

AAE / ECON / Env. St. 343
Environmental Economics

Homework #5
Due in class on Tuesday, October 28, 2008

Provide short answers to the 6 questions below. Required Readings:

Yardley, W. 2007. "Climate Change Adds Twist to Debate Over Dams." *The New York Times*, April 23.

1. Suppose that it is your intention to live the life of the philosopher-hermit soon after graduation from UW; you believe that the meaning of life truly can be found only after spending three years alone in the woods. It turns out, though, that even hermits have cash flow problems. To rent the appropriate cottage for your philosophizing will cost \$3000 per year. Given that you plan on renting the cottage for three years, starting five years from now, how much money would you need to invest now if you can earn 4% on your money? What about 8%?
2. Suppose the city of Madison is considering construction of a new park. The land is purchased in year zero (the current year) for \$200,000. Also in year zero, development costs will be \$300,000. Regular maintenance costs of \$50,000 will start in year zero and continue forever. In addition, a one-time maintenance cost of \$110,000 is incurred in year 1 only. Benefits of the park are in the form of higher home values and are estimated at \$100,000 per year, and are obtained in year zero and continue forever. Madison's property tax revenues associated with homes near the park increase by \$10,000 per year, and are obtained in year zero and continue forever. The discount rate is 10%. Assume all benefits and costs are measured accurately, and that there are no other benefits or costs. Will the park yield a potential Pareto improvement? Show your work.

Questions 3 through 6 refer to the Yardley article on dam removal. For questions 3 and 4, indicate how the benefit or cost would be valued using market-based or non-market valuation techniques. Describe the type of data that would need to be collected and how it would be used in the analysis. Justify your choice of technique as the most appropriate for the benefit or cost under consideration.

3. Benefits from breaching the dams on the Klamath River.
4. Costs of breaching the dams on the Klamath River.
5. Given the information in the article, what impact would a high discount rate have on your calculation of the net present value (NPV) of dam removal? State your assumptions.
6. Would sensitivity analysis be useful in estimating the NPV of breaching dams on the Klamath river? Explain.