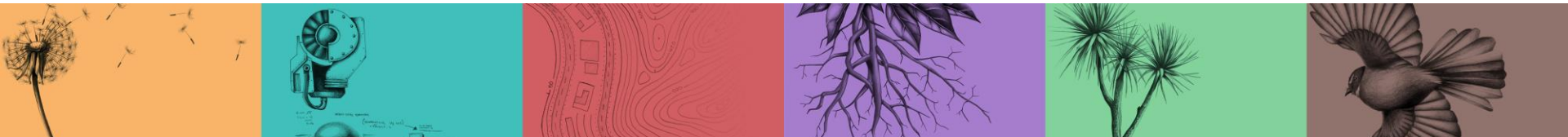
Economists and leadership toward low-emission societies

Suzi Kerr

Senior Fellow, Motu Economic and Public Policy Research and Chief Economist, Environmental Defense Fund

Australasian Association of Agricultural and Resource Economics – President's Address

February 2019



What is the nature of our journey?

Global commons

Yellow Vests: inequality and migration

Dynamic complex system

Technologies and cultures

Deep uncertainty – structural change

We can't know the path but can help shape a vision and be alert to signals along the way that can guide us there. More like Pacific navigation than map reading.

What sort of leadership do we need?

- Intelligence
  - Efficiency; innovative ideas for policy/action; some ability to forecast implications of actions
- Generosity
  - To build and sustain local to global cooperation
  - To recognise the impact of social (pecuniary) externalities
- Courage
  - To explore unconventional approaches and different forms of knowledge
- Humility
  - To value diverse perspectives
  - To recognise and change course when we are wrong

The transition to a low emissions society is too fundamental a shift for economics to play the leading role

- Culture, technology, politics are the fundamental drivers
- People (consumers, entrepreneurs, employees) actually do the mitigation. They are constrained by economic factors; and partly influenced by them
- Economics can enable and facilitate change
  - Creating mechanisms to shift the economic environment in which people make decisions
- Economics can help find pathways that are more efficient and more aligned with social goals for the speed of transition and the distribution of gains and losses.

Three areas needing more leadership

1. Cooperating and sharing across countries
2. Economics for reforestation
3. Economics, cows, sheep and burps

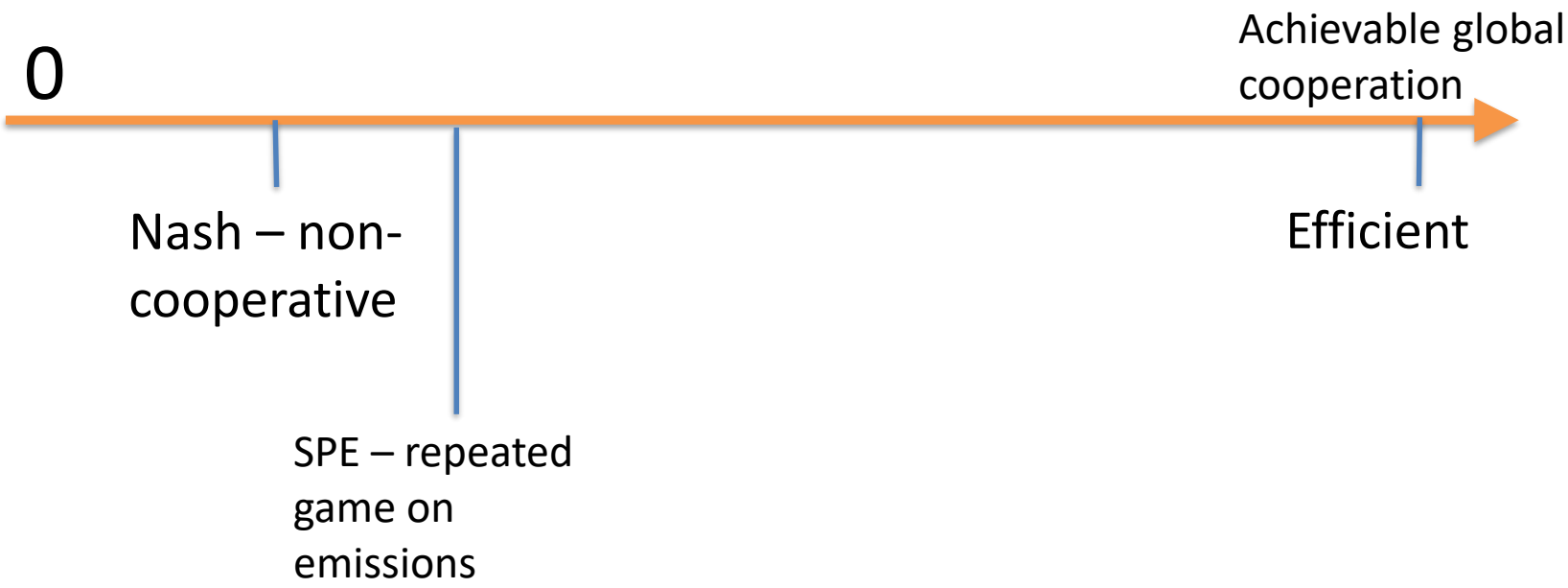
1. Cooperating and sharing across countries

Financial Transfers and Climate Cooperation
(with Steffen Lippert, University of Auckland and Edmund Lou, Northwestern)

