

# Speaking Truth to Climate Change

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CBL research talk

November 8th, 2023

# Outline

- motivation
- the crux of the problem
- the Paris agreement
- a constructive alternative

# Internal incentives

Imagine a country of size  $\sim 1\%$  of the whole world (like the UK).

Should this country use fossil fuels for a particular purpose? Costs:

- cost of renewable solution  $R$ , or
- cost of fossil fuel  $F$  plus  $1\%$  of climate change cost caused  $C$ .

Therefore: it is rational according to the country's internal incentives to use fossil fuels even if the environmental cost exceeds the excess cost of renewables  $100 : 1$ .

**But** if every country acts accordingly, we all pay  $100\%$  of the environmental cost.

This is our current situation. It has many names: tragedy of the commons, unpriced externalities, prisoner's dilemma.

To have *any chance* of succeeding we must re-align the internal and common incentives: global cooperative agreement

# Why would you cooperate?

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

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

The prize of cooperation is that we all avoid (the worst effects of) climate change.

Effective cooperation requires large fraction of participation.

**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 cooperation<sup>1</sup>:

- participants share objectives
- commitment
- mutual trust
- transparency

Concern: countries differ widely in many ways.

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<sup>1</sup>Elinor Ostrom: Governing the Commons, CUP (1990)

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

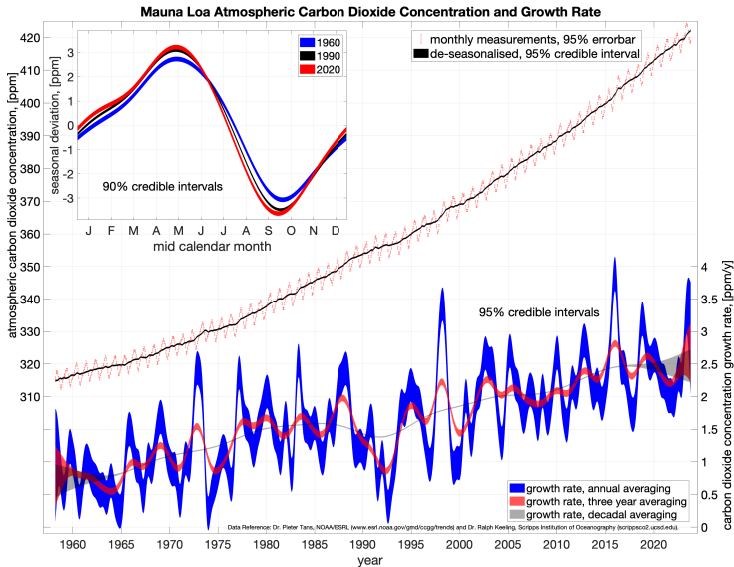
The Paris agreement is going to fail. Here are some of the reasons why:

- not effective so far
- collective goal, but no duties or responsibilities
- no binding commitment from participants
- (singular focus on) temperature proxy is a poor choice
- NDCs and Net Zero 2050 are way too long term
- UN FCCC governs by consensus
- no framework for building mutual trust
- lacks the “I will if you will” property<sup>2</sup>

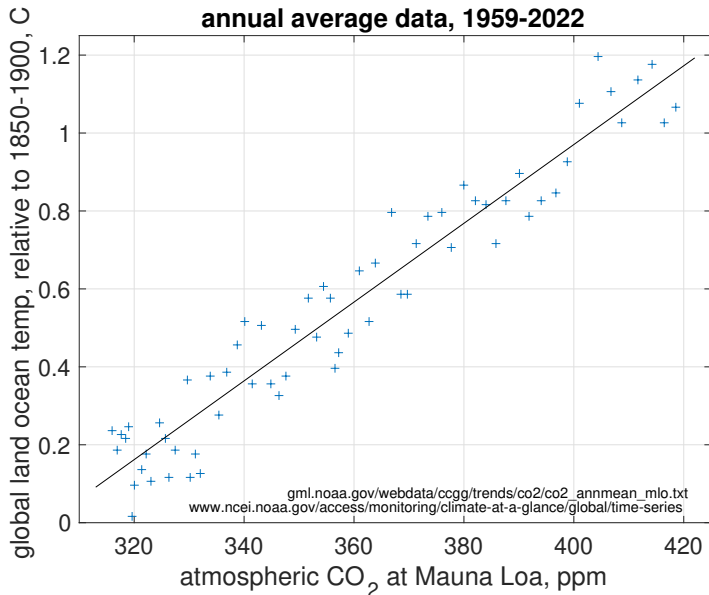
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<sup>2</sup>MacKay, Cramton, Ockenfels and Stoft: Price Carbon – I will if you will, Nature (2015)

# Atmospheric CO<sub>2</sub> concentration and growth rate



# Recent temperature vs CO<sub>2</sub> concentration





# Ethical Foundations

Our societies are built on moral and ethical foundations.

Trivial example: I can't just take your possessions.

However, on an environment related global scale, we (humanity) seem to *act* as though such principles do not apply.

For example, vulnerable developing nations, or our children's interests don't carry a lot of weight in decision making.

I'll adopt one ethical principle: behaviour today which destroys the environment for the next generation is not acceptable.

In this seminar I won't talk about ethics (see eg Singer<sup>3</sup>) but instead ask the question: "What principles are necessary to address climate change?"

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<sup>3</sup>Peter Singer: One World Now: the ethics of globalisation (2016)

# The residual atmospheric CO<sub>2</sub> budget is a resource

Think of the difference between the eventual limit of CO<sub>2</sub> 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 ethical 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.

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

# A Voluntary Alliance of Nations

The Alliance works in the following yearly cycle:

- countries are invited to join the Alliance, at a pre-fixed price  $p$  €/ton CO<sub>2</sub>e
- at the end of the year, each country
  - reports their greenhouse gas emissions
  - pays their contribution: emissions times the price  $p$
- the Alliance immediately re-distributes all the proceeds according to population of the member states (reflecting that we all own the resource)
- member countries vote (by open ballot median vote, one vote per country) for next year's price  $p$ .

Nothing carries over between years (except next year's price  $p$ ).

The first year, the price is set to  $p = 100$  €/ton CO<sub>2</sub>e.

I call this proposal VICA: Voluntary International Carbon Alliance.

# Some properties of the Alliance

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

A nation's net contribution or payout depends *only* on per capita CO<sub>2</sub>e emissions.

The effect of the alliance is to immediately apply strong economic pressure on all countries to reduce emissions.

**Simplicity:** the entire alliance is governed by a single number  $p$ , there is no room for any negotiation (which has obstructed past schemes).

Every nation simply has a single binary choice: to join or not.

Because everything happens on an annual cycle, the Alliance builds trust. No long term difficult to verify promises involved.

Countries in the global south who typically have low per capita emissions will benefit immediately.

## Some practical details

Emissions are calculated according to the existing UN FCCC accounting rules.

In practice, 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 Alliance (but not the pay-outs) to avoid countries delaying membership.

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

In practice you would use a mixture of currencies, not €.

# Alliance dynamics

Initially, from a purely economic perspective, it'll be advantageous for low per capita emitting countries to join (nothing to lose).

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

Why would higher emitters join:

- they may believe in the ethical principle that atmosphere belongs to all
- they may understand that the Alliance can actually help to effectively address climate change, avoiding dire consequences
- once the Alliance get's going, member countries may put pressure (eg. trade tariffs) on non-members.

An Alliance could be successful without universal membership.

# What the proposed Alliance doesn't do

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

The proposal is also very demand side oriented. What about the supply side, eg is it ok for a country to export fossil fuels?

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

another issue: There are powerful groups that have interests in maintaining our current trajectory.

# 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.

You may have thought that climate change is inherently intractable, but I think not. We can certainly do a lot better than what we're doing now.

We can design coalition of the willing alliances, which may actually work:

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

The stakes are high!