**Lecture #6**
**20 January 2011**


I. Introduction
  A. Debrief on ToC papers
    1. Causes might include:
      a) main cause is simply open access (i.e., non-restricted access) or having it be a "commons" rather than private.
      b) self-interested actors– if ALL are altruistic, then problem doesn't arise.
      c) total demand of all actors has to exceed carrying capacity – if you have a large resource but only a few actors who only place a small demand on the resource, then there won't be a tragedy (big fishery with only a few small boats fishing it won't create one).
    2. Solutions: any solution that restricts usage, including: privatize the resource, require permits or otherwise restrict access of number of users (an access charge per USER), create a charge per UNIT of usage (e.g., per fish caught). Basically, total demand on the resource has to be constrained. An alternative, is creating a strong social norm.
  B. Identifying international environmental problems
    1. What determines whether a problem becomes an international environmental problem that states feel they need to do something about? When DO states begin to take action on a problem?
    2. When should we begin to take action on a problem?

II. Readings for today – issues to think about: Tesh and Williams article – should we believe "disinterested politics" or "identity politics" type arguments? What's the difference? What's the relationship between them? What role should science play? What role should identity politics play? How do we tell them apart?

III. Scientific:
  A. Problem: lack of knowledge
    1. About the problem and its causes
    2. About the potential solutions to the problem
    3. Problem lies in the research and scientific community's lack of knowledge
  B. Solution: technology and information will allow us to respond and adapt to changes in the environment quickly enough to drive down the pollution intensity factor in the pollution equation.
    1. Turn to science and scientists for the answers. Better monitoring of environment and analysis of data will allow us to understand how humans influence the environment. Better research into technology will allow us to find ways of remedying problems once we identify them. Classic case is ozone hole. Another example, however, might be Malthus who saw the problem as an arithmetic increase in human ability to produce food being matched by geometric increase in population.
  C. General points on science
    1. Values involved in all science. But that doesn't mean that science is just as self-interested as politics. Not without self-interest, but do have criteria that they use. May not like criteria, but they are adhered to by scientists, though to varying degrees.
    2. Science contributes to a largely political process and must be seen in that light. Science and politics can not, and probably should not, be isolated from each other.
    3. Uncertainty plays important role
    4. "Science in politics" as a participative process: Acceptance of scientific "facts" requires involving many interested parties early in the process of identifying and analyzing the facts. Options: Secretariat does science; Secretariat screens independent science; appointed scientists; joint science - IPCC
    5. Roles of scientists:
      a) Trend spotters - what's happening to value of DV and IVs over time;
      b) Theory builders - what IVs are supposed to be cause of variation in DV?
      c) Theory testers - are these IVs really the cause of variation in DV?
      d) Science communicators - communicate complex/uncertain info to nonscientists
      e) Applied policy analysts - what are implications of science for policy?
  D. Will talk more about what role scientists should play in a few lectures.

IV. Influence of international scientific assessments
  A. Research project based at Harvard at http://environment.harvard.edu/gea/
  B. Basic findings of research. Sense of the research process.

1. Empirical puzzle: some scientific assessments have influence, others sink without a trace. So, question is why, or put more precisely, what are the conditions under which scientific assessments have influence?
2. International scientific assessments have influence
    a) who participates in policy debates,
    b) whether people consider there to be a problem and how they frame it,
    c) strategies about response,
    d) whether issue moves from discussion among specialists to political agendas to policy implementation and behavior change.
3. Influence of assessments is a function of:
    a) saliency, or the perception of relevance,
    b) credibility, or the perception of scientific accuracy; and
    c) legitimacy, or the perception of fairness.
    d) Designing an influential assessment requires managing the tensions and tradeoffs that exist between these attributions. Efforts to bolster one of these attributions often undermine another and inadequate levels of any of these attributions in the eyes of a particular group of actors is likely to jeopardize an assessment's influence with that group. Influential assessments require that the tradeoffs among salience, credibility and legitimacy be balanced such that thresholds for all three are satisfied, and satisfied simultaneously for multiple actors.

