



## Cost Benefit - Introduction

"Benefit-cost analysis can indeed be a useful tool in helping society allocating its resources between environmental protection and other activities as well as among various environmental goals. But it is only one such tool, and its limitations must be acknowledged." George C. Eads, Charles River Associates, Washington, D.C.

Assigned with the task of solving the 'Complex Problem' regarding the development of the Arctic National Wildlife Refuge, Mission 2007 was required to "evaluate whether or not the hydrocarbon resources that might be extracted from beneath ANWR are worth the environmental damage that might result from the process." Faced with quantifying and comparing "hydrocarbon resources" and "environmental damage," Mission decided to break down the issue into its simplest components. What follows is our attempt at simplifying this problem into a form that can be readily approached by anyone interested in this topic.

By simplifying this issue we realize that we lose certain facets of the problem, which are important, but which, given the time constraints and resource limitations, we could not address. Nevertheless, this study represents what we consider to be a reasonable analysis of the issue surrounding drilling in ANWR and a road map of the future research required.

The model we have created separates the potential costs and benefits should drilling occur. While it would be relatively straightforward to perform the cost-benefit analysis from strictly the oil corporation's perspective, we would thereby be disregarding the external costs and benefits of drilling upon society. Hence, we have performed this analysis from the perspective of American society, which we feel gives the most holistic and appropriate view of the problem. The benefit, then, is the national economic benefit offered by exploiting the hydrocarbon resources in ANWR and fundamentally this comes down to the projected increase in GDP stemming from the entry of such hydrocarbons into the economy.

In the interest of a quantitative comparison, we have translated all costs and benefits into numerical financial figures, namely dollars, which, while not the ideal unit, is readily accepted in the world of economics and the most straightforward unit to use. The costs then, have been derived under the theory that natural places otherwise untapped for their economic resources possess a certain "existence value" and act as natural capital which yield an annual, measurable benefit to society. Development of ANWR will decrease that annual yield and it is through this mechanism that we plan to measure the quantitative cost of the environmental damage to society.

