ESM 202 Environmental Biogeochemistry

Assignment #3

Due: Friday 02/09/2007 (email to Darcie)

Solutions

Although going through the various problems generated by human activities that affect biogeochemical cycling seems like just "gloom and doom", we have also briefly seen some solutions in the horizon for different problems like eutrophication, emissions from coal combustion, acid mine drainage, toxic metals, air pollution, etc. This assignment is focused on thinking about these solutions, allowing you to dig deeper into a particular issue and figuring out the advantages and disadvantages of a particular solution. After all, if the solution was simple, we wouldn't be worrying about it, right?

Pick any one of the problems we have discussed in the lectures so far (e.g. eutrophication, combustion of coal, acid mine drainage, toxic trace elements, mercury in specific, etc.) and do some web-based research on a particular solution, or a couple of proposed solutions. You are welcome to explore solutions not mentioned in class. Gather information on

(1) How does it work?

(2) How much does it cost (some unit cost info)?

(3) What are the limitations?

(4) Are there some useful case studies that can be relied upon?

Also, some useful graphics may help. Using this information, write a short (2-3 pages, 12 point font, 1" margins, 1.5 line spacing) summary of your findings. Be brief about describing the problem. You are welcome to pick a real or hypothetical site, if that helps you to think about the solution. Most of your summary should focus on the solution. Answer as much as possible the four main points. Be critical of the information. Cite your sources. At the end, provide a recommendation – do you think it does work, or do you think the disadvantages are too large? Are there policy barriers

that need to be overcome, or incentives that need to be provided? You are not promoting the solution, just assessing it.

If you feel that it is useful, you can formulate this as a summary recommendation to use, or not to use, the proposed solution for your environmental organization. Keep the language simple, yet use the scientific information you have picked up in class. The following grading guide should be useful for you in terms of figuring out how much to emphasize different parts of your answer, as well as format and presentation:

Description of problem:	10%	
Description of solution (general public):	5%	
How does it work (science):	10%	
How much does it cost:	5%	
What are advantages/disadvantages:	20%	(think beyond their rhetoric)
Case studies:	5%	
Policy/econ considerations:	5%	
Summary recommendation:	15%	
Clear writing/presentation:	15%	
Adequate citation of sources:	5%	

Make sure you proof-read your document and have clear logic to all statements. You are welcome to have a classmate read it and let you know whether it makes sense. If you collaborate on your research, make sure <u>your</u> document is clearly an individual effort.