

BIOS 106 - Environmental Biology - Fall 2011

Lecture 40 (2 December)

Final on Monday at noon!

Politics, Laws, and the Day After Tomorrow (cha. 23 – 24)

As “cap and trade” schemes for carbon dioxide demonstrate, economics and economic solutions to pollution quickly blend into politics....

Table 24.1 lists major U. S. environmental laws (most of these passed during the Nixon administration):

National Environmental Policy Act of 1969 which requires Environmental Impact Statements for any development project involving federal lands or funds: highways, airports, subways, flood/erosion control, plus anything on federal lands....has had a very large impact...

Clean Air Act of 1970—air quality standards for primary and secondary pollutants; 1990 ammendment invented “cap and trade.”

Endangered Species Act 1973—based on questionable views of the relationship between diversity and stability; in 1980s and early 1990s this led to extremely contentious dispute in Oregon and Washington where old-growth forests were being logged, but the spotted owl lived in these forests and nowhere else.... Probably the value of this law has been that habitat is protected (but there is a cost to this). Current controversy about whether wolves will no longer be considered threatened in the Greater Yellowstone ecosystem: real issue is habitat protection.

Safe Drinking Water Act of 1974—led to EPA rules on radium in drinking water, among other specific regulations.

In reality, legislation may not be much different from taxes; e.g., cap & trade functions to tax polluters; in other cases there are fines if law is broken; fines can act as a tax.... It may be, however, that less regulation is more efficient—this is the advantage of cap and trade....

Generally, the problem with any approach is that it is vulnerable to politics; the right amount of campaign contributions can make unfavorable legislation go away. Hence the controversy about campaign contributions, part of the broader issue of power

Will such legal and economic approaches resolve environmental crises?

Original Club of Rome model (**Figure 23.15** and **23.16**) model was rather pessimistic in this regard. First iteration of the model resulted in resource limitation (resources run out, society collapses) that arguably could have been caused by environmental regulation (this first iteration isn't figured in your text). Second iteration with abundant resources resulted in a toxic environment due to huge rise in pollution (**Figure 23.15**). Later iterations somewhat more optimistic (**Figure 23.16**). A major part of the conclusions was that success or failure to build a sustainable future will depend in large part on the technological innovation that was included in later models.

“5 technologies that could change everything”: everyone has their own list....

But the wild card in all this is global climate change. Thus “the day after tomorrow” leaves us with many questions:

Will the next round of negotiations on carbon emissions (beginning Monday in Durban) come up with workable caps? Don't hold your breath (meetings in Nairobi, Bali, and Copenhagen failed to do this). At this point, rapidly developing economies (BRIC countries) and developed economies (EU, Japan, to some extent US) can't agree. EU takes a moderate stance, but their voice is greatly weakened by the Euro zone crisis.

Will global climate then stabilize? (note that stabilizing emissions does not stabilize the amount of carbon dioxide in atmosphere, this in fact keeps increasing as long as fossil fuels are combusted)

Keep in mind that human-caused climate change is at most only part of natural climate cycles:

Are we entering another warm period similar to the Medieval Warm Period, to be followed by another Little Ice Age?

Will these climatic oscillations become more and more dramatic until another Ice Age begins?

Will human agriculture and civilization be sustainable if another Ice Age begins?

Can we learn to manipulate global climate? (this would be a bit like steering a giant ship with a tiny rudder....)