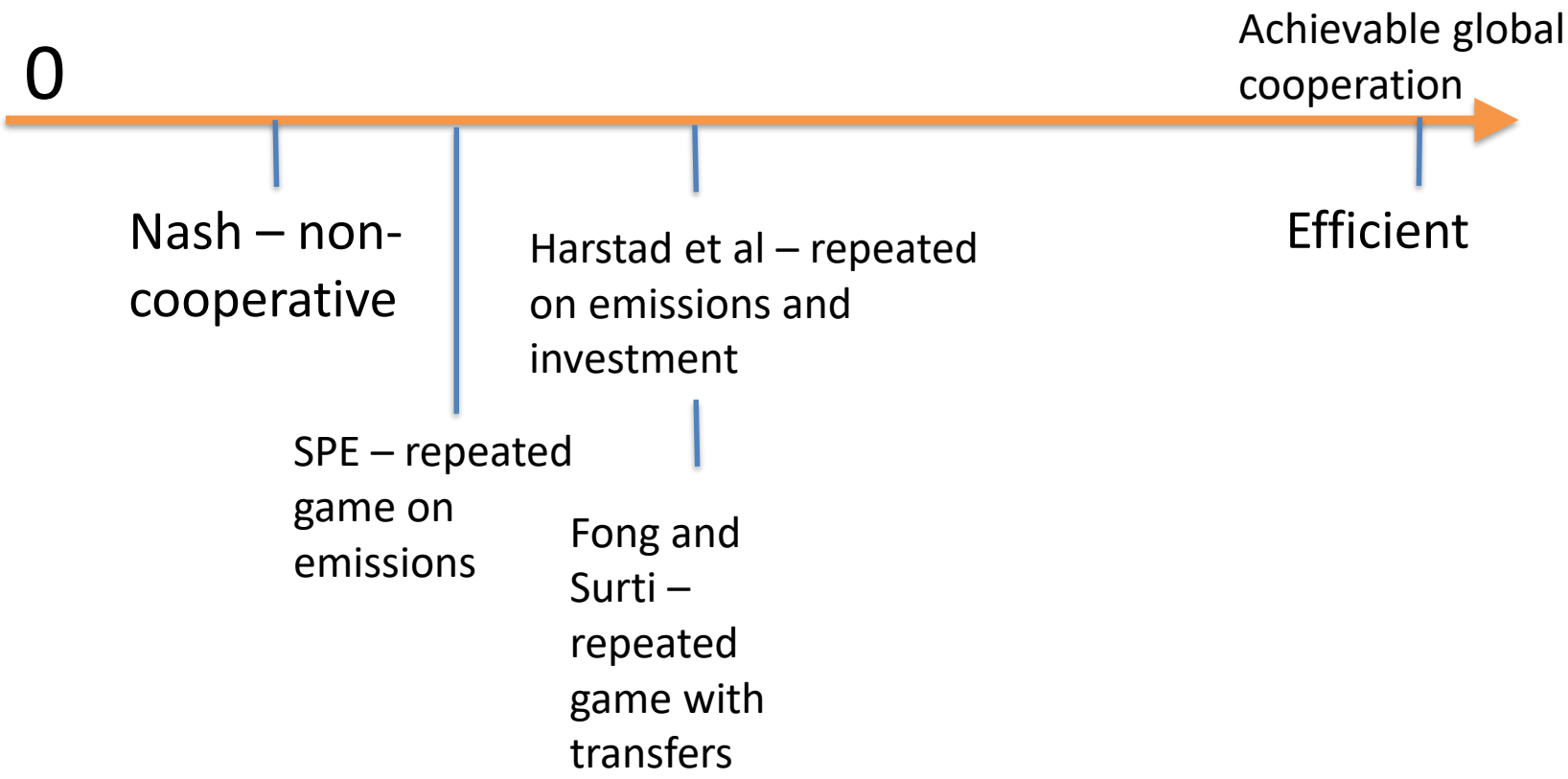
'Climate teams': Effective mechanisms to implement financial transfers for transformation toward low-emissions societies (with a team from Colombia, Chile, Korea, the US…)

