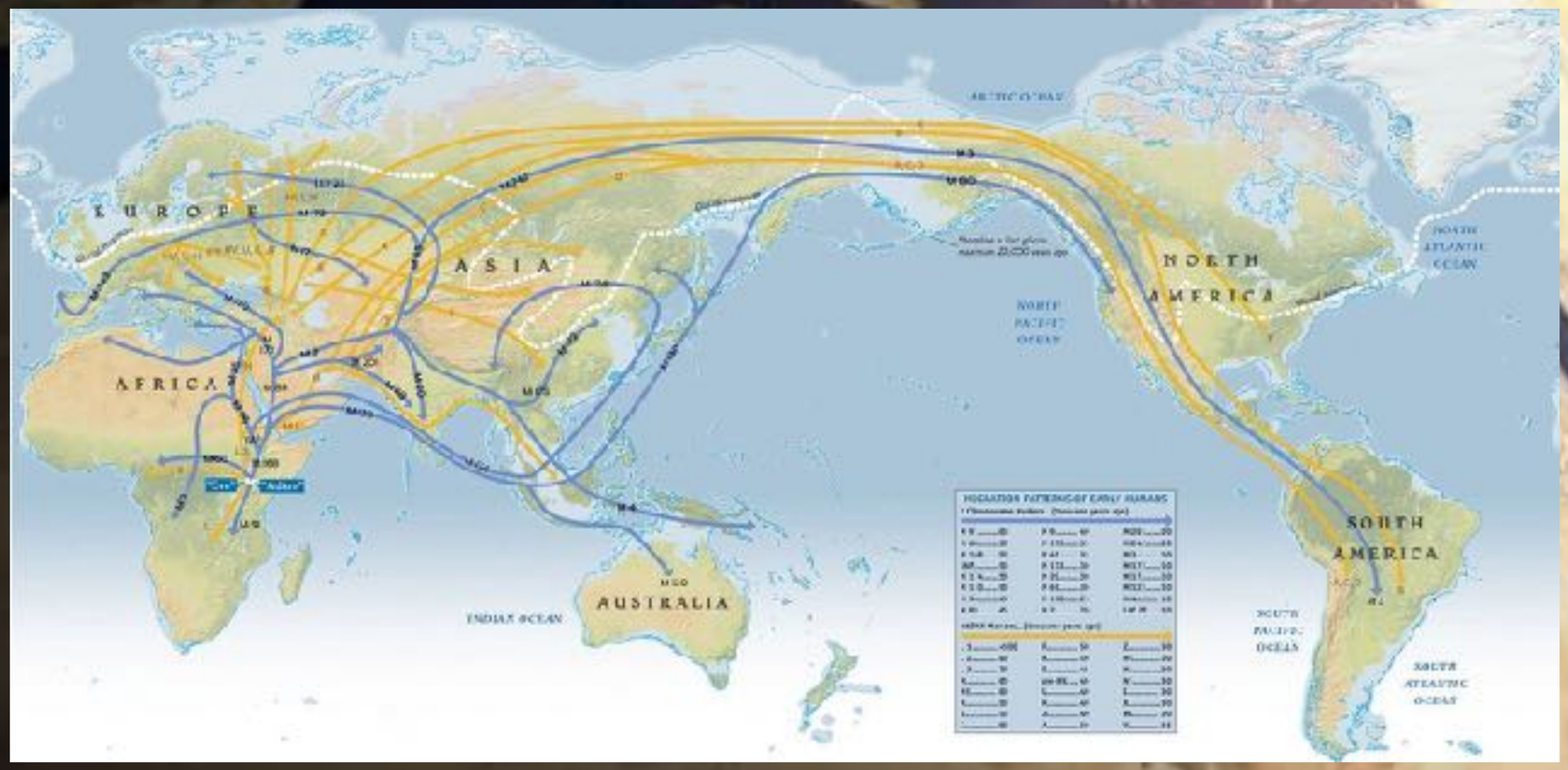
PROJECT

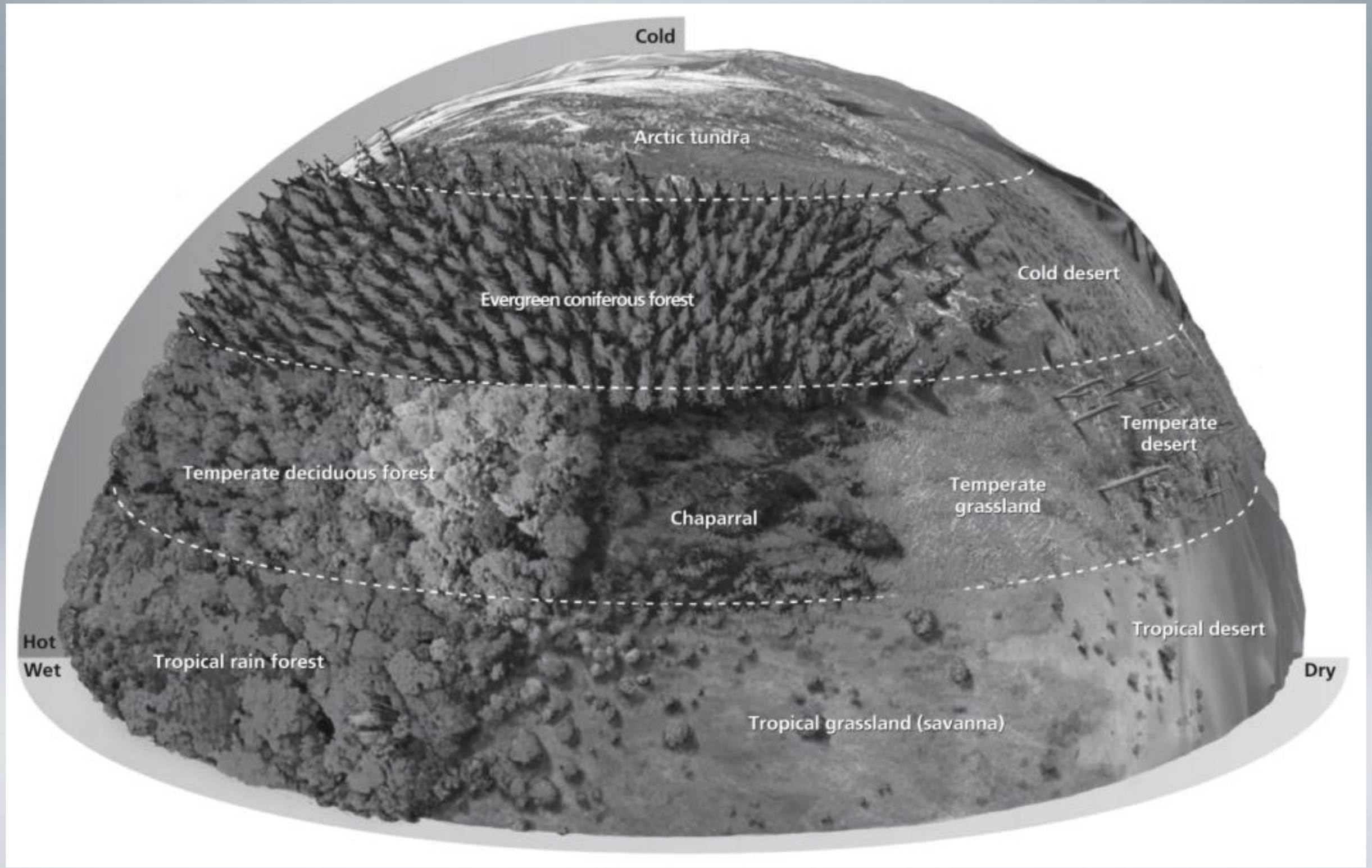
DRAWDOWN

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

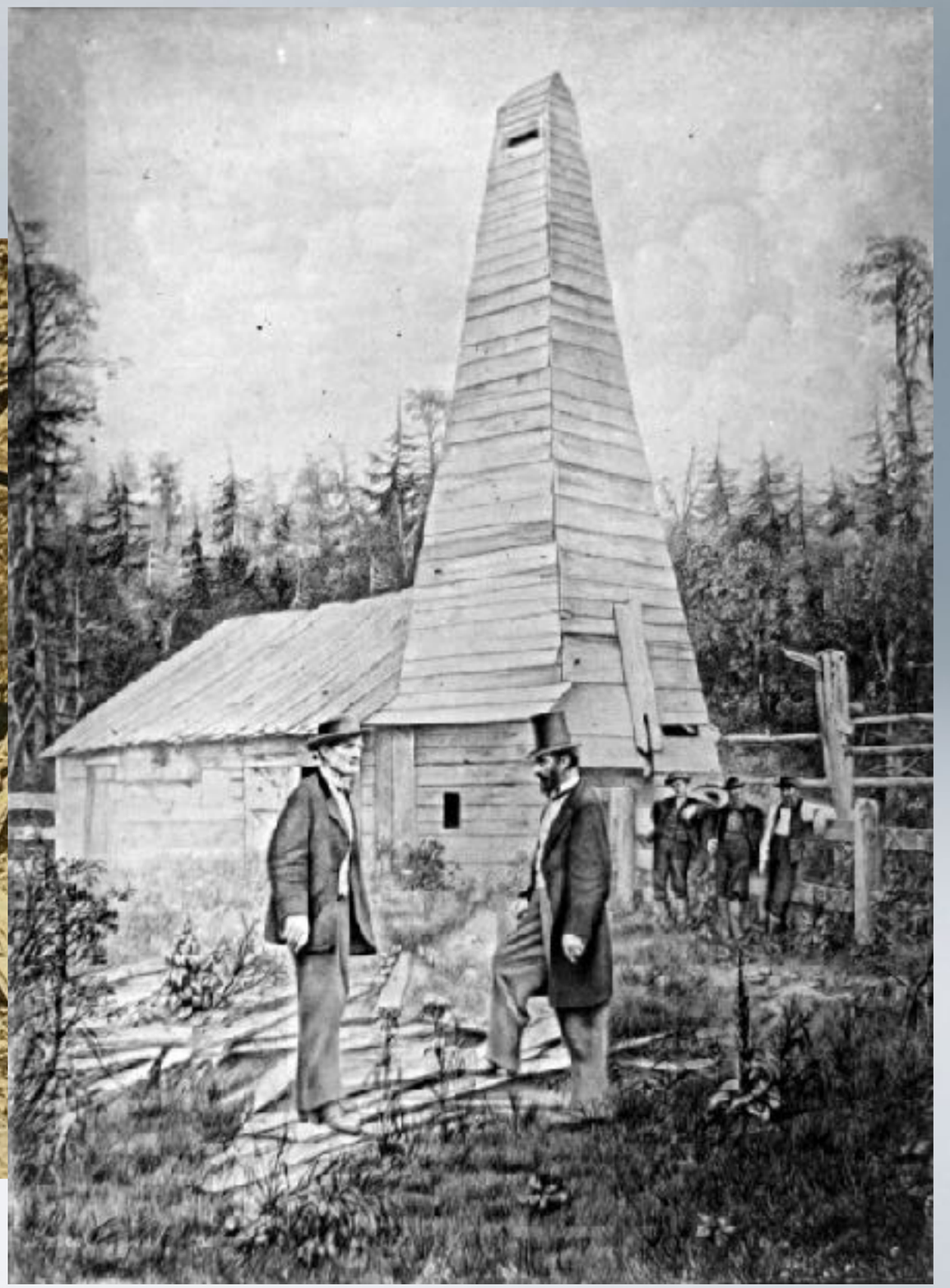


And We Adapted Genetically & Culturally

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:

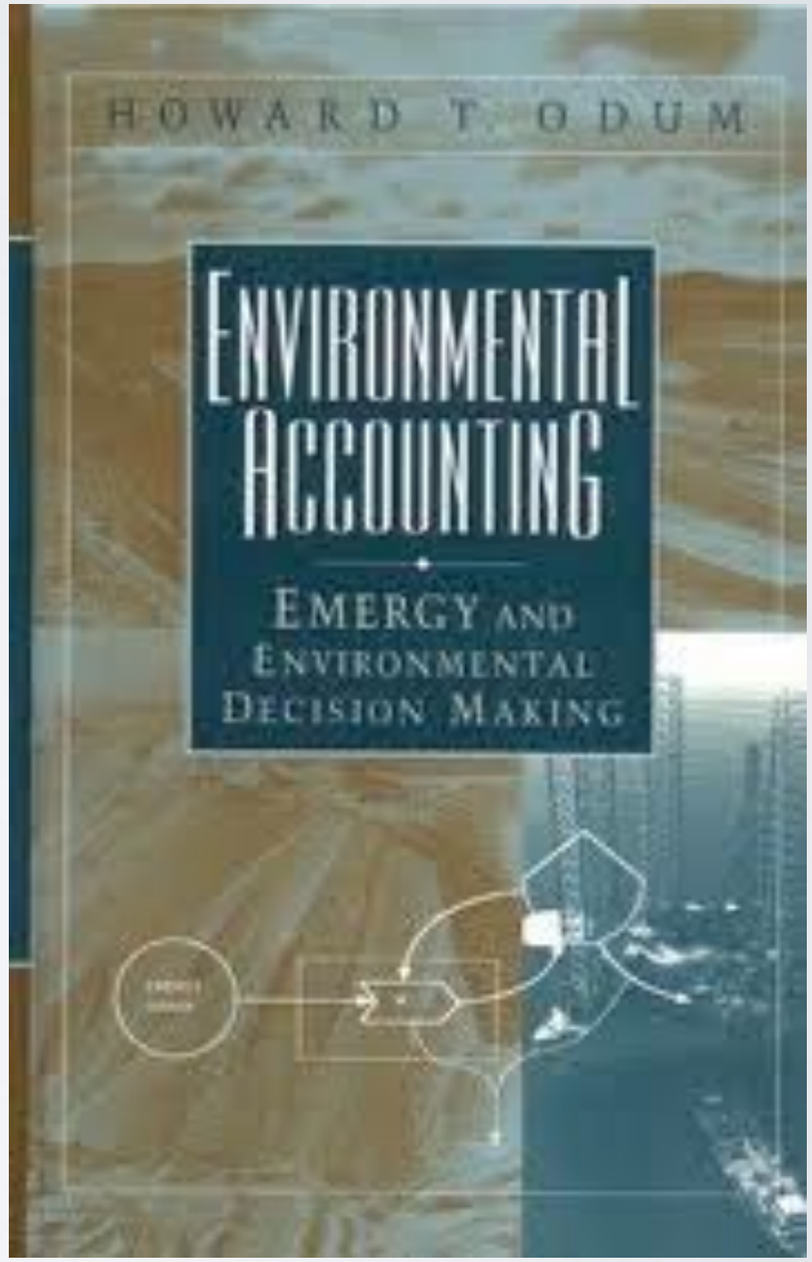
AWARENESS OF THE NET ENERGY ECONOMY

- Howard Odum: Emergy Accounting
- Quanitifies Energy invested from <u>all</u> inputs including ecosystems & sun to create energy
- Energy in vs. energy out (energy payback)

His Book:

"Environmental Accounting: EMERGY and environmental decision making."

