Developing Countries B

~Bamboo~

Opening Statement:

As developing nations that are at high risk to the effects of climate change, we are dedicated to doing what we can to prevent climate change. Since the industrial revolution, Developed Nations have jeopardized the safety of our planet for their own profits. As approximately two-thirds of the fossil fuels burned since then has been by these Developed Nations, this in turn has led to the climate crisis we face today. We have few means and will need cooperation and support from developed countries. We would like to propose the sale of our indigenous bamboo, which processes CO2 faster than regular trees. This will give us a profit that can help us to improve our infrastructure and preventative measures. Planting this bamboo can help to reduce CO2 emissions to a safe level by the year 2100. It is low maintenance and easy to grow in many climates.

Talking Points:

- Incentivize locals to plant bamboo
    - Stimulates local economy
    - Emergency food supply
- Prevents soil erosion
    - Good for droughts
    - Good for heavy storms
    - Keeps floods at bay
- 1 acre of developed bamboo absorbs ~75,000 tons of CO2 per year
    - Reduces deforestation
    - Can restore an ecosystem (if not planted on degraded land)
    - Source of income
- Takes 2-5 years to grow fully
    - Requires minimal care
    - Allows frequent harvest without needing to replant
- Can be harvested sustainably without damaging the environment
- 1 square mile of bamboo can absorb 16,000 - 38,000 tons of CO2 (450kg annually for 1 plant)
    - 1 square mile of trees can absorb 2.5 tons (21 kg annually for 1 tree)
    - Decomposes in 1-5years

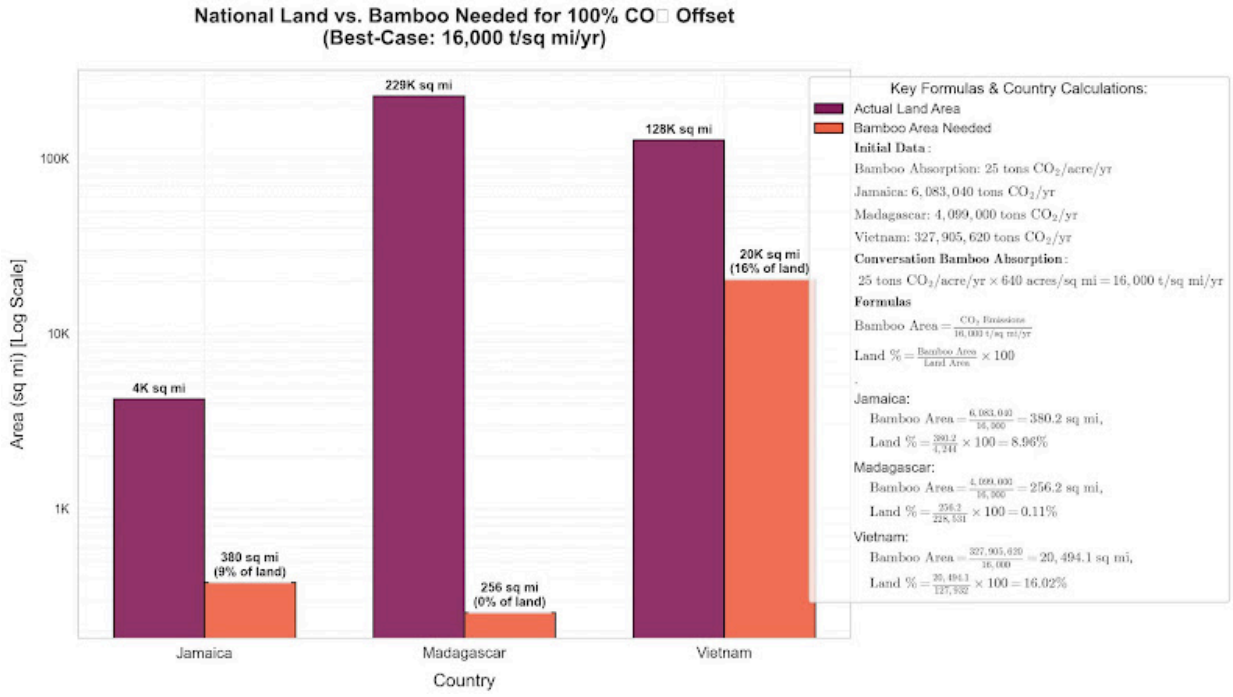
Vietnam

- 128,000 square miles
- 327,000,000 tons of CO2 (2022)
- CO2: 327m
- Size: 128,000 m^2
- Bamboo area = 277 sq mi per year
- Annual planting cost = 212.7 mill
- % total land = 16.02%
- GDP % = 0.03%
- Emission reduction rate = 4.4M tons CO2 per year