Expanding cooperation

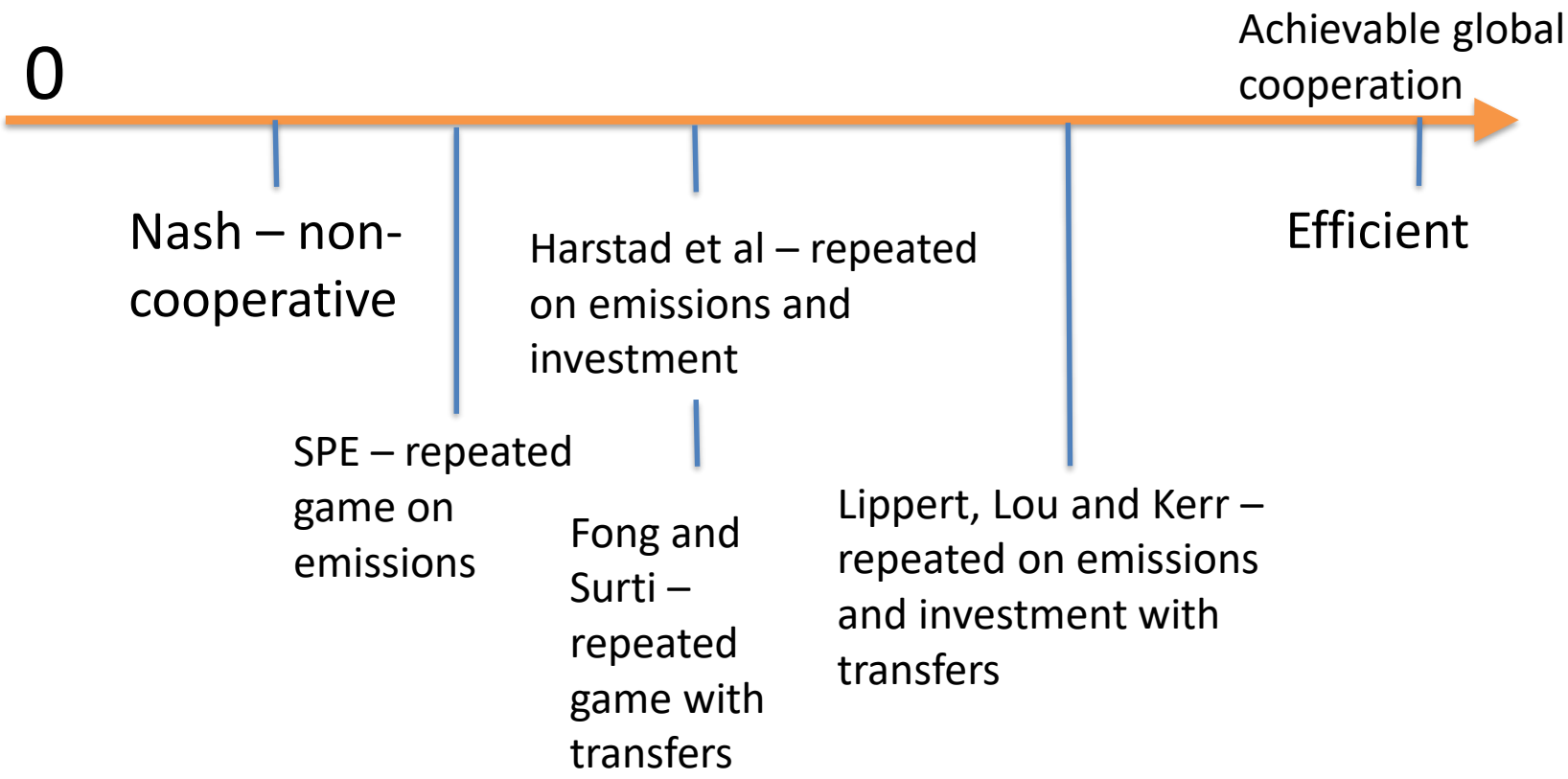
Expanding cooperation

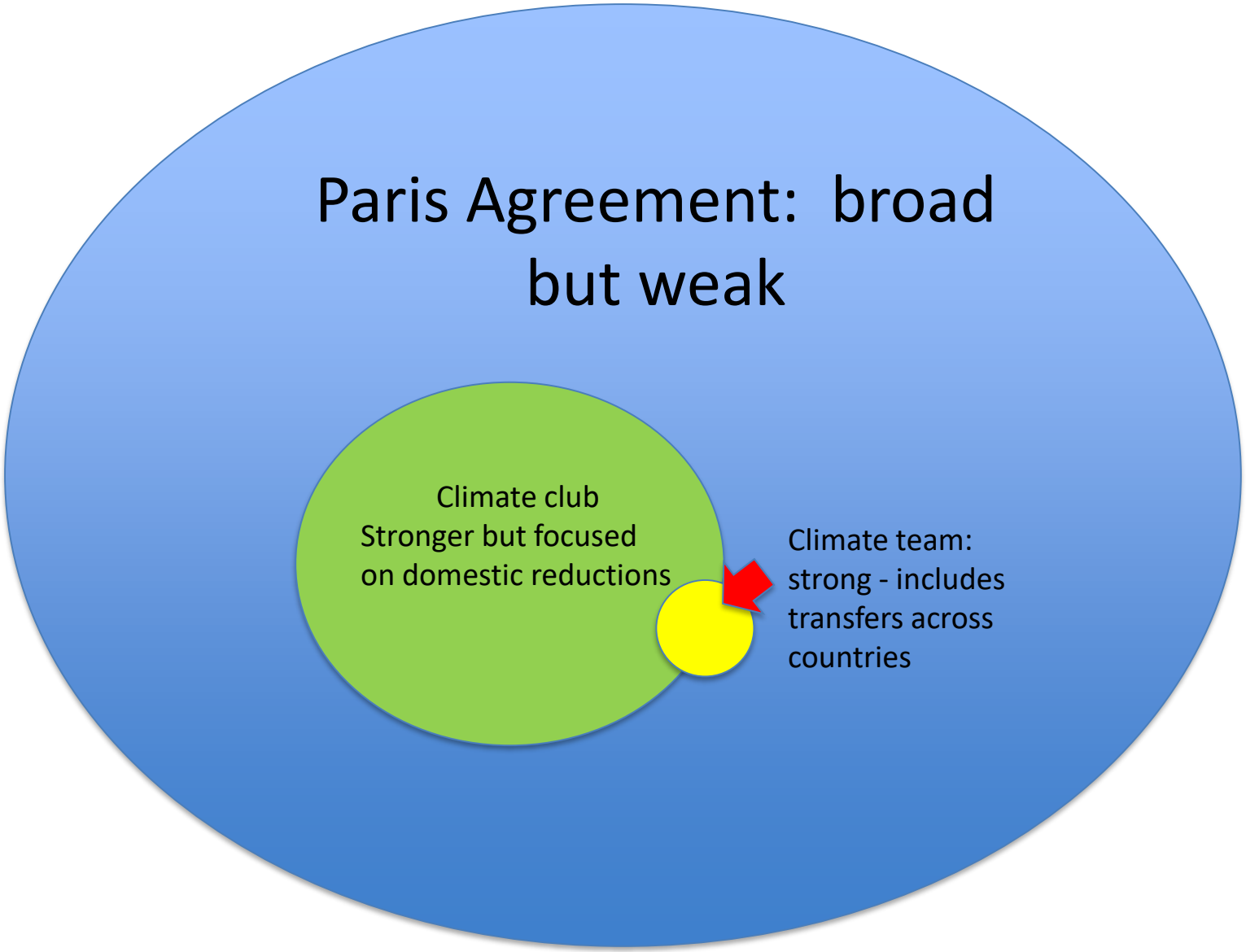


Expanding cooperation



Expanding cooperation



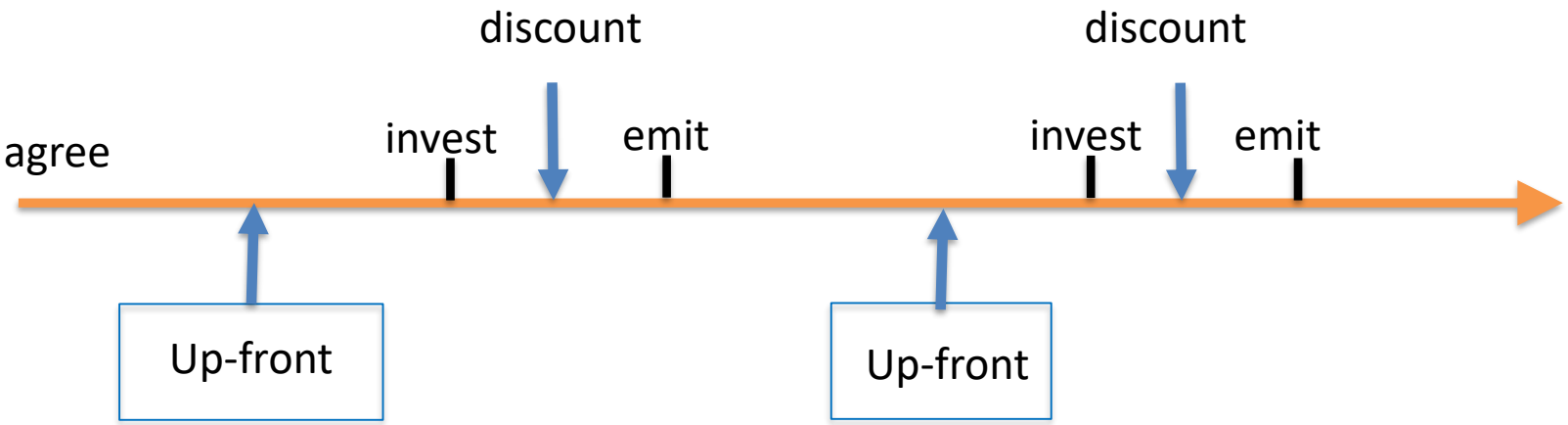

Paris Agreement: broad but weak
Climate club
Stronger but focused on domestic reductions
Climate team: strong - includes transfers across countries

When is it best to make transfers?

