Evaluating Carbon Credits: Do They Really Promote Conservation ?

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Wily carbon creds
Though cash and trees
are both green
One has more value

Background & Goals

- Carbon credits (CC) are a system used to set a limit on carbon emissions and allow companies to buy/sell carbon sequestration
- Carbon credits assign a value to greenhouse gas emissions
- Each CC represents the right to emit one tonne of green house gasses (GHG)[1]
- Governments, companies, and individuals can purchase and trade CCs to help decrease their emissions
- Revenue goes to local communities to restore and maintain forests
- Provides jobs, wildlife protection, education, etc.[2]
- But are CC s an effective tool for conservation? Our goal was to evaluate if CCs promote conservation or enable environmental abuse

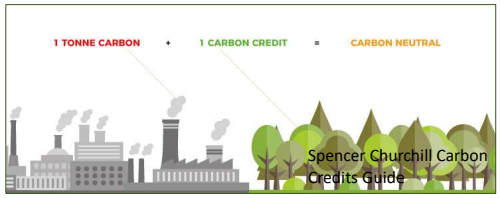


Figure 1: How Carbon Credits Work

Methods

•Searched online databases, websites, and the course textbook to gather information on particular cases that used carbon credits for promotion of conservation.



Figure 2: Illegal logging

Case Study 1[3]

- Surui Carbon Project pioneered by the indigenous Paiter clans of the Amazon rainforest, primarily led by three Surui chiefs
- Verified Carbon Standard-certified project agreed upon in 2009
- Almost 300,000 carbon offsets generated throughout the project's lifetime
- In 2011, a small group of Paiter resumed logging operations despite the moratorium
- Some outside organizations also openly opposed the project
- Paiter chiefs in support of the project complained that fund disbursement was slow
- The carbon project and pro-logging factions of the Paiter took their fight to the public stage
- In 2016, diamonds were discovered in the area
- 2016 and 2017 saw an acceleration in deforestation and a downward spiral of the project
- In 2018, the Surui Carbon Project was formally suspended

Case Study 2[4]

- Mbire District, Zimbabwe, is undergoing both rapid urbanization and deforestation
- CC programs introduced to benefit both the economy and environment
- Human development can only occur where natural resources in the environment are located
- Deforestation is complex in Zimbabwe since many people rely on the wood for fuel
- Climate change makes it harder for developing countries to respond to climate change, reducing efficacy of CCs
- Despite attempts at adhering to REDD+ protocols, land is still being converted for human/agricultural use
- Little money from CCs goes back to the general populous
- People working to maintain land for CCs often become solely dependent on CCs for income
- Poor social structures (infrastructure, housing, etc.) are especially incompatible with CC use

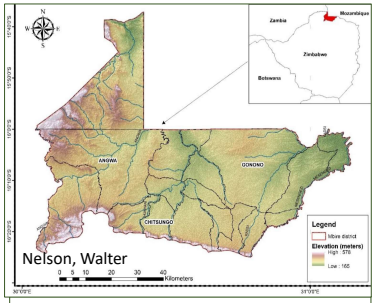


Figure 4: Mbire District

Discussion & Conclusions

- CCs can disincentivize reductions in emissions[5]
- Some alternatives like biodiversity banking may conserve habitat better - further research is required[6]
- CCs can also be used for habitats like grasslands in trying to prevent wildfires[7]
- CCs generally more helpful with in avoiding deforestation rather than incentivizing reforestation[8]
- CCs are fairly flexible in their use and application[9]
- Money from CCs does little to help the people maintaining the forests they protect[6,9]
- Reliance on forests as carbon sinks only works so well, reducing max efficacy of CCs[4,10]
- Projects require enforcing if they're to work as Intended[3]
- These patterns appeared similarly across researched projects
- In each example observed, most locations faced similar successes and failures

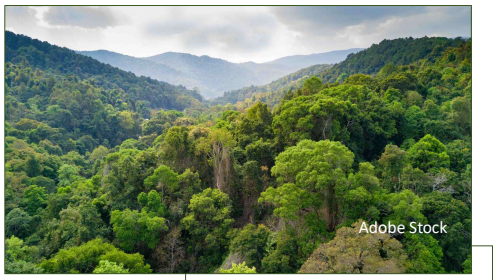


Figure 5: Rainforest aerial view

Literature Cited

1. Bitgreen Blockchain. (2023, March 28). *Carbon credits explained: A beginner's guide to the voluntary carbon market.* Medium.
2. *What are carbon credits?* (2023). Conservation.org.
3. Zwick, S. (2019, March). The Surui forest carbon project: A case study. *Forest Trends.*
4. Mashingaidze, Chirisa, I., Mutambisi, T., & Matamanda, A. R. (2021). Paradoxes surrounding carbon credits and local area development: the case of Mbire District, Zimbabwe. *Local Environment, 26*(10), 1175–1185.
5. Shutler, J. D. (2020). Offsetting is a dangerous smokescreen for inaction. *Frontiers in Ecology and the Environment, 18*(9), 486.
6. Bekessy, S. A., & Wintle, B. A. (2008). Using carbon investment to grow the biodiversity bank. *Conservation Biology, 22*(3), 510–513.
7. Douglass L. L., Possingham H.P., Carwardine, J., Klein, C.J., Roxburgh, S.H., Russell-Smith, J., & Wilson, K. A. (2011). The effect of carbon credits on savanna land management and priorities for biodiversity conservation. *PLoS ONE, 6*(9), e23843.
8. Williams, M., Reay, D., & Smith, P. (2023). Avoiding emissions versus creating sinks—Effectiveness and attractiveness to climate finance. *Global Change Biology, 29*(8), 2046-2049.
9. Chichilnisky, G. (2019). Green capitalism. *Journal of International Affairs, 73*(1), 161–170.
10. Center for Science and Environment. (2022). Forests as carbon sinks. *COP27: AGENDA AND EXPECTATIONS.* 105-117.