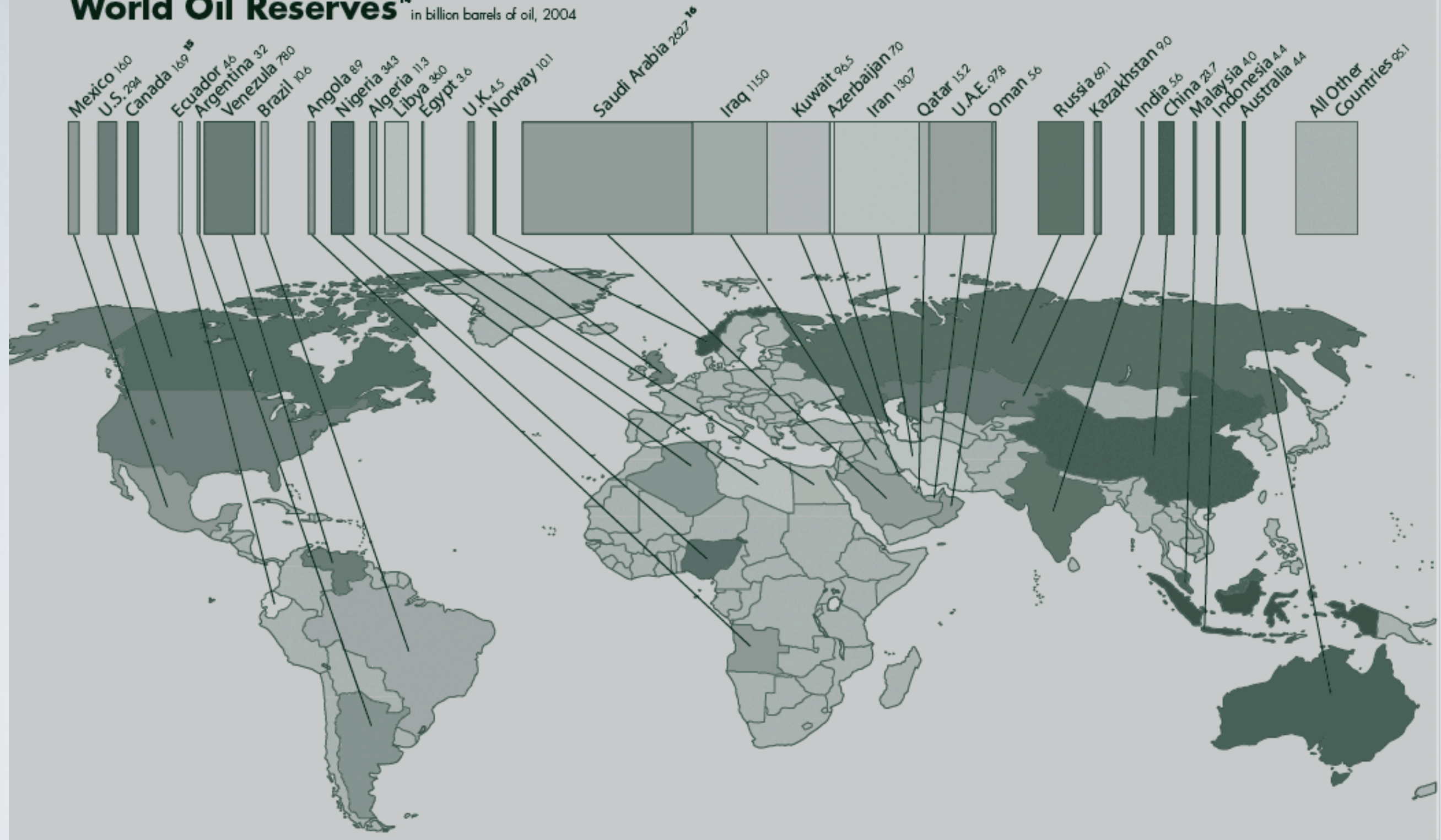


PRINCE WALEED SPECIAL

BILLIONS IN POVERTY



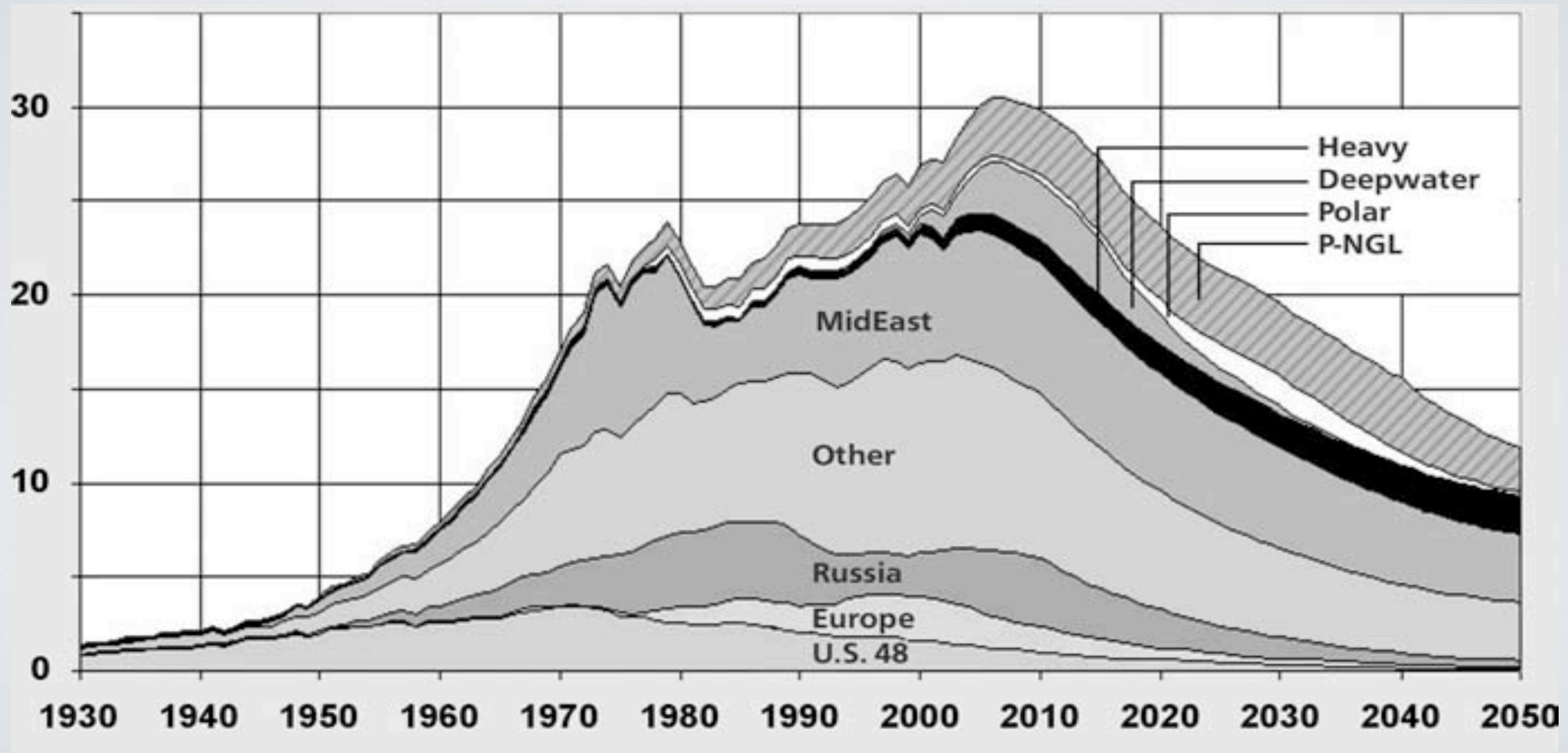
World Oil Reserves¹⁴ in billion barrels of oil, 2004



EMPIRE & WAR

PEAK FOSSIL FUEL

FRACKING IMPACT?

