Renewable Energy in Peripheral Countries: Rhetoric vs Reality

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Broader Question: How do sustainability systems reproduce the vices of the systems they arise from?

Focused Question: How has renewable energy accompanied economic development in Sub-Saharan Africa and what light can specific projects shed on causal relationships btw these factors?

Background:

- World Bank & IMF - foreign direct investment and sustainability are solutions to poverty + climate change
- World systems theory of the environment
- **Is it possible for projects arising out of these to not reproduce the wealth inequality and environmental destruction inherent in these systems?**

Macro-analysis of RE using time-series, cross-sectional linear regressions:

Ren. Energy as related to:	R Square	P-value	Coefficients
External Debt Stock	0.87	0.00	9.09
Gender Parity Index	0.94	0.18	-.00
GDP	0.82	0.01	-158.62
Poverty Headcount	0.92	0.01	3.20

A 1% increase in renewable energy in Sub-Saharan Africa corresponds with a 9% in external debt stock, a 3% increase in the percentage of the population living below the $1.90 a day poverty line, and a 158$ decrease in GDP per capita.

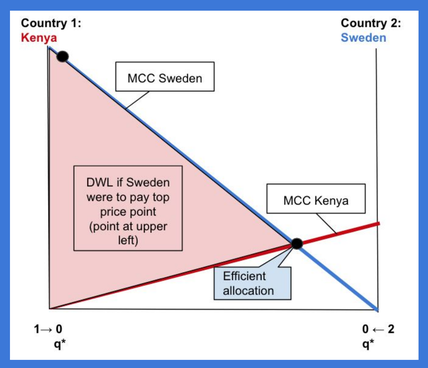
Development Rhetoric → "win-win"

- **Grand Inga -**
  - "Has the power to light up Africa" - BBC
  - Will resolve **energy deficits** in South Africa and Nigeria inhibiting economic development
  - 100% renewable energy
- **Lake Turkana -**
  - Largely **philanthropic** project
  - Will extend electricity access to rural poor
  - Energy security for Kenya

Development Reality →

Win for some, exploitation for others

- **Grand Inga -**
  - Energy will go to urban centers, southern Europe, and mining, thus **bypassing 96% of DRC citizens w/o electricity**
  - Social impact on those in proximity to dam
  - Historic **corruption** in DRC, large infrastructure projects
- **Lake Turkana -**
  - Expanded electricity access → **market expansion** for Google[2]
  - Profits go to Google, only labor in manufacturing go to Kenyans (which is tiny in comparison)
  - Site takes away grazing land from local farmers



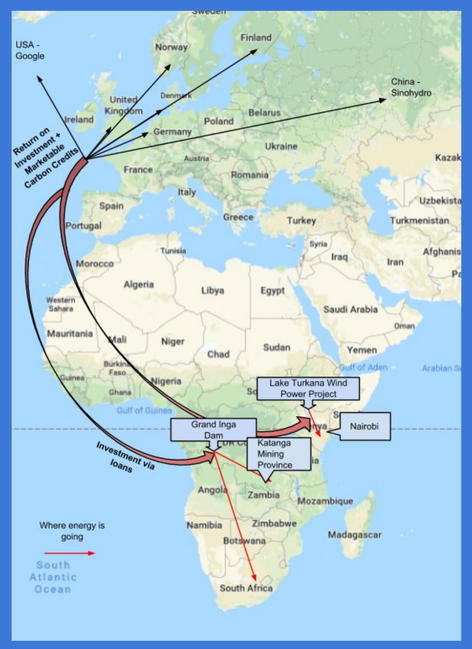
The European Carbon Market, has motivated increased renewable energy investment abroad, rather than costly fossil fuel infrastructure reform domestically.

q* is the desireable/optimal quantity of control that Sweden commits to under the ETS

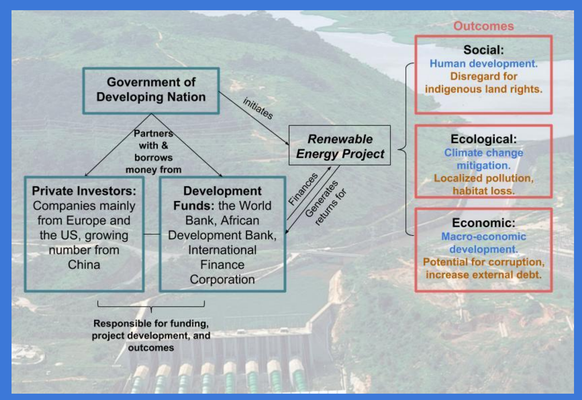
Methodology:

- **Quantitative analysis of changes over time** between renewable energy portfolios and different proxy measurements of quality of life
- To analyse the complexities not captured in the macro picture, **case study of Grand Inga Dam & Lake Turkana Wind Project**
- Attempt to answer: how are these projects forces for social and economic development?

Geographic Allocation of Project Returns and Externalities



Actor Network Map Project Stakeholders & Project Impacts



Implications:

- Returns on GDP from the continent of Africa are 94%, losing 6% that is reflected in the positive GDP returns to core countries of roughly 2-3%
- As foreign investment has demonstrated in countless scenarios, the "Global North" needs to rethink its efforts and projects towards convergence, unless convergence is not the true goal[3]
- Mircro-hydro and solar projects are a proven alternative in reducing poverty while mitigating climate change, which begs the question of why the World Bank is still pursuing much more expensive, yet potentially less effective projects

Situated Context: Study this question through renewable energy projects in peripheral countries, which are **advertised as a "win win"** for everyone, but may be more complex that they appear. [1]

Common Rhetoric: mitigates climate change, promotes economic development and energy security for peripheral nations

Common Realities: profits go to core countries that financed the projects, energy goes to urban core, streamlining of risk and stakeholder analysis leads to ecological destruction

References
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