SUSTAIN 2A03 Summary

Author: Kemal Ahmed
Instructor: Dr. Michael Mikulak
Course: SUSTAIN 2A03

Table of Contents

Chapter 1: Humanity and the Environment

Agriculture uses so much oil that biofuels probably use more oil than oil.

"We cannot experience climate, but we can experience weather"

*show the video about the sun to professor: http://youtu.be/UuYTcnN7TQk

Increasing albedo effect amplifies the effect of climate change, since more reflective, white permafrost is becoming dark soil.

"What difference does it make if humans caused climate change or not?"

Greenhouse gases trap IR, which, although necessary for maintaining a liveable climate, can have drastic effects if too thick. Think about Venus, which is, in fact, hotter than Mercury, although it is further from the sun, since it has more greenhouse gases.

Humans struggle with seeing long-term changes. Climate has been quite stable for the past 100k years, however, that has ensured the success of the agricultural revolution.

How much of climate change is natural? Some, but not all.

Sulfur and smog actually causes cooling? Certain greenhouse gases trap IR in and some gases keep IR in. For example, some people cover mountainsides with plastic tarps.

Read "The Long Emergency" by Kunstler

- peak oil
- "Every day, our world goes through ~1 million years of plant productivity"

A lot of people don't have interest in climate change, so they aren't motivated to act upon it.

Watch "An Inconvenient Truth"

360 movement

National Geographic Series: putting one person's lifetime of stuff in one spot

Holocene: post ice age
are we in the Anthropocene or Holocene?

Teacher's Blog? www.michaelmikulak.com/blog

You understand your product and have an emotional connection with the pieces when you know where you got it from.

Mustard Seed Co-op

hamilton.ca/climatechange
www.mapclimatechange.ca/maps.htm

Try to get McMaster to turn off their lights at night or have a 30 second timer for all lights, except for lecture halls.

Smaller companies are larger consumers, since they aren't as educated and they have fewer regulations that they need to follow

Meat farms consume much more in terms of emissions than other farms

Job losses reduce commuting costs

Share tools more

Encourage growing plants in backyards
Encourage washing in cold water

Improve dumpster diving: similar to how if companies can't sell clothing after a certain period of time, they can return it/sell it to Winners, there can be a company that buys the food or

companies donate to the program 3 days before expiry date/damaged food/food close to being destroyed.

Cars not only have an environmental impact from use, but also from manufacturing them.

Are we the only animals who are unsustainable?

Companies often fail because materials don't actually work the way they are supposed to. For example, corn starch bags don't biodegrade. Reduce and reuse before we recycle.

Blue box regresses from glass bottle deposits

Problem is more company-based than consumer-based

Taxation might cause increase in prices of products or out-sourcing.

Aspects of Sustainability

- Economic
- Environmental
- Societal

IPAT

- **I**: Impacts of given action on environment
- **P**: Relevant human population
- **A**: Consumption/person
- **T**: Impact per unit consumption

Worldwide GDP increases by ~3.5% annually

Rebound

Rebound: Increased consumption that negates an efficiency increase
Overconsumption: backfire

Jevon's Paradox

Technology will increase efficiency of usage of a resource, increasing consumption

$$I = P \times \left[\frac{GDP}{P}\right] \times \left[\frac{Q}{GDP}\right] \times \left[\frac{R}{Q}\right] \times \left[\frac{I}{R}\right]$$

Q: quantity of goods & services delivered
R: Quantity goods consumed to deliver goods
R/Q: Resource intensity
I/R: impact per unit resource consumed

$$R = Q \times \left[\frac{1}{\text{eco-efficiency}} \right]$$

In a world of finite resources, our consumption patterns cannot continue indefinitely.

Strong Sustainability: few trade-offs available between natural, human, and social capital available
Weak Sustainability: virtually no limits on trade-offs

Chapter 2: Environmental Policy

Major steps for environmental policy:

- American Conservation movement
- Rise of Environmental Risk Management
- Integration of social and economic factors

American Conservation Movement

balh

Rise of Environmental Risk Management

blah

Integration of social and economic factors

blah