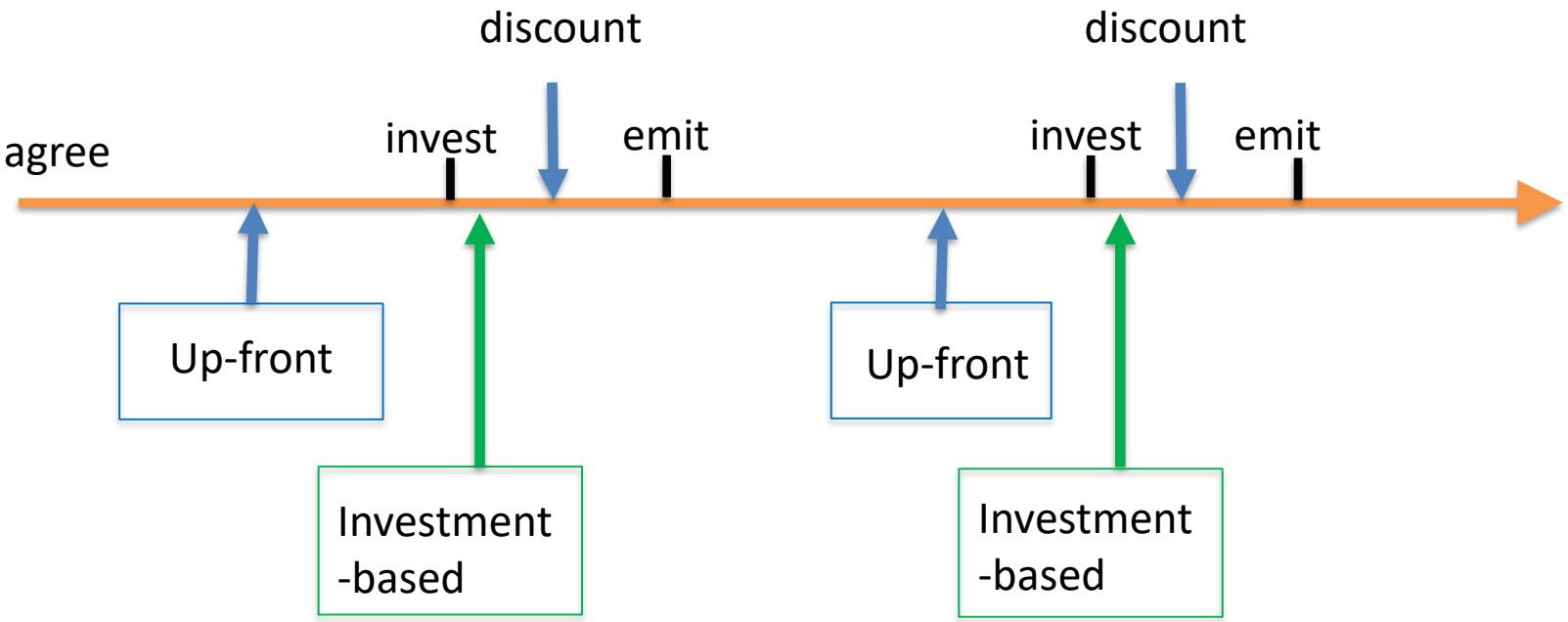
‘Applicant / Host’ country: Colombia

‘Member / Partner’ countries: New Zealand, Korea

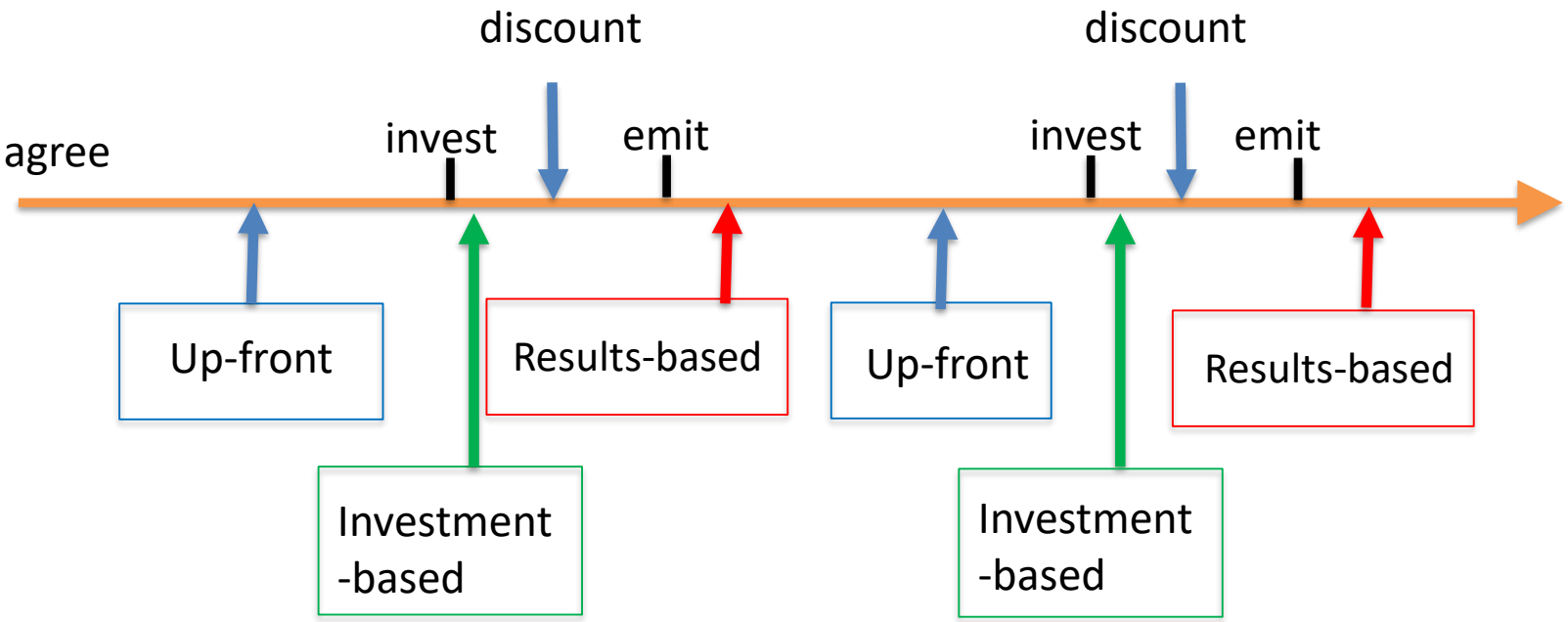
When is it best to make transfers?