- CO2: 6.865m
- 4,244 m^2
- Size of Jamaica: 4,000 sq miles
- CO2 produced per year: 6,083,040 tons
- Within 75 years to reduce CO2 emissions to 0, CO2 emissions need to decrease by at least 81,107.2 tons per year
- 81,107.2/16,000 = 5.0692 sq mi
- Need at least 5 square miles of bamboo
- 14 square miles of agricultural land available, use about 7 square miles for bamboo, accounting for supply for other countries
- Can provide 9 tons of bamboo to developed countries
- Charge $20,000 dollars per ton of bamboo
- Contribute 0.03% of GDP (4.6 million USD) to clean energy and initial planting
    - wind, water, solar power
- Contribute 3.03 million USD to climate fund (0.02% of annual GDP)

Madagascar

- CO2: 4m
- Size: 226.597 m^2
- Bamboo area: 3 sq mi per year
- Planting cost = 2.7 mill
- % of total land = 0.11%
- GDP present = 0.02%
- Emission reduction rate = 4.4 mill tons CO2/year
- By 2099: 4.1M tons reduced (100%)



ENV250 Mock Climate Negotiation

Enter Land Areas (sq mi) (as Python list):
[4244, 228531, 127932]

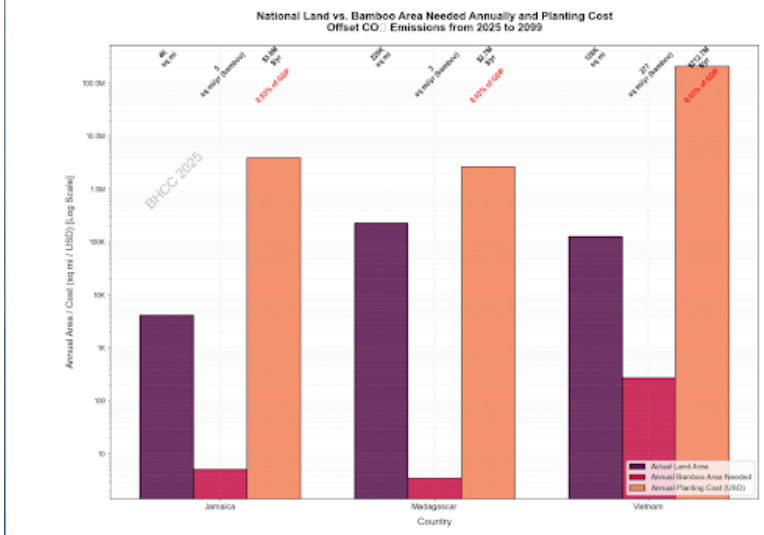
Enter Annual CO_2 Emissions (tons) (as Python list):
[6083040, 4099000, 327905620]

Enter GDP per Country (USD) (as Python list):
[15000000000, 14000000000, 700000000000]

Enter CO_2 Offset Years (Start, End):
[2025, 2099]

Select Plot Type: Bar Chart (Original) Time Series (CO_2 Reduction Over Time)

Analyze | Save Plot | Exit



Calculation Steps

Calculation Overview:

Initial Data:
- Jamaica: 6,083,040 tons CO_2/yr
- Madagascar: 4,099,000 tons CO_2/yr
- Vietnam: 327,905,620 tons CO_2/yr

Conversion (Bamboo Absorption):
- 25 tons CO_2/acre/yr = 640 acres/sq mi = 16,000 tons CO_2/sq mi/yr

