**Deforestation of the Amazon**

Procedure:

1. In groups READ the case and the problem (yellow paper, 1 per group) OR

REVIEW the information in the case study if you have been asked to read individually.

1. The Problem:

*At the frontier of primary Amazonian rainforest, a five–hectare plot is under consideration for deforestation by a local peasant farmer who wants to practice slash–and–burn agriculture and by a logger who wants to remove valuable timber species. Your group should examine the benefit of clearing or not clearing this land from three perspectives: (1) the farmer, (2) the logger, and (3) an environmental conservation organization.*

* Each group will examine the problem from all 3 perspectives.
* I have provided tables to facilitate – values appropriate to each interest have already been identified. You may write on this – 1 per group.
* Each group should calculate monetary values for each, based on the information provided.

1. After completing the tables, groups should work collaboratively to answer the 5 questions about the case. Remember:

* One per group, on notebook paper, in complete sentences
* Be THOROUGH! 4-5 AP brains working together should come up with some *good answers!*

This is DUE AT THE END OF THE PERIOD!

**Data Tables:**

**Perspective 1: Peasant Farmer**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Strategy:*** *Clear land, sell timber, farm for two years, and sell land* | | | |
| How you value the 5 hectare forest | Value per hectare  per year | Value for entire 5 hectare plot per year | Value for the entire 5 hectare plot for 2 years |
| **1.** *Merchantilable wood from clearing first year (assumes $35/m3 timber; 5m3 timber/ha); only one year of income.* |  |  |  |
| **2.** *Two years of agriculture ($460/ha/year)* |  |  |  |
| **3.** *Net increase in value of cleared land ($300 for cleared land)* |  |  |  |
| **TOTAL** |  |  |  |

**Perspective 2: Logger**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Strategy:*** *Selectively log valuable timber species and non-timber resources, then establish a forest plantation for pulp and collect carbon sequestration royalties for growing a secondary forest* | | | |
| How you value the 5 hectare forest | Value per hectare  per year | Value for entire 5 hectare plot per year | Value for the entire 5 hectare plot for 2 years |
| **1.** *Selective logging (assumes $35/m3; 5 m3/ha); only one year of income* |  |  |  |
| **2.** *One year of non-timber resources* |  |  |  |
| **3.** *Agroforestry (assumes a productive teak plantation supporting 150 m3 timber over 10 years, or 15 m3/year selling at $35/m3)* |  |  |  |
| **4.** *Carbon sequestration (assumes a one time, high-end benefit)* |  |  |  |
| **TOTAL** |  |  |  |

**Perspective 3: Environmentalist**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Strategy:*** *Preserve primary forest, sell rights for limited bioprospecting, establish ecotourism, secure external funding for preservation of species and for carbon sequestration* | | | |
| How you value the 5 hectare forest | Value per hectare  per year | Value for entire 5 hectare plot per year | Value for the entire 5 hectare plot for 2 years |
| **1.** *Non-timber resources* |  |  |  |
| **2.** *Genetic resources (assumes low value, one-time payment)* |  |  |  |
| **3.** *Willingness to pay (assumes upper limit, one-time payment)* |  |  |  |
| **4.** *Ecotourism (assumes $15/person, 100 visitors annually)* |  |  |  |
| **5.** *Carbon sequestration (assumes one time, high-end benefit)* |  |  |  |
| **6.** *Ecosystem services provided by hydrologic cycling in rainforests* |  |  |  |
| **TOTAL** |  |  |  |

**Questions for Analysis:**

1. Based on this simplified form of benefit–cost analysis, which land use option wins? Explain your reasoning.
2. Evaluate the ways that peasant farmers, loggers, and conservation organizations approach land use. Which do you agree with? Is there room for peaceful coexistence in the Amazon, especially with the prospect of population growth?
3. Support or criticize the use of benefit–cost analysis as a means of economic planning and as a means of preventing environmental degradation. Do you agree more with Costanza (1997b), Pearce (1998), or Sargoff (1997)? Do you feel that species have intrinsic rights to exist? Can such existence values be incorporated into environmental policy?
4. Do you believe that citizens of tropical countries have the right to deforest the most biologically diverse communities on Earth? Compare and contrast the economic and environmental issues of tropical deforestation with deforestation that occurred in the US and Europe over the last several hundreds of years.
5. John Terborgh, tropical ecologist at Duke University, asserts that in order to save tropical forests, citizens of industrial nations are going to have to pay developing countries. Do you agree? What are some ways that this might be done?