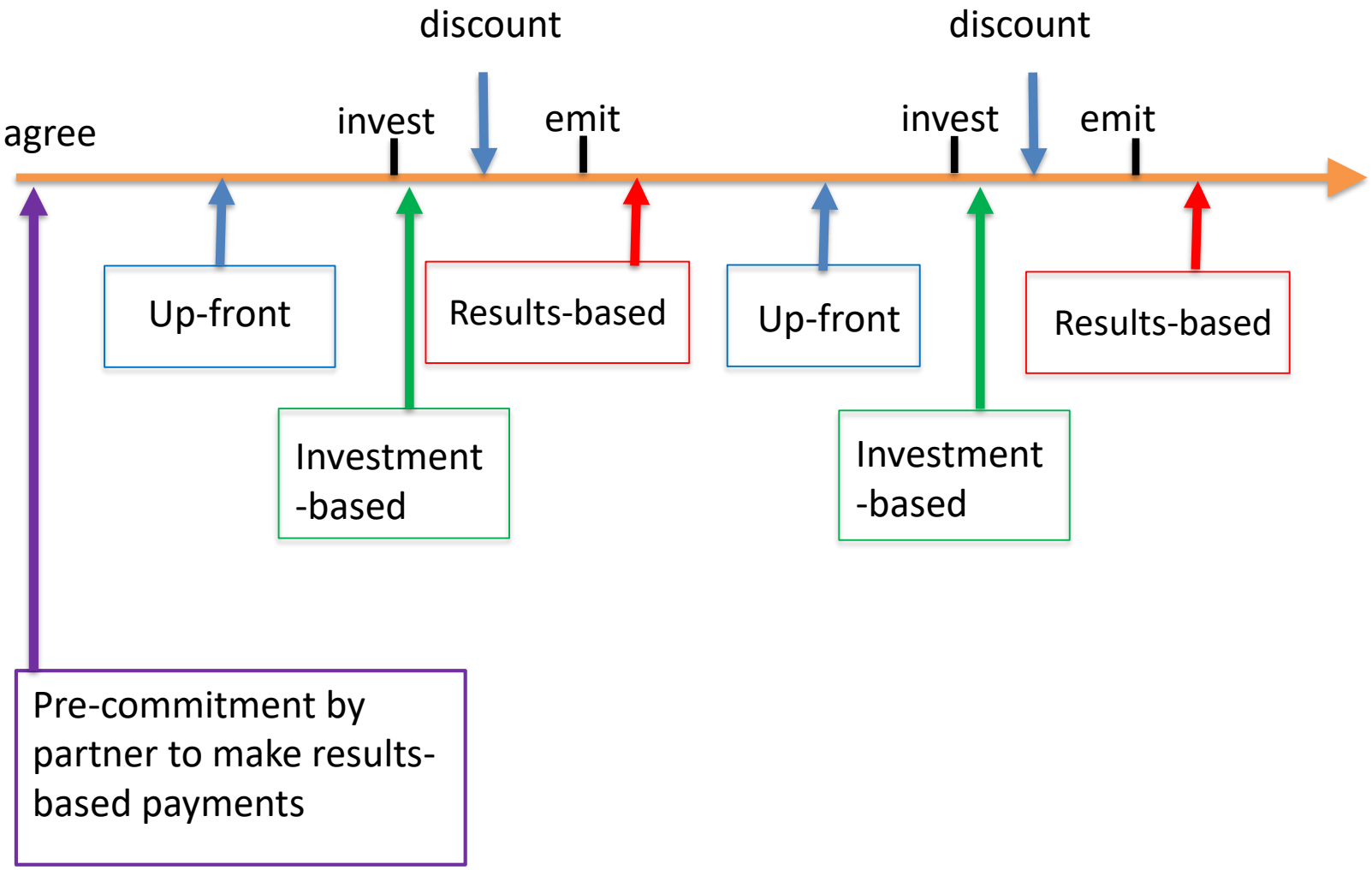
When is it best to make transfers?



When is it best to make transfers?



When is it best to make transfers?



New insights

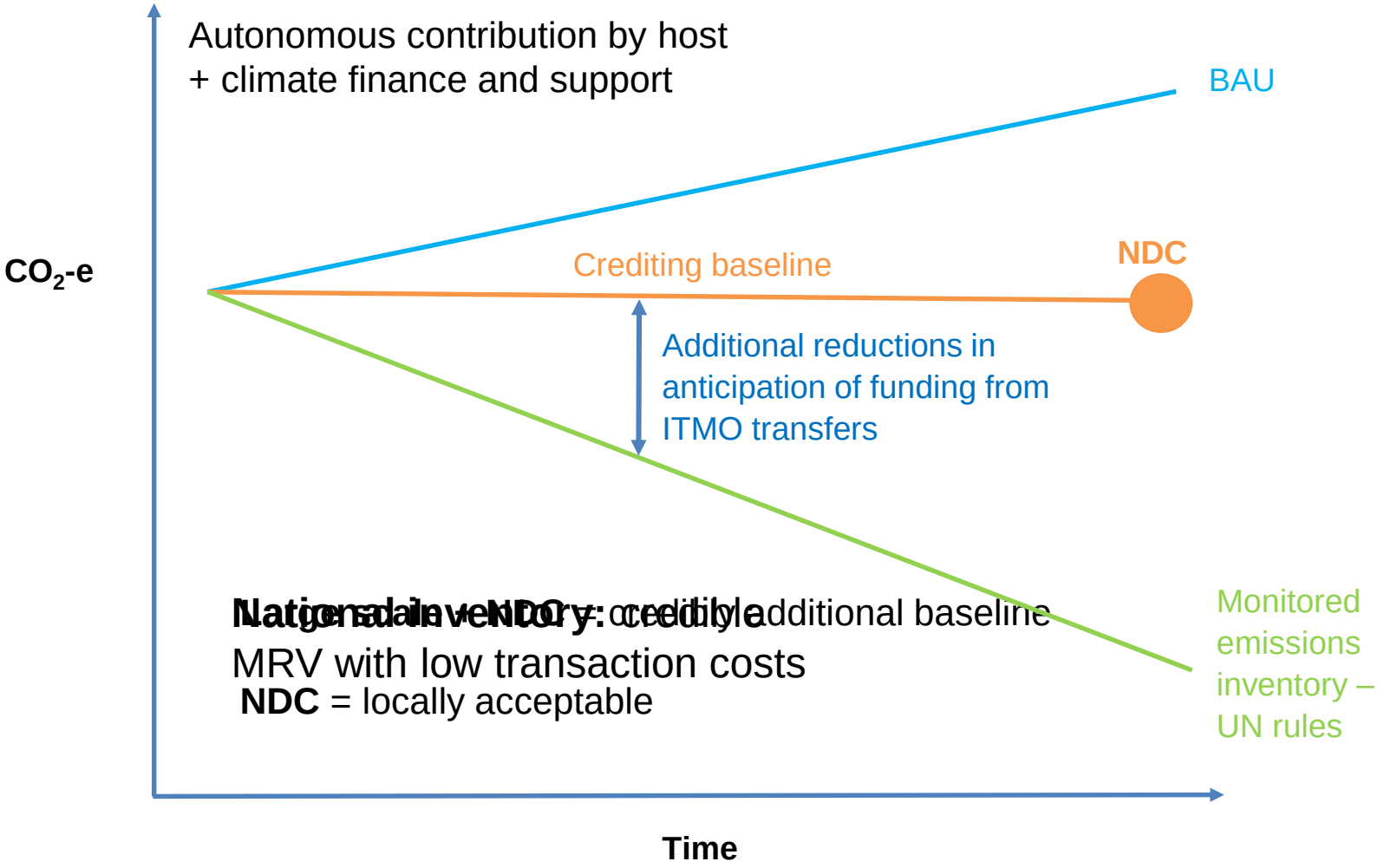
Payments made each period as a 'host' country invests can sometimes allow more cooperation than results-based payments