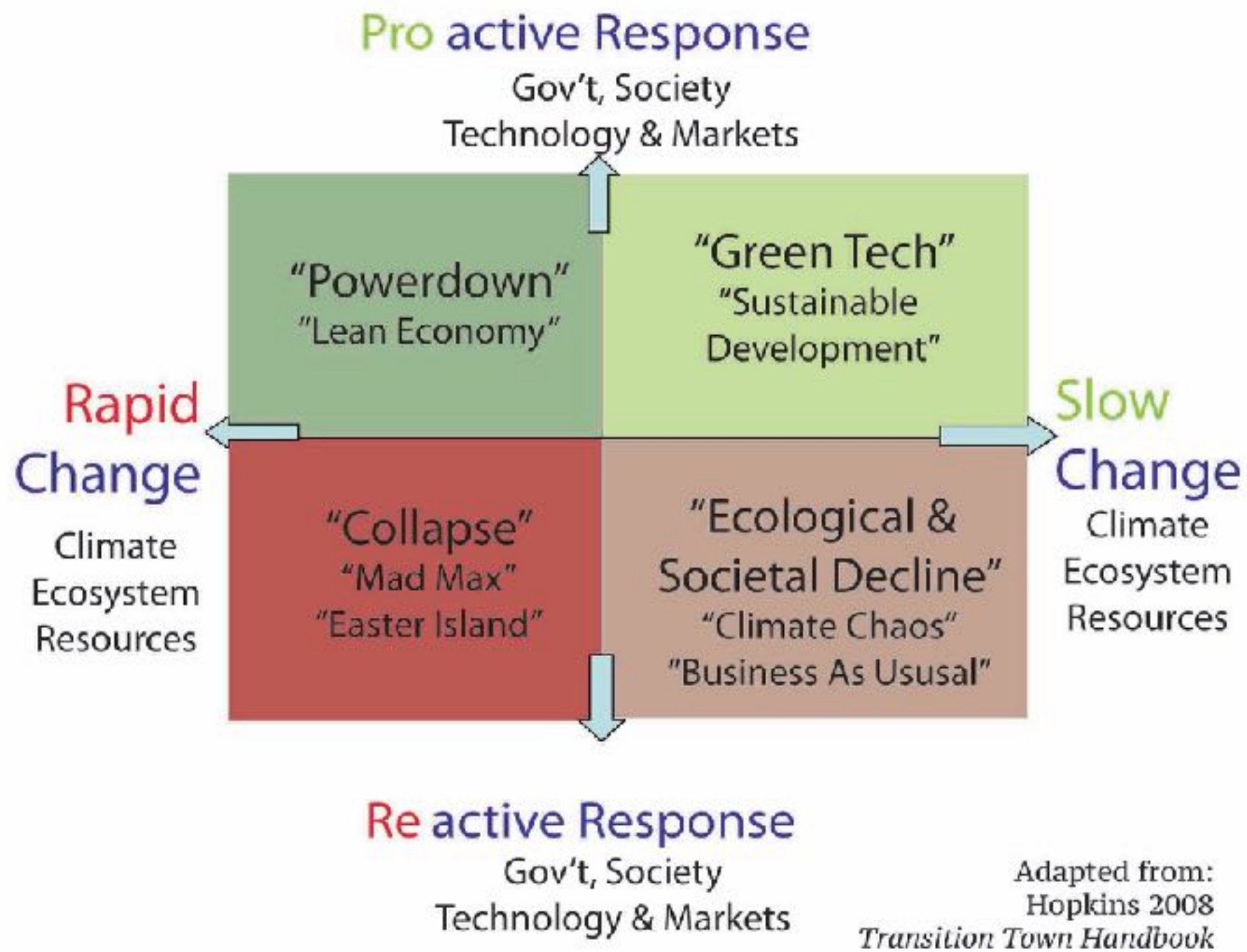


CLIMATE CHANGE



Annual Carbon Release & Sequestration

<https://www.youtube.com/watch?v=xISgmFa0r04>



THE FUTURE

Adapted from the Transition Handbook

PROJECT DRAWDOWN

THE TOP 100 LIST: LAND USE

LAND USE

- **Afforestation 15**
- **Avoided Deforestation**
- **Bamboo**
- **Biochar**
- **Carbon Farming**
- **Coastal Wetland Protection**
- **Composting**
- **Conservation Agriculture 16**
- **Farm Water Productivity**
- **Farmland Restoration**
- **Grazing & Pasture Management 19**
- **Indigenous & Traditional Land Management**
- **Temperate Forests 12**
- **Multistrata Agro-forestry**
- **Peatland Protection 13**
- **Perennial Bioenergy Crops**
- **Regenerative Agriculture 11**
- **Silvopasture 9**
- **Sustainable Rice Production**
- **Tree Intercropping 17**
- **Tropical Forest Restoration 5**
- **Tropical Staple Tree Crops 14**
- **Industrial Dematerialization**
- **Recycled Paper**
- **Water Distribution Efficiency**



ENERGY & BUILDINGS

ENERGY

- Biomass Energy Production
- Co-generation
- Concentrated Solar Farms
- Distributed Energy Storage
- Geothermal
- In-stream Hydro
- Methane Digesters
- Micro Wind Turbines
- Peak Demand Management
- **Rooftop Solar PV 10**
- **Solar PV Farms 8**
- Utility-Scale Energy Storage
- Waste-to-Energy
- Wave/Tidal Energy
- **Wind Turbines**

BUILDINGS

- Alternative Concretes
- Building with Wood
- Cool Roofs
- District Heating/Cooling
- Greenroofs
- Household LED Lighting
- Household Water Saving Measures
- HVAC Efficiencies (Ground & Air Heat Pumps)
- LED Lighting
- Living Buildings
- Retro Commissioning
- Retrofitting
- Rooftop Solar Hot Water
- Smart Thermostats

FOOD, CITIES & TRANSPORT



FOOD

- Clean Cookstoves 21
- Low Impact Diet
- Nutrient Management
- **Reduced Food Waste 3**

CITIES

- Bike Infrastructure
- Landfill Methane Capture
- Walkable Cities

TRANSPORT

- Airplane Fuel Efficiency
- Car Fuel Efficiency
- Carpooling/Ridesharing
- Electric Vehicles
- High Speed Rail
- Mass Transit