General Formulas:
- Bamboo Area = CO_2 Emissions / 16,000 tons CO_2/sq mi/yr
- Bamboo Area Annually = Bamboo Area / n_years_offset
- Land % = Bamboo Area / Land Area × 100
- Annual Planting Cost = Bamboo Area Annually × $768,000 per sq mi
- GDP % = Annual Planting Cost / GDP × 100

Detailed Calculations for Each Country:

Jamaica:
- Annual Bamboo Area Needed = 5 sq mi/yr
- Annual Planting Cost = $3.9M
- Percent of Total Land = 8.96%
- GDP Percentage = 0.03%
- Emissions Reduction Rate = 82K tons CO_2/yr

Madagascar:
- Annual Bamboo Area Needed = 3 sq mi/yr
- Annual Planting Cost = $2.7M
- Percent of Total Land = 0.11%
- GDP Percentage = 0.02%
- Emissions Reduction Rate = 55K tons CO_2/yr

Vietnam:
- Annual Bamboo Area Needed = 277 sq mi/yr
- Annual Planting Cost = $212.7M
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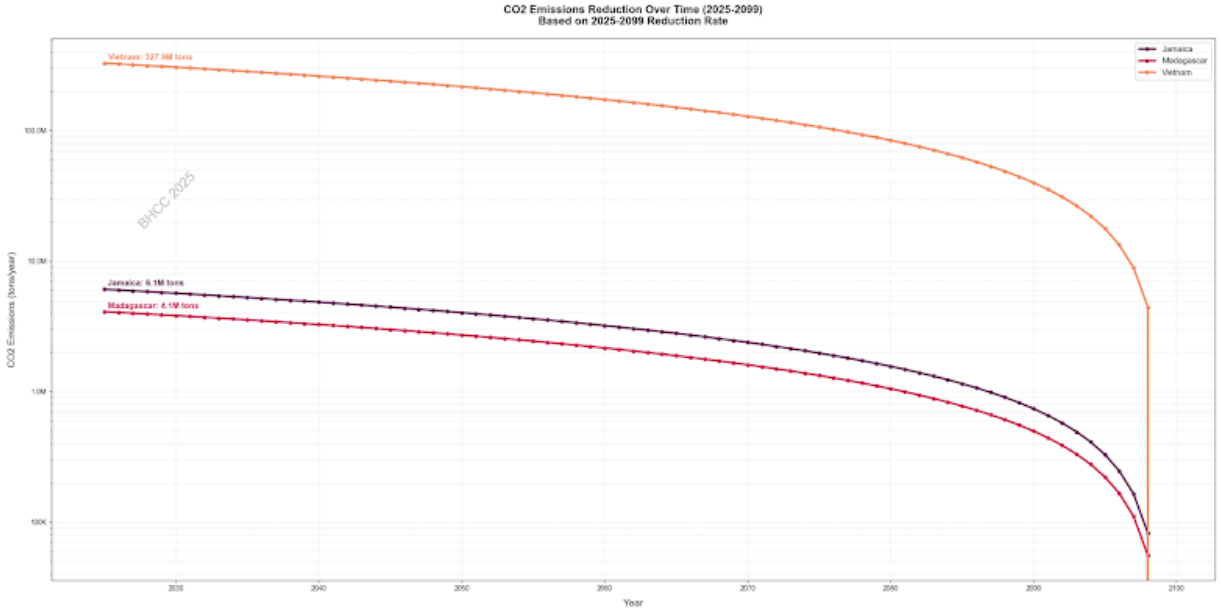

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General Formulas:
- Bamboo Area = CO2 Emissions / 16,000 tons CO2/sq mi/yr
- Bamboo Area Annually = Bamboo Area / 74 years (2025-2099)
- Land % = Bamboo Area / Land Area * 100
- Annual Planting Cost = Bamboo Area Annually * $768,000 per sq mi
- GDP % = Annual Planting Cost / GDP * 100

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Time Series Plot Details:
- Shows emissions decrease from 2025 to 2099
- Uses consistent reduction rate based on 2025-2099 timeline
- Annual reduction rates are consistent regardless of displayed years
- Complete offset would be achieved by 2099 at this reduction rate

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Shared responsibilities