

Mechanisms Against Climate Change

Carl Edward Rasmussen

Engineering, Cambridge

Energy and Environment Group, Cambridge CST, April 12th, 2024

The heart of the matter

The climate system responds to our collective actions

- a nation's individual, isolated, short-term incentives favours using fossil fuels
- global, collective incentives are necessary to avoid serious effects of climate change
- only global **cooperation** can re-align national and global incentives

Outline

- on international cooperation
- where are we now: the Paris agreement
- a constructive alternative

Why would you cooperate?

International cooperation is between free, sovereign countries. Why would they voluntarily agree to participate?

Successful cooperation means that we all pay a small cost, but avoid the much larger cost associated with unchecked climate change.

Failure to cooperate means everyone pays a cost far exceeding the benefit obtained.

The difficulty with cooperation is in avoiding free-riders.

Erroneous inference: my country is only responsible for 1% of emissions, so it's essentially irrelevant what we do.

When does cooperation work?

Necessary conditions for cooperation¹: Participants must share

- objectives
- commitment
- mutual trust
- transparency
- reciprocity²
- ...

¹Elinor Ostrom: *Governing the Commons*, CUP (1990)

²MacKay, Cramton, Ockenfels and Stoft: *Price Carbon – I will if you will*, Nature (2015)

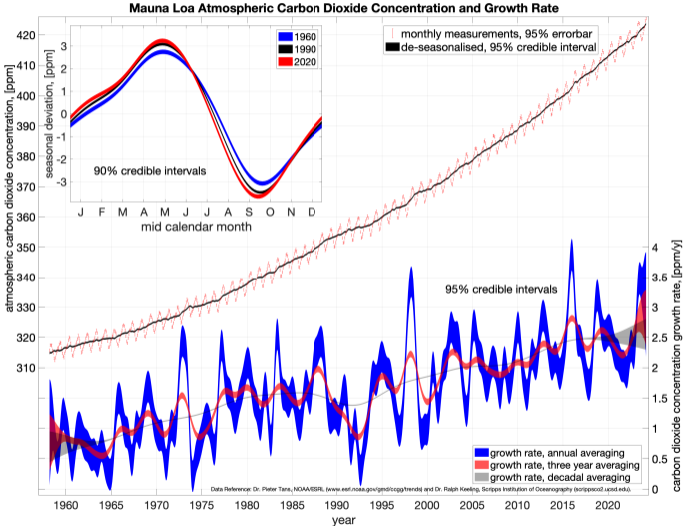
... aren't we already cooperating? The Paris agreement

The Paris agreement has been ineffectual so far, and is going to fail. Here are some of the reasons why:

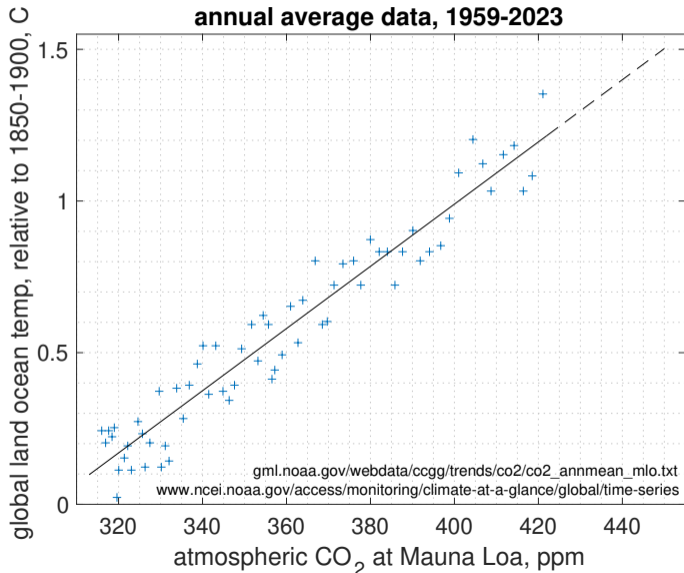
- lack of binding commitment
 - no meaningful duties or responsibilities
 - (singular focus on) temperature proxy is a poor choice
- no framework for building mutual trust
 - poor intermediate objectives and poor language
 - poor time frames for NDCs and Net Zero 2050
- poor transparency
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- lacks reciprocity mechanism
- ...

The Paris agreement has **none of the properties necessary for cooperation.**

Atmospheric CO₂ concentration and growth rate



Recent temperature vs CO₂ concentration



The residual atmospheric CO₂ budget is a resource

Think of the difference between the eventual limit of CO₂ concentration and the current concentration as a *resource*.

It fits the definition: it is desirable and exists in limited quantity.

Who owns this resource? Not in a legal, but an ethical³ sense? All of us.

How is this resource being managed? It's not.

We act as though the price for this resource was set to zero; economists call this an **unpriced externality**.

Key idea: carbon price: maybe a higher price than zero would be better?

³Peter Singer: One World Now: the ethics of globalisation (2016)

Proposal: climate club

The club works in the following **yearly cycle**:

- ① countries are invited to join the club, at a pre-fixed price p €/ton CO₂e
- ② at the end of the year, countries
 - report their fossil fuel **production**, in ton CO₂e
 - report their greenhouse gas **emissions** (using UN FCCC reporting rules)
 - pay their contribution: **production** plus **emissions**, times the price p
- ③ the club immediately re-distributes all the proceeds according to population of the member states (reflecting that we all own the resource)
- ④ member countries vote (by open ballot median vote, one vote per country) for next year's price p .

The first year, the price is set to $p = 0$ €/ton CO₂e.

Some properties of the club

The club is designed to co-exist with (not replace) other initiatives.

A nation's net contribution or payout depends *only* on per capita CO₂e **production** and **emissions**.

The club *immediately* creates strong economic pressure on *all members* to reduce **production** and **emissions**.

Because of the **annual cycle**, the club builds trust. No long term difficult to verify promises *necessary*.

Simplicity:

- the club is governed by a single number p
- there is no room for *any* negotiation (which has obstructed past schemes).
- every nation has a single annual binary choice: to join or not.

Transparency: nations only agree to a single year at a fixed, given price p .

Nations can join *conditionally*, eg. only if certain other countries join (the “I will if you will” reciprocity principle).

Some practical details (skip this slide)

In practice, **production** and **emission** data from the *previous year* is used, to avoid the delay associated with gathering data. Since emissions don't fluctuate wildly, the difference is small.

If a country who wasn't previously a member wants to join, they must pay the fee retroactively back to the inception of the club (but not the pay-outs) to avoid countries delaying membership.

Club dynamics

Nations in the global south who typically have low per capita **production** and **emissions** benefit immediately.

Why would higher emitters join:

- it relies on sound, fair, effective mechanisms
- based on the equitable, ethical principle that atmosphere belongs to all
- no persuasive alternatives
- the transparent **annual cycle** may put pressure on non-members

Once a nation has joined, it'll be to their advantage to get other, higher per capita emitters to join.

Once the club gets going, members may put pressure (trade tariffs) on non-members.

Adjusting the price annually will enable the club to adapt to future demands.

The club could be successful without universal membership.

What the proposed club doesn't do

The club doesn't address widely differing *historical* emissions.

... but let's not let the perfect be the enemy of the good!

Conclusions

It is difficult to know whether humanity is able to rise to the climate challenge.

It's important to acknowledge that the Paris agreement is very unlikely to succeed and why.

Sound mechanisms addressing the fundamental problem: **unpriced externalities** using principles of **cooperation**.

We can design a coalition of the willing alliances, which may allow **cooperation** to work:

- simple
- equitable
- transparent
- can build trust
- take immediate effect

The stakes are high!