- when the host's potential for mitigation is high; and
- 'green' investment is high value but high local cost

Results-based payments favour the buyer/partner; investment-based payments favour the seller/host

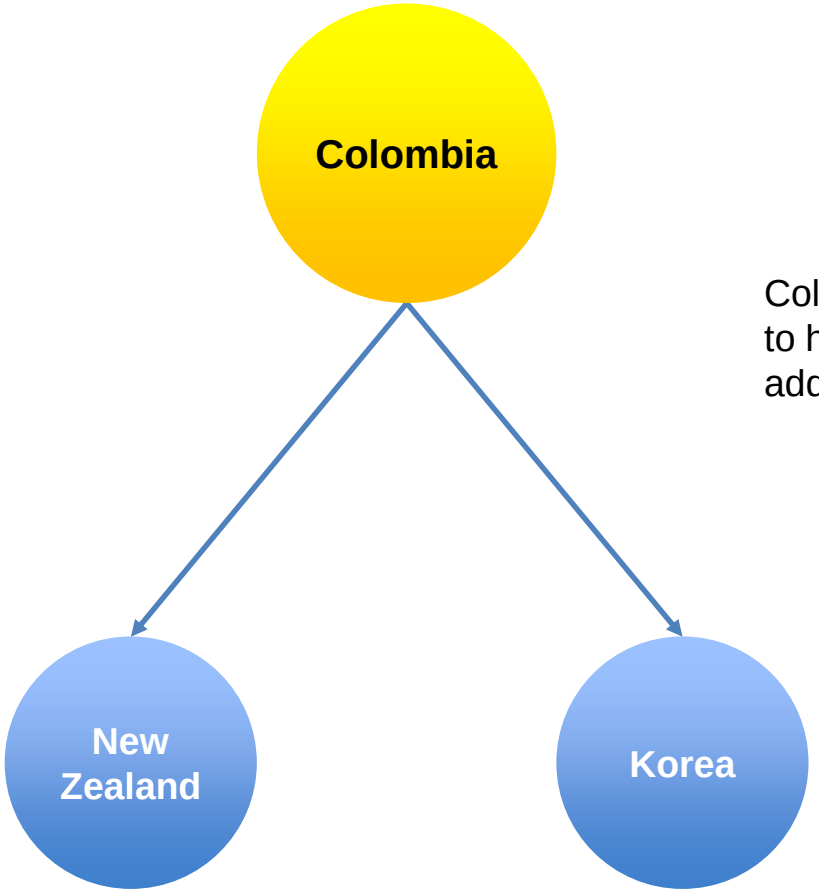
If the buyer/partner can commit to pay, more cooperation is possible

Climate Teams: creating Internationally Tradable Mitigation Outcomes (ITMOs)



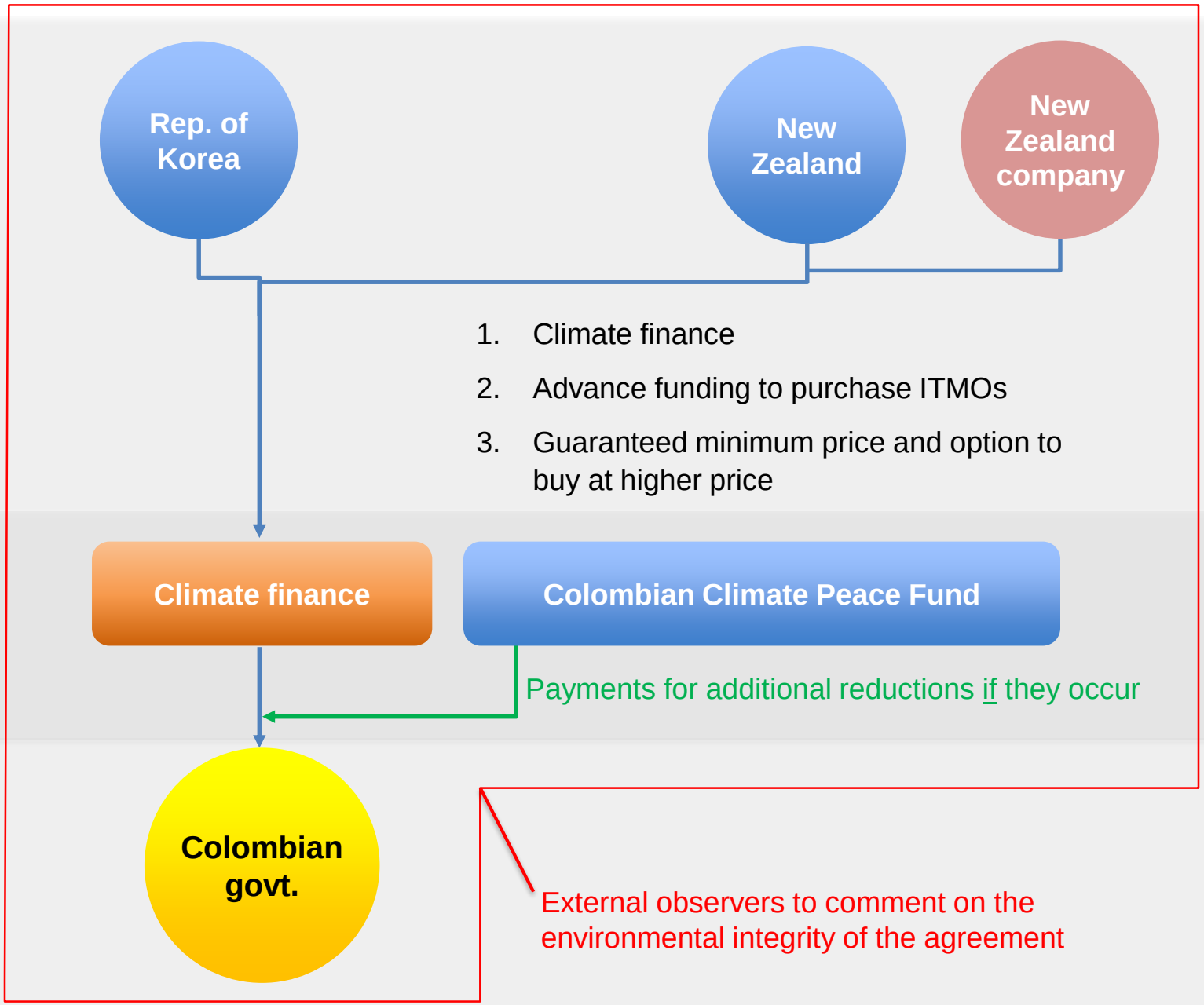
Pre-commitment contract
Risk of lack of supply:
host is constrained to transfer ITMOs to partners in team

