



Challenges to Global Sustainability

- **Human unenlightened attitudes**
 - **Consumption per capita growth**
 - **Climate change**
 - Greenhouse effect and rising temperatures
 - Melting glaciers (Ponzi)
 - Rising sea level
 - Ocean acidification
 - Heat waves
 - Droughts
 - Increasing rain intensity
 - Storms
 - Disrupted ecology
 - **Extinctions**
 - **Pests**
 - **Water shortage**
 - Aquifer over-pumping (Ponzi)
 - Leveling off and shrinking of irrigated area
 - Urban v rural water competition
 - **Peak Oil and Rising oil prices**
 - Higher farming costs
 - Higher food prices
 - Switch to ethanol
 - Rising food prices
 - Increased costs of farming
 - More expensive fertilizers
 - More expensive use of farm machinery
 - More expensive food transport
 - **Food shortages and price rises**
 - Soil erosion
 - Overgrazing / over plowing leading to
 - dust storms
 - desertification
 - Water erosion
 - Increasing rain intensity
 - Loss of vegetation cover and absorption
 - Falling rate of growth in yields
 - Selective breeding 'played out'
 - GM failure
 - Loss of soil fertility
 - Water shortage causing grain price increases
 - Scramble for land / water
 - Over-grazing leading to urbanization
 - Herders v farmers
- Over-fishing (cod war)
 - Genocide – Ruanda
 - **Environmental Refugees due to**
 - Water shortage
 - Desertification
 - Hunger and malnutrition
 - Rising sea levels
 - **Market failure**
 - To respect sustainability thresholds
 - To make polluter pay eg \$3 gasoline should be \$15.
 - **Failing states**
 - Loss of power monopoly
 - Loss of law enforcement
 - Failure to provide basic services
 - Education
 - Health care
 - Food
 - Infrastructure
 - 120 point index
 - 2004 had 7 over 100
 - 2008 had 14
 - Most are in demographic trap
 - Low protection for endangered species
 - Migration from such states
 - **Disease**
 - Current avoidable deaths – malaria, HIV etc
 - Pandemics
 - **Population Growth**
 - Most future growth in developing countries
 - Carrying capacity 8 billion?
 - Increased consumption for capita
 - **Asteroids**
 - **Nuclear war**
 - **Bio-error and terror**
 - **Tectonic disasters**
 - **Genetic disaster**
 - **Nano technology**