V. Causes of when states begin to take action on a problem. What sorts of problems won't states take action on?
A. Scientific knowledge
    1. Regarding causes and effects
    2. Need to be able to see effects
    3. Then need to be able to determine and decipher causes: experiment in nitrogen article took 12 years; "Dead zone" in Gulf of Mexico off Louisiana
    4. International institutions may be created to facilitate scientific knowledge: EMEP in LRTAP, IPCC in climate change, Ozone Trends Panel in Montreal Protocol
    5. Level of uncertainty and consensus on effects and causes
B. Public "saliency" of problem: transparency and visibility of harm to the public: ocean oil pollution vs. ocean chemical pollution
    1. What if public doesn't see or feel effects?
    2. What if public sees and feels effects, or identifies causes that scientists say don't really exist? Tesh and Williams argument about "identity politics" vs. "disinterested politics." Examples of fetal monitors, breast implants. In US, its when public considers more things to be problems than scientists do. In developing countries, its when public considers less things to be problems than scientists do: "The smoke is so thick in the classrooms that students can't see what is written...but there are no health problems" (NYT).
    3. Public priorities differ from those scientists say are priorities: concern about loss of whales but not about loss of sharks; breast cancer vs. heart disease threats to women
    4. Role of media: "one reason why many Asians are oblivious of the environmental risks, and therefore inclined to add to them, is that much of the region lacks a vigorous free press and dynamic political opposition to point out the problems" (NYT). "While ordinary citizens may complain about the degradation, they are also among the biggest offenders. In the Indonesian forests, for instance, some of the fires were set by ordinary villagers" trying to clear land (NYT).
    5. Activists can alter political and public saliency.
C. Costs and benefits
    1. Level of problem - nitrogen case we are doubling it, CO2 adding 5-10%
    2. Do all parties see as a cost? Degree of value conflict; complexity of problem; centrality to societal infrastructure
        a) If major value conflict, may not reach agreement
        b) Some may see as a benefit
    3. Even if see as cost, is it worth benefits to change behavior: Cost of changing activity: compare climate change to ozone depletion
        a) Consider a local problem in a developing country: must spend money today for future and uncertain benefits while could spend same money today for present and certain benefits.

b) What if Chinese factory shuts down? "If the factory was forced to close, the increased local poverty would almost certainly lead to more people dying of mundane diseases and fewer children being able to afford to go to school. So officials at the factory, which is only marginally profitable, are not at all sympathetic to the peasants" (NYT article). Even small increases in production costs would close factory.

D. Incidence of costs and benefits - Who benefits or "qui buono". Is there a proponent for action capable of pushing it onto agenda.
   1. Who's responsible for harm: North vs. South; industries vs. individuals; many or few. Wettestad refers to this as "political malignancy of problem"
   2. Nuclear vs. deforestation - both due to energy
   3. Are all actors both winners and losers; polluters and victims? Or are some victims while others are polluters?
   4. Diarrhea, river blindness, desertification: other problems noted in articles on China. If its a developing country problem, its not a global problem?
   5. Need not be a state, could be scientists or an NGO: wetlands case

E. Political and institutional context
   1. Is there an institution for dealing with it?
      a) Compare acid precipitants in Europe (dealt with via many protocols to LRTAP) vs. elsewhere (hardly dealt with at all)
      b) Compare vessel-source marine pollutants (dealt with globally in IMO) vs. land-based pollutants (dealt with on ad hoc basis)
   2. Critical loads approach of 2nd SO2 protocol of LRTAP – can build on previous errors
   3. Détente in LRTAP case: If had been in midst of Cold War, might not have had agreement. If don't have an interdependent relationship in other arenas, polluter has no reason to care about environmental externality imposed on others through environmental interdependence. Can't resolve any environmental problems or negotiate environmental regulations with Iraq, Libya, or Cuba at present.

VI. When SHOULD we act to address a problem? Case of nitrogen fixing in soil

A. Kinds of problems:
   1. Problems we don't know enough about yet – nitrogen problem: Nitrogen Fixing - An Emerging Environmental Probem? - New York Times article and original article in Science
   2. Problems that don't exist – health scares that weren't, breast implants. Notice this raises Tesh/Williams type issues.
   3. Problems that exist but have benefits that exceed their costs and risks – Carter article

B. Which of the following two problems should we address first?
   1. One causes 2.2 million deaths per year and the other causes 0.5 million deaths per year?
   2. One is caused by industry and the other is caused by people?
   3. How do you avoid 2.2 million deaths per year from indoor pollution from cooking and heating fires? 0.5 million deaths per year from outdoor pollution? Which should you attack first?

C. Triple threat: excessive nitrogen fixing contributes to climate change, ozone destruction, kills living things
   1. Decreases level of biodiversity by facilitating growth of "high nitrogen" type plants
   2. Death of plants leads to nitrogen going into soil and then water causing eutrophication and declining water quality
   3. More plant growth caused by nitrogen does not fix more carbon

D. Should science have an impact on institutions? Much research assumes scientific input is a good thing, that it helps create a more "rational" process. Is this right?
   1. What are benefits of scientific involvement?
   2. What are costs of scientific involvement?

E. If scientific input is a good thing, how can we foster it? If not, how can we avoid it.