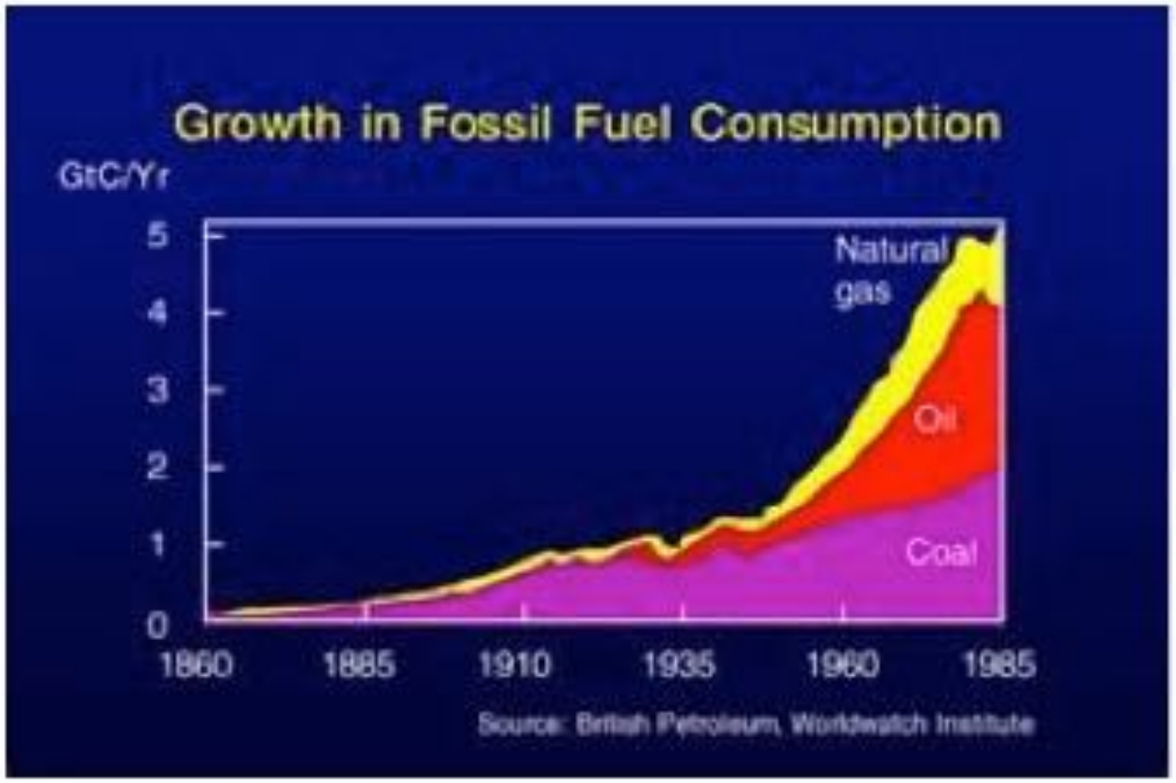
- *Seen as the benchmark for Global energy accounting*



POPULATION GROWTH

Exponential Growth & Desertification:

Accelerated by Fossil fuel

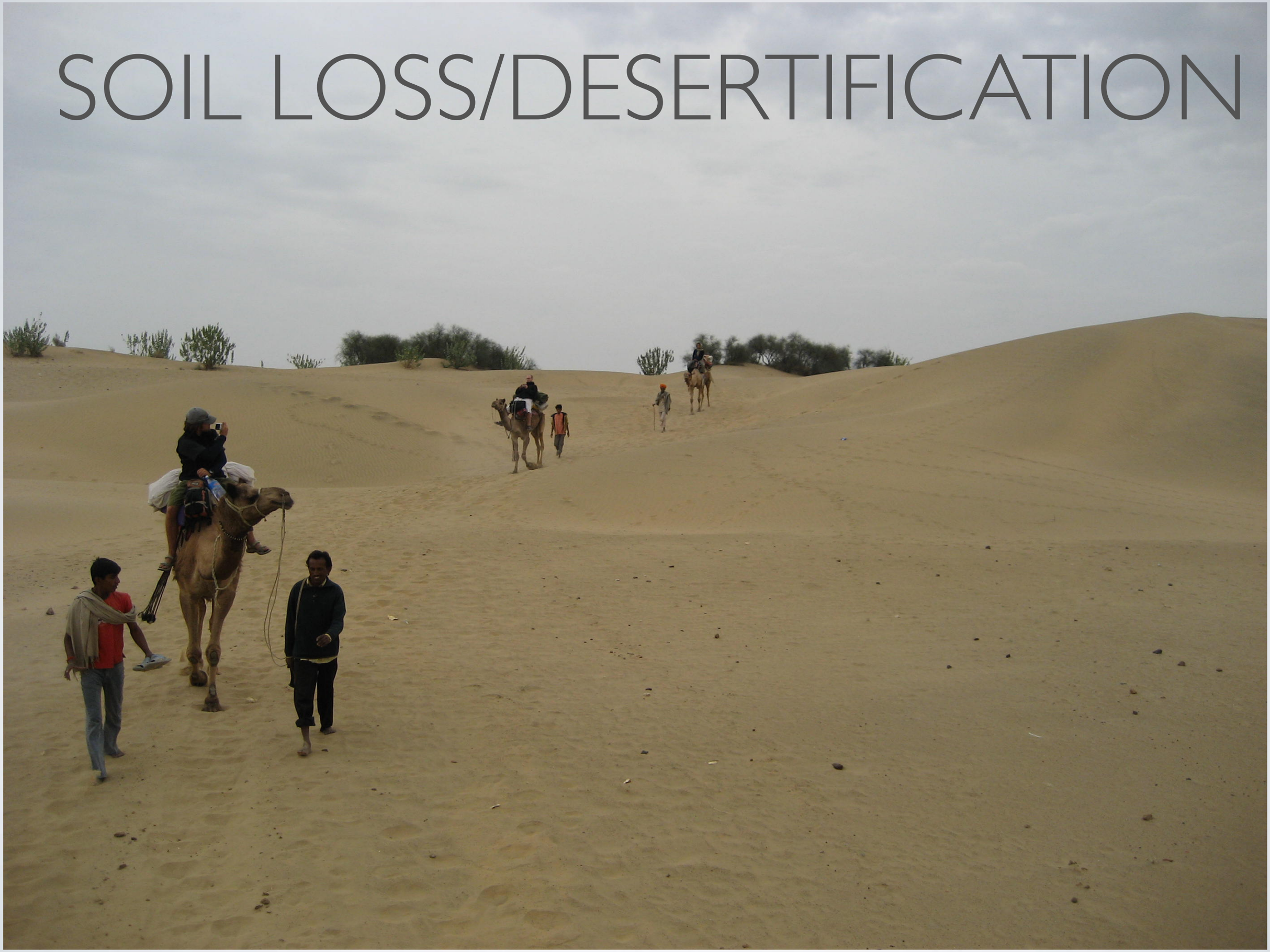


-Managing Population Growth is critical for stability

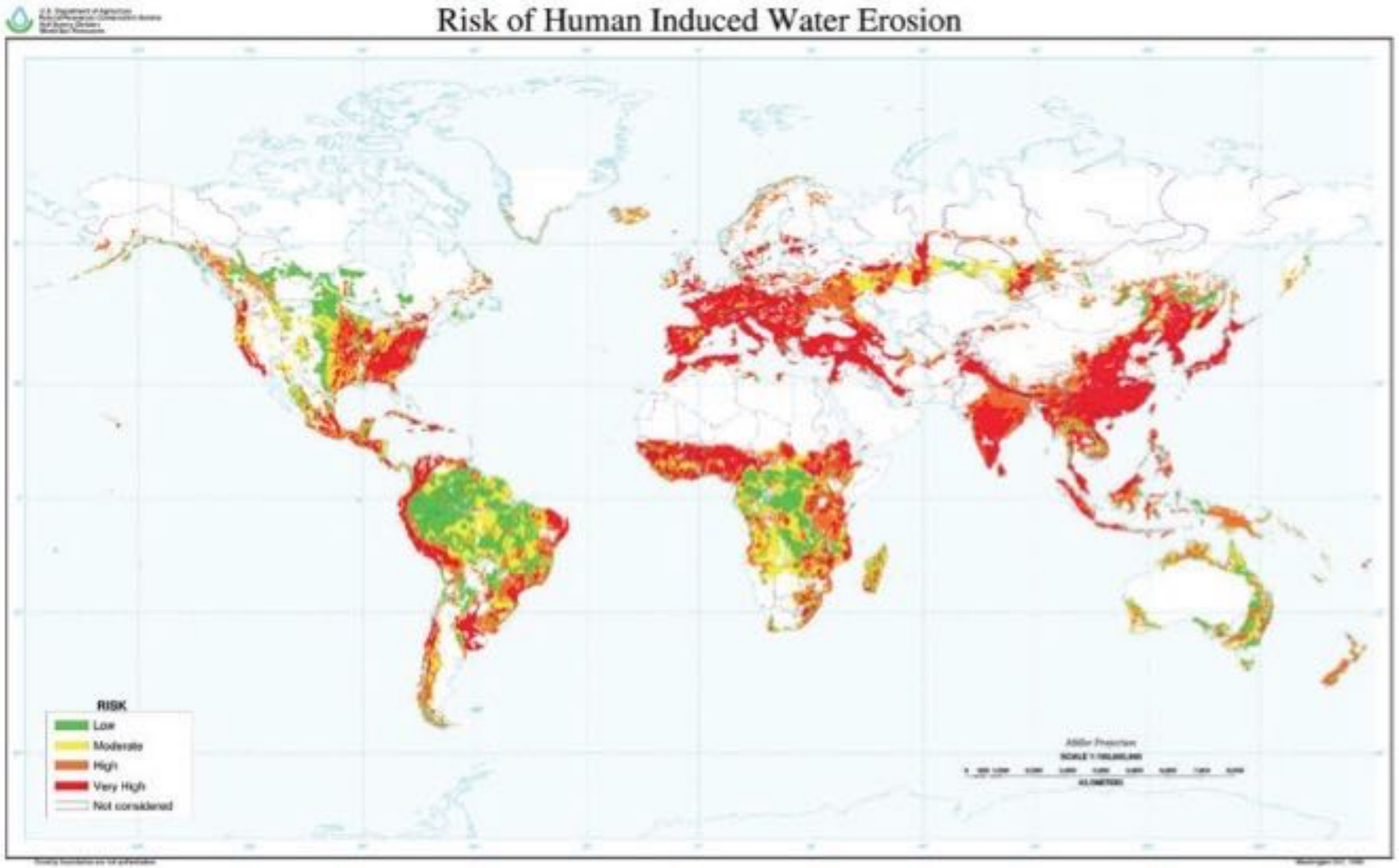
- an ethic of 1-3 children per family should keep us stable

SPECIES EXTINCTION: 6X

SOIL LOSS/DESERTIFICATION



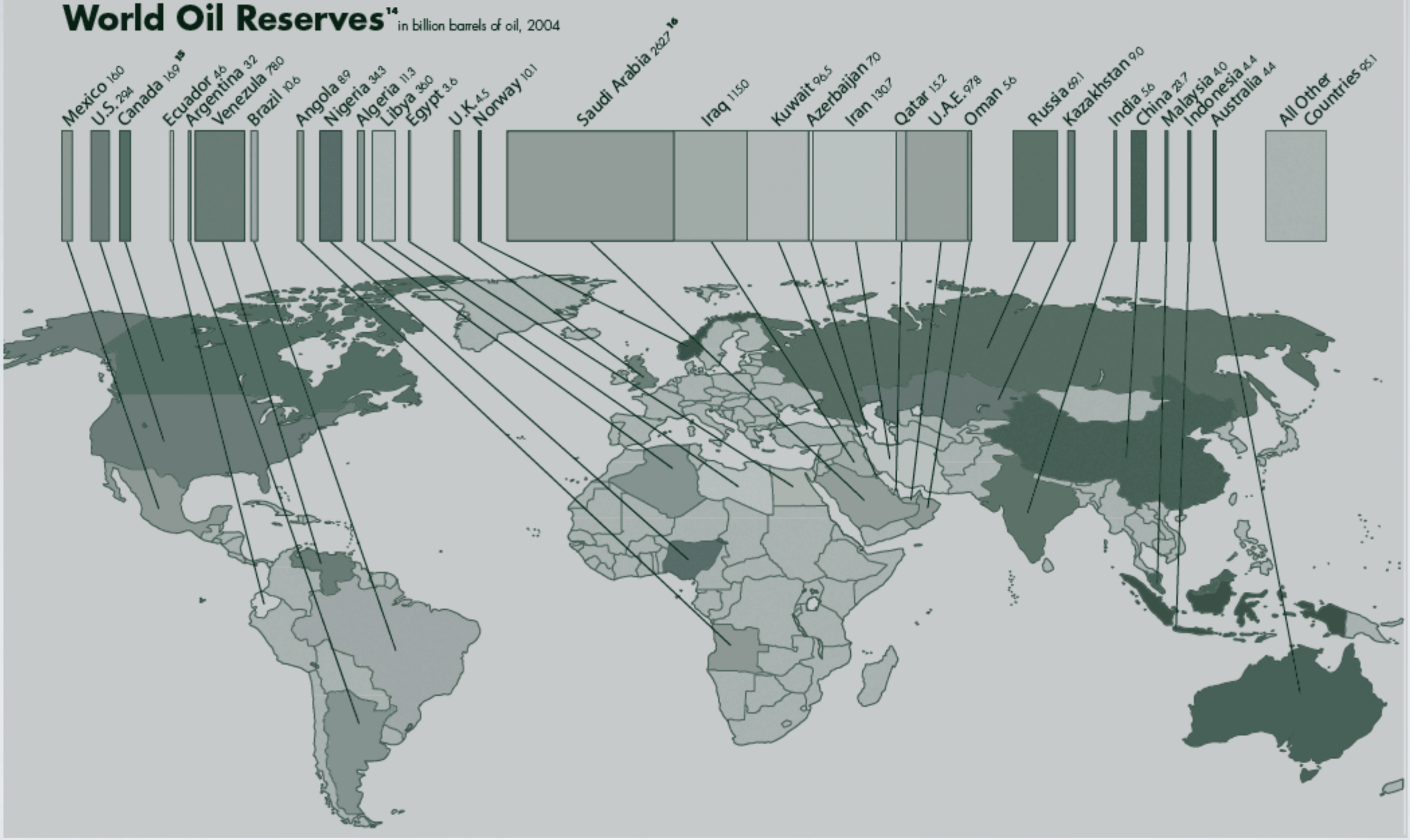
Rand Corporation Soil Erosion Study



EXPONENTIAL GREED:

PETRO-CAPITALISM

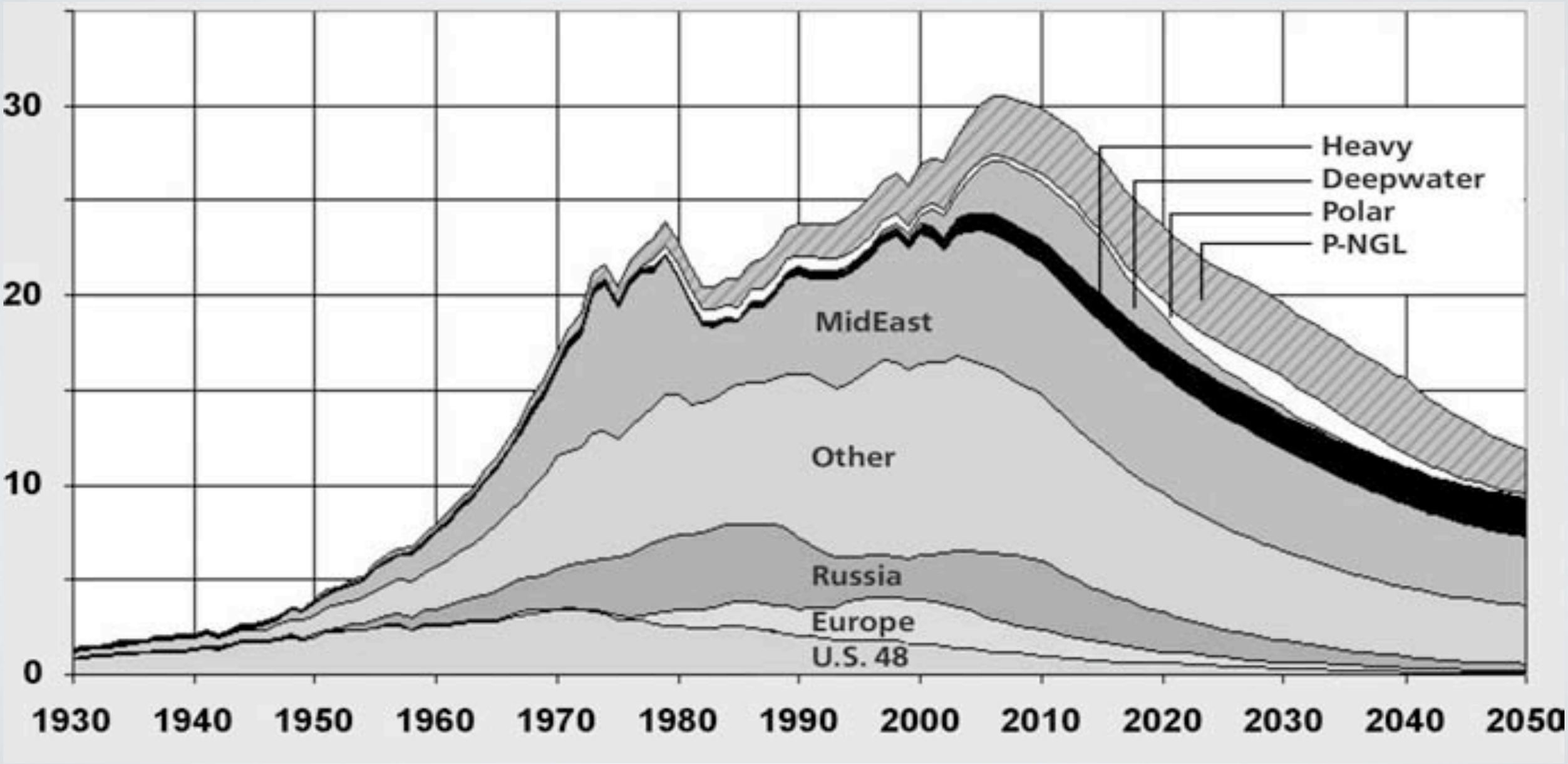
BILLIONS IN POVERTY


World Oil Reserves[14] in billion barrels of oil, 2004
Mexico 16.0
U.S. 29.4
Canada 16.9 [15]
Ecuador 4.6
Argentina 3.2
Venezula 78.0
Brazil 10.6
Angola 8.9
Nigeria 34.3
Algeria 11.3
Libya 36.0
Egypt 3.6
U.K. 4.5
Norway 10.1
Saudi Arabia 262.7 [16]
Iraq 115.0
Kuwait 96.5
Azerbaijan 7.0
Iran 130.7
Qatar 15.2
U.A.E. 97.8
Oman 5.6
Russia 69.1
Kazakhstan 9.0
India 5.6
China 23.7
Malaysia 4.0
Indonesia 4.4
Australia 4.4
All Other Countries 95.1

EMPIRE & WAR

PEAK FOSSIL FUEL

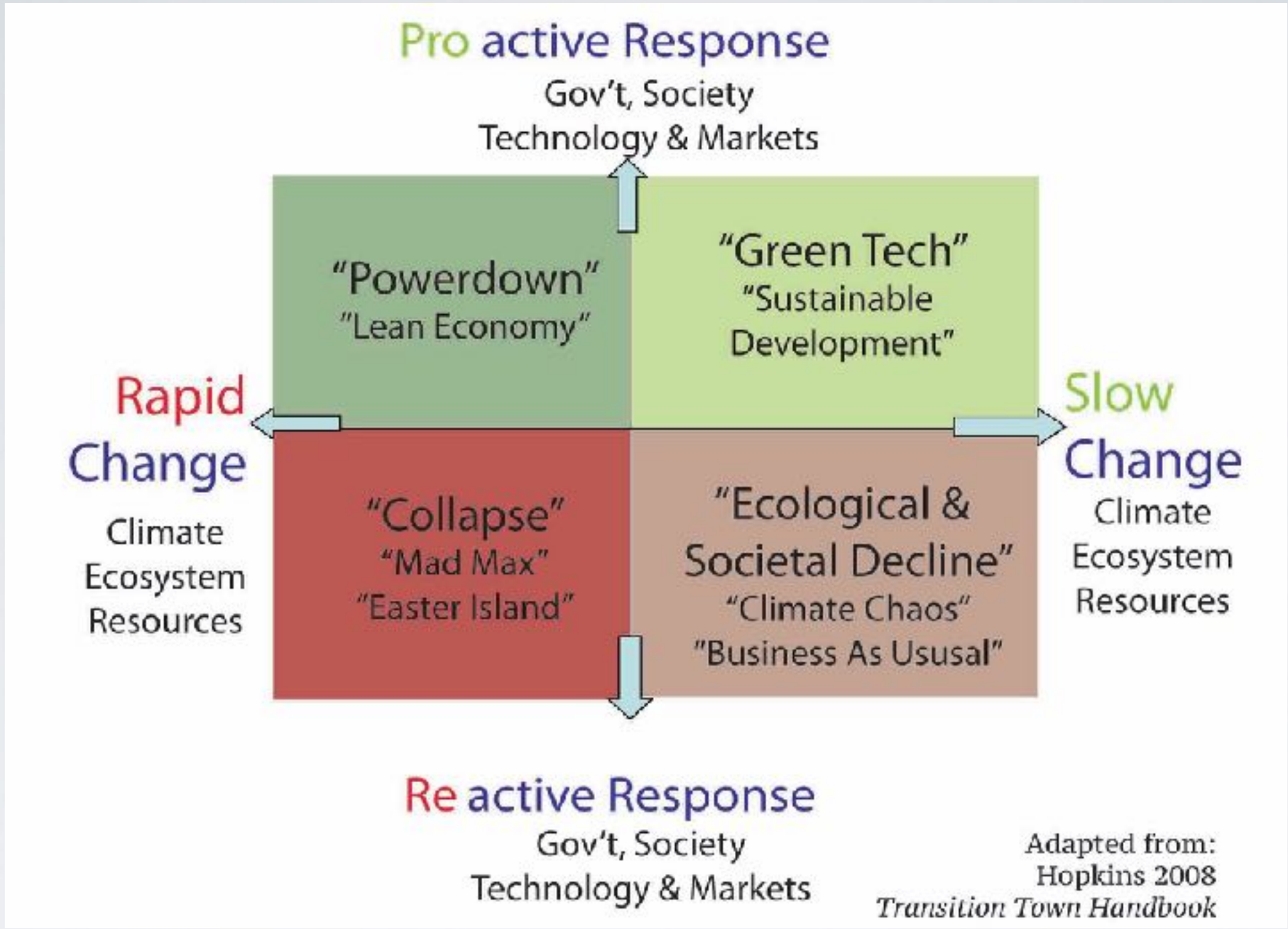
FRACKING IMPACT?



CLIMATE CHANGE

Annual Carbon Release & Sequestration

https://www.youtube.com/watch?v=x1SgmFa0r04



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**

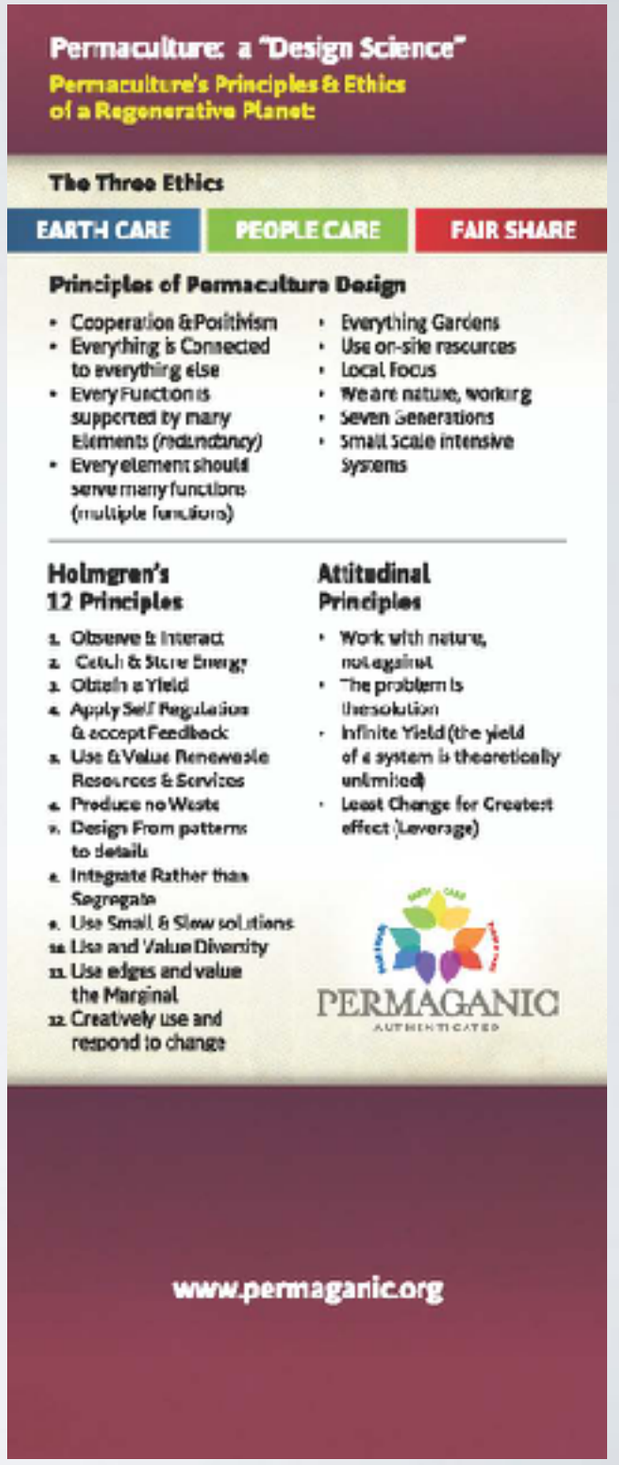
MATERIALS

- 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



Clean Cookstoves

WEEK EVENTS

- **<u>Wednesday</u>**:
  - Morning: Q&A
  - Evening: Local Food Potluck at Rhinegeist Brewery
- **<u>Friday:</u>** 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