Benjamin Linder / Sustainability

What is this project doing to the environment?

Graph from WWF, Living Planet Report, 2006
Human Development and Ecological Footprint
Income - standard income vs purchasing parity
Health

Our quality of life is linked to our environmental impact
It is not completely linear
The last 20% of human development makes a large difference

Definitions of Sustainability
Bruntland Commission Definition - has been quoted endlessly
People, Profit, Plant - John Elkington
Widely adopted by business
Both have serious flaws associated with them

Environment > Society > Market
The market has to pass through society to interact with the environment

Meadows, Randers and Meadows, Limits to Growth, 2004 (Figure)
Sources or Sinks

Hopenhagen - marketing ploy to surge around Copenhagen
Successful? Maybe not (poll in class shows little awareness)

Natural Capital
Talking about the resources of the environment and the services they provide
16-54 trillion US$ (when global value of market was 30 trillion)
raises questions, are we creating value as humans with technology?

Around the world, a big natural resource is Fuel
(in various forms)
Gas / biomass /
Species Extinction
25% by 2050

Carrying Capacity of Resources
1. Measure carrying capacity
   (hard to do in dynamic system)
2. Have to stay under carrying capacity
3. Have to be well adapted

Example of collapse of Atlantic cod in the pacific

Resource Footprint
Example of London needing more land than has land for
Have to go an extract resources from elsewhere (ie developing countries)
WWF living Plant Report

(f fig 20)
Ecological Footprint and bio capacity by region, 2003

350 - 350 ppm carbon in the atmosphere
We are currently growing at 2ppm/yr
Gives us 20 years to sort this out
Increasing a standard of living is not the same as an increase in consumption. There are examples of high standards of living that don't have the impact of the US (WWF Living Planet Report Fig 22).

Energy Consumption and relation to Population (US)
- When wood was main source, population was very bound to natural resources
- Gas and fossil fuels have decoupled the relationship

Law of the Minimum
- Globalization & trade, allows us to maximize our use of carrying capacity
- Not a lot of room for error
- Artificially sets a population limit

Define Context
- Need to define a context to characterize resource consumption
- Population / resources / carrying capacity
- Can't talk in the abstract
- Manage to this context and what is available
- Define Resources
  - Use fewer resources / Use better resources / Abundant resources
  - High quality resources
    - Managed resource

Selco & Envirofit examples
- Solar lighting where other fuels weren't there made sense in rural India
- Retrofitting 2-stroke engines to improve fuel use and decrease environmental impact
- Both Selco and Envirofit are going towards stoves
  - The stove represents an Energy Challenge

In Class Energy Challenge
How long before ceramic liner in a stove pays for itself?
20kg Steel / Ceramic Liner 5kg

To Act, you have to come up with a number yourself that you feel confident in.