Host



Partners

Colombia could choose to hold a share of additional units


Rep. of Korea
New Zealand
New Zealand company
1. Climate finance
2. Advance funding to purchase ITMOs
3. Guaranteed minimum price and option to buy at higher price
Climate finance
Colombian Climate Peace Fund
Payments for additional reductions if they occur
Colombian govt.
External observers to comment on the environmental integrity of the agreement

Key leadership characteristics?

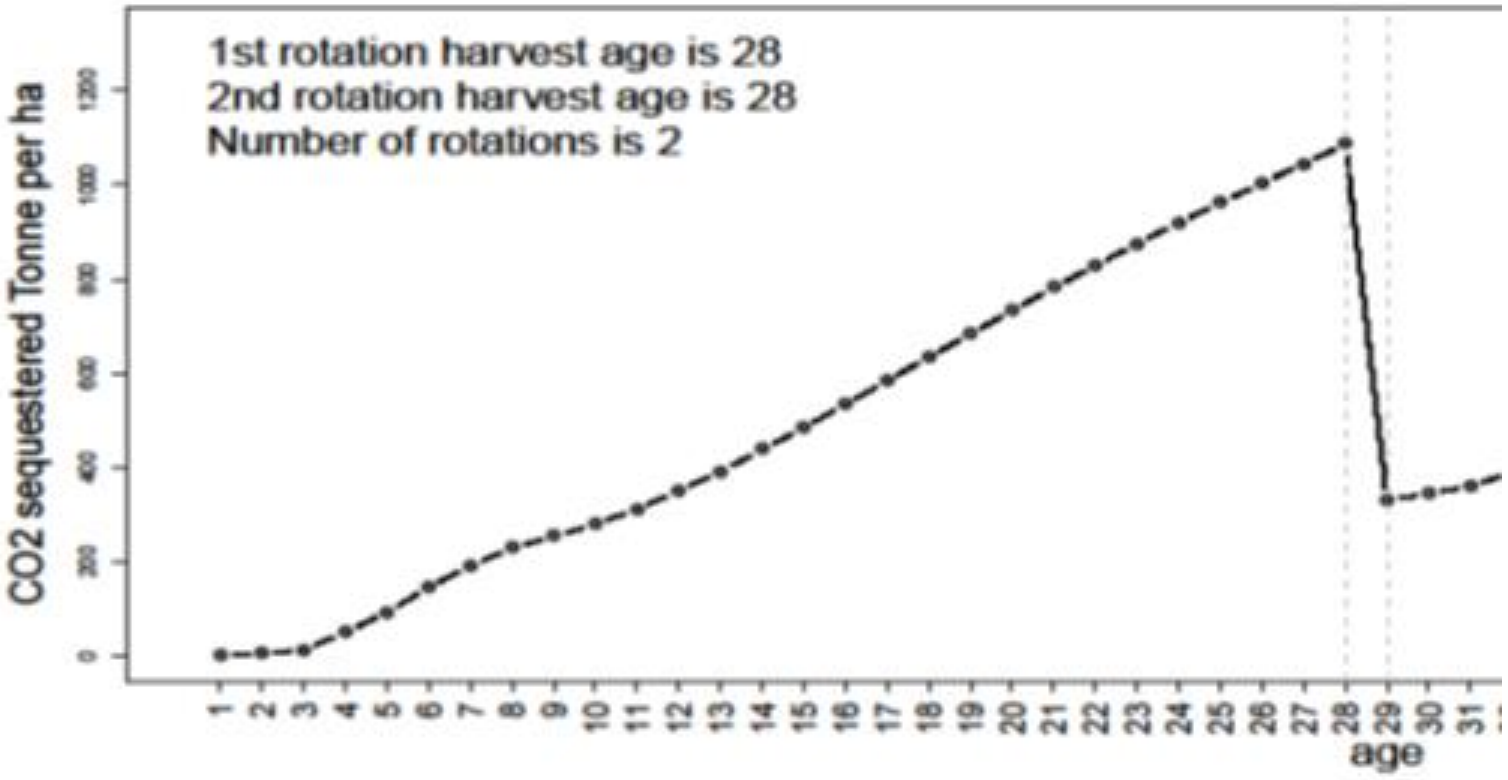
Courage – only action on a large scale will be effective

Generosity – countries need to build strong trust relationships and work together for a low emissions transition

Intelligence – use clever financial instruments drawing on private sector experience (and supply chains)

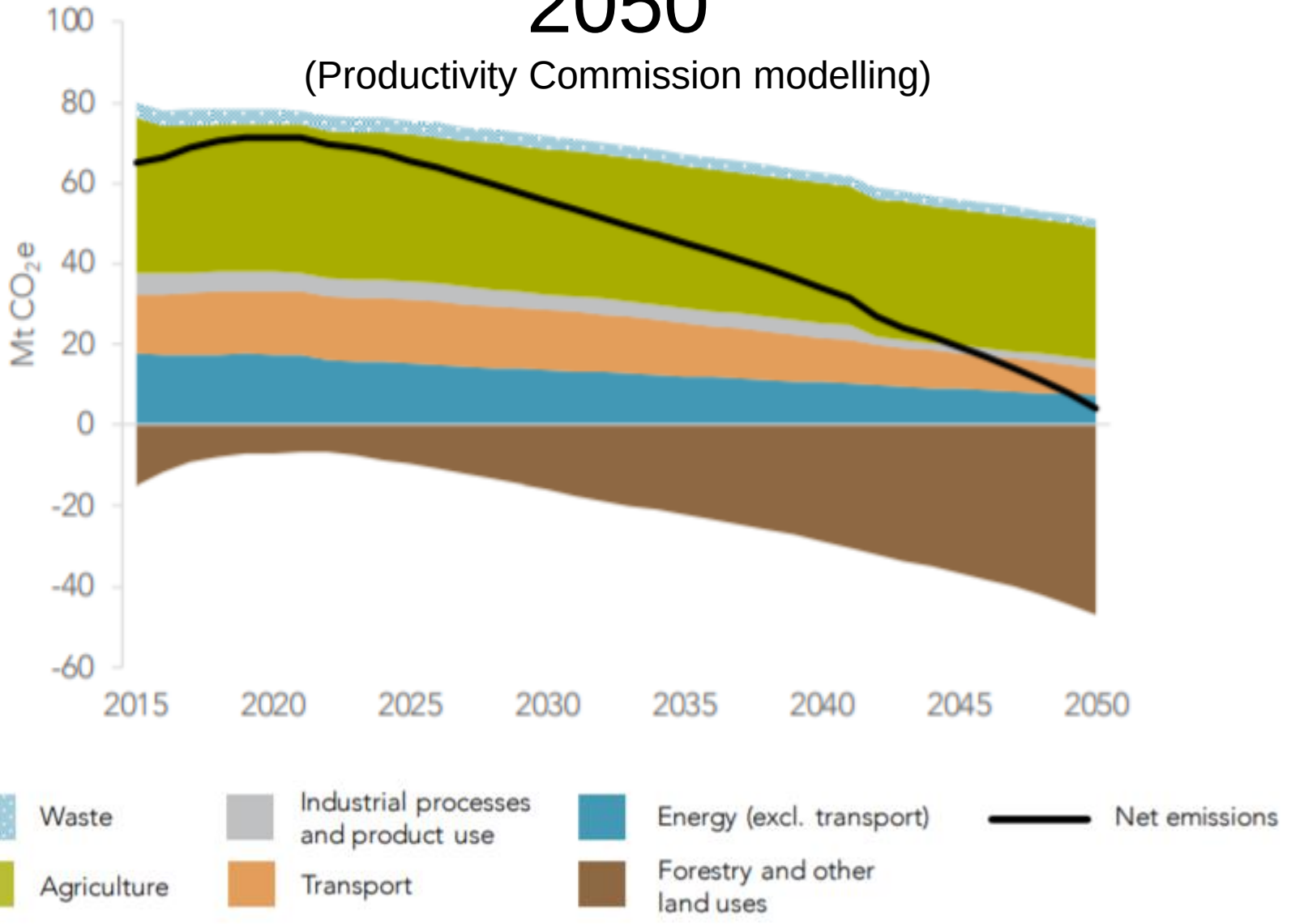
Humility – this is a high risk approach politically, and untested

2. Economics for reforestation



Modelling: The role of forestry in NZ to 2050

(Productivity Commission modelling)



Post 2050

Forests become limited

- Rotation plantation forests stop sequestering more
- Eventually run out of land appropriate for forests
- Permanent (native?) forests play a stronger role in the long term.

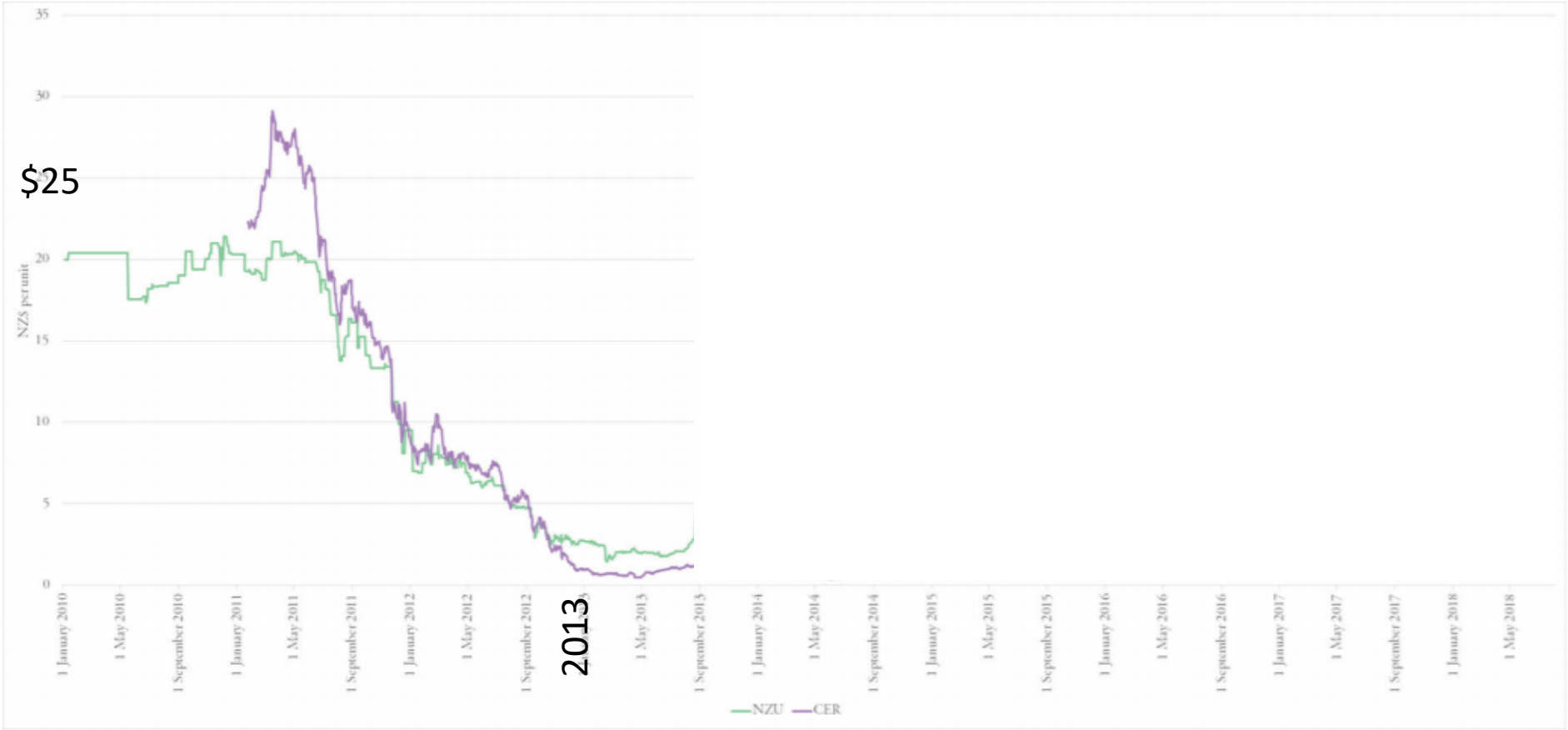
Other emissions still have to fall significantly after 2050

Who will plant forests?

- Traditional forestry companies
  - focus on plantation
- Carbon investors
- Farmers
  - may plant as part of a mosaic
  - forests are not a core activity – and affects their home so amenity values matter
- Indigenous people
  - will not alienate land
  - different motivations

