

CVEN 4838/5838 Sustainability and the Built Environment – Spring 2004
D. Jonathan Seward, PA
Lecture Notes – Jan. 15, 2004

Read story of Ishmael – Awareness
Interconnections of the Environment

Readings – Required

Attendance Log – Perfect attendance increases grade by one letter grade (i.e. A-: A)

Participation 30%

Assignments Homework 40%

Term Project 30% (15% Paper [April 15th] & 15% Oral Presentation [April 22nd])

Anthrosphere

Field projects

EWB Pine Ridge (6 hours travel distance)

Rwanda March EWB TRIP

BIO-SO-MA

Biology Social Machine

Can't separate - interconnected

Sustainable Wind/Solar

Ecological Footprint

Sustainable Growth – Oxymoron

Cellular phones in developing countries

Assignment for next week:

Vital Signs Fact Sheet, Read A.A. Bartlett, Global Warming Student Worksheet

CO2 Emissions: 1 pound / CO2 / mile

19 mpg vehicle = 1 pound / mile of CO2 emissions

SI units = 2.2 kg CO2/liter

1.92 square meters of average forest to sequester one kg. Of CO2

1.92 square meters = 0.0019 hectares = 207 square feet

1 hectare = 2.47 acres

Columbia Gaviotar: A Village to Reinvent the World (Sustainable village)

How does sustainable systems work with non-sustainable systems?

Microclimate changes: increase in temperature for downtown urban environments compared with the surrounding temperature.

Sept. 27-29 Sustainability Workshop
Sept. 29-Oct2 Sustainability Conference

Community Building Conflict Resolution and Peace
“Working Together” Next year’s conference

Uses for sustainability: refugee camps, remote military sites

33% of Aluminum is recycled. Core mineral mined – Bauxite.
If the other 67% were recycled in the U.S. all the aluminum in the U.S. fleet of jets could be replace every 3 months.
If the other 67% were recycled in the U.S. all the aluminum in the all of the worlds fleet of jets could be replace every 12 months.

Read Book – *Sharing Nature’s Interest*, 2002, N. Chamber, C. Simmons, M. Wackernagel.

Ecological Footprint

Every organism, be it bacterium, whale or person, has an impact on the earth... The key question is whether this loads exceeds...(the ability to support this load).

Ecological footprint in reference to land – biologically productive land.

Measures how much productive land and water area (Biological productive space) A population, an individual, city, country, or all of humanity requires to absorb all the resources it consumes and to absorb all the water it generates.

(Natural Capital) = (Available biological productive space) – (ecological footprint.)

Surface area of the earth	51 Billion Hectares
Ocean	36.6 Billion Hectares 72%
Land	14.4 Billion Hectares 28%
*Biologically Productive Land	11.4 Billion Hectares 22%
* (Biologically Productive Land 9.1 Billion 9.1 Billion + Biologically Productive Water 2.3 Billion)	

Equivalent productive land cropland, fiber, Etcetera.

Population 6.1 Billion people on the earth

Biologically Productive Area 1.9 Billion hectares / person on the earth (2002)
(Space for other species?)

Biologically Productive Area 1.1 Billion hectares / person on the earth (2030 Projected)

Environment Impact of population in comparison to sustainable measurement variables.
 Biologically Productive Area 1.9 Billion hectares / person on the earth (2002)
 - Average Ecological Footprint 2.3 Billion hectares / person on the earth (2002)
 Ecological Deficit <0.4> Billion hectares / person

Location	Population In Millions	Ecological Footprint	Current Capacity	Deficit
World	6,210.1	2.3	1.9	-0.4
USA	288.3	9.6	6.0	-3.6
Canada	31.2	6.9	15.9	9.0 (Surplus)
Mexico	100.8	2.4	1.8	-0.6
China	1,284.2	1.6	1.1	-0.5
India	1,053.4	0.8	0.7	-0.1

20% or larger ecological footprint than current capacity ->> 1.2 year equivalent.

In conclusion, we are liquidating natural capital to support current recourse use, thereby reducing the earth's ability to sustain.

In 1961 we were using approximately 0.7 Earths. In 2002 we are using about 1.2 Earths.

Sustainable development: Improving the quality of life while living within the carrying capacity of supporting ecosystems.

Sharing Natures

24 Average acres Goals setting

Lecture Next Tuesday on Population

Do we really have a problem?