- Oceanic Freight Improvements
- Train Fuel Efficiency

BEHAVIOR & MATERIALS



BEHAVIOR

- **Educating Girls 6**
- **Family Planning 7**
- Household Recycling
- Telepresence
- **Plant Rich Diet 4**


MATERIALS

- Bioplastics
- Commercial Recycling
- Industrial Dematerialization
- Recycled Paper

GROUP PROJECTS

- Assigned one topic from list
- Groups of 6 made up of all disciplines
- **Research:**
 - What the topic is
 - How it's being implemented here in Cincinnati by interviewing experts around town
 - Contact your Cincinnati expert on the Subject as soon as possible
 - Calculate your Carbon Footprint for the week: Carbon footprint Calculator: <http://www.carbonfootprint.com>
 - Deliverables: Shared Friday Evening at Reception (no presentation)

Regenerative Agriculture Certification



PERMAGANIC
AUTHENTICATED

We pledge to support a regenerative planet by:

- Supporting Local Farms that utilize Ecologically sound practices
- Living in walkable communities with Public Transportation
- Transitioning our Homes and Buildings to net/neutral or Positive energy creators utilizing renewable sources
- Buying used or handcrafted goods instead of new/manufactured
- Planting edible perennial landscapes modeled after nature's resilience
- Educating current and future generations about a regenerative planet and the Ethics and Principles needed to create it
- Returning the Surplus to those in need
- Assisting the needy to create a regenerative lifestyle
- Supporting Permaganic Authenticated Farms & Organizations

Refuse, Reduce, Reuse, Repair, Recycle
I Commit to do this to Ensure a Resilient and Regenerative Future for All Generations of Interdependent Life on Planet Earth



Signed _____ Date _____

Yes, I would like to stay informed about Permaganic Authenticated and its journey to assist in the creation of a Resilient and Regenerative future

First Name _____

Last Name _____

Email _____

PERMAGANIC
AUTHENTICATED

PIONEER
Pioneer farms utilize one or more of the following practices:

- Contour Farming that is Chemical Free (and utilizes Companion Planting?)
- Developing Healthy soils by enhancing the Soil Food Web through:
- Activated Compost Teas
- Employing the use of Biochar
- Utilize Mob Grazing with livestock

EMERGENT
Emergent farms utilize the following practices (Laying foundations to move towards a regenerative Agriculture)

Must have:

- Contour Farming that is Chemical Free and utilizes Companion Planting or Employs Keyline practices
- Developing Healthy soils by enhancing the soil Food Web through:
- Activated Compost Teas

And utilize one or more of the following practices:

- Orcharding
- Agroforestry
- Silvopasture
- Annual crops with perennial beds
- Aquaponic systems
- Poly species mob grazing

REGENERATIVE
Regenerative farms employ the following practices:

Must have:

- Keyline planning for the whole farm
- Polyculture Silvopasture or agroforestry with multiple layers
- Companion planting
- Smaller farms – livestock integrated into the system when not in production
- Larger farms – poly species mob grazing

And can employ the following:

- Food Forest w/earthworks (minimum 4 layers with an average of 4 species in each layer)
- Chickens systems
- Aquaculture modeled after diverse and stable natural systems
- Wild Crafted

EARTH CARE

PEOPLE CARE

- Community Care: 40 hrs of Educational Outreach
- Built Environment: Energy Audit & water harvesting

FAIR SHARE

- Community: Donations of 5% of Harvest to those in Need
- Ecological: 5% of Land is dedicated to Ecosystem Restoration

Community Partnering with and Organization regularly to provide reliable outlet for distribution for those in need 10% is donated to Organization

Ecological: 25% of Land is dedicated to Ecosystem restoration

- 8% wild or managed wilds
- 17% Regenerative Agriculture (How is this defined?)

Community: Your farm creates & supports new structures for reliable distribution of surplus products/services, time, etc. to support the creation of a Regenerative Culture

Ecological: 50% of land is dedicated to Ecosystem restoration

- 10% of Wild or managed Wilds
- 40% Regenerative Ag (How is this defined?)

Certification

Permaculture: a "Design Science"

Permaculture's Principles & Ethics of a Regenerative Planet:

The Three Ethics

EARTH CARE

PEOPLE CARE

FAIR SHARE

Principles of Permaculture Design

- Cooperation & Positivism
- Everything is Connected to everything else
- Every Function is supported by many Elements (redundancy)
- Every element should serve many functions (multiple functions)
- Everything Gardens
- Use on-site resources
- Local Focus
- We are nature, working
- Seven Generations
- Small scale intensive Systems

Holmgren's 12 Principles

1. Observe & Interact
2. Catch & Store Energy
3. Obtain a Yield
4. Apply Self Regulation & accept Feedback
5. Use & Value Renewable Resources & Services
6. Produce no Waste
7. Design From patterns to details
8. Integrate Rather than Segregate
9. Use Small & Slow solutions
10. Use and Value Diversity
11. Use edges and value the Marginal
12. Creatively use and respond to change

Attitudinal Principles

- Work with nature, not against
- The problem is the solution
- Infinite Yield (the yield of a system is theoretically unlimited)
- Least Change for Greatest effect (Leverage)



www.permaganic.org

Clean
Cookstoves

gosun



WEEK EVENTS

- **Wednesday:**
 - Morning: Q&A
 - Evening: Local Food Potluck at Rhinegeist Brewery
- **Friday:** 4-6:30pm Reception & Sharing of Posters
- Most of All.....HAVE FUN!

IF YOU WANT TO LEARN MORE...



PERMACULTURE DESIGN CERTIFICATION

DESIGNING SYMBIOSIS

Part II: SEPTEMBER 9, 10, 11, 24 & 25

DAAP 6090-002 Interdisp. Topics in DAAP

Course #23188

CERTIFICATION COMPLETION:

Part I : Spring Semester

ECO-LOGICALLY SYNTHESIZING:

AGRICULTURE | ARCHITECTURE | INDUSTRIAL

HORTICULTURE | PLANNING | ENERGY

For more information: TrauthBW@ucmail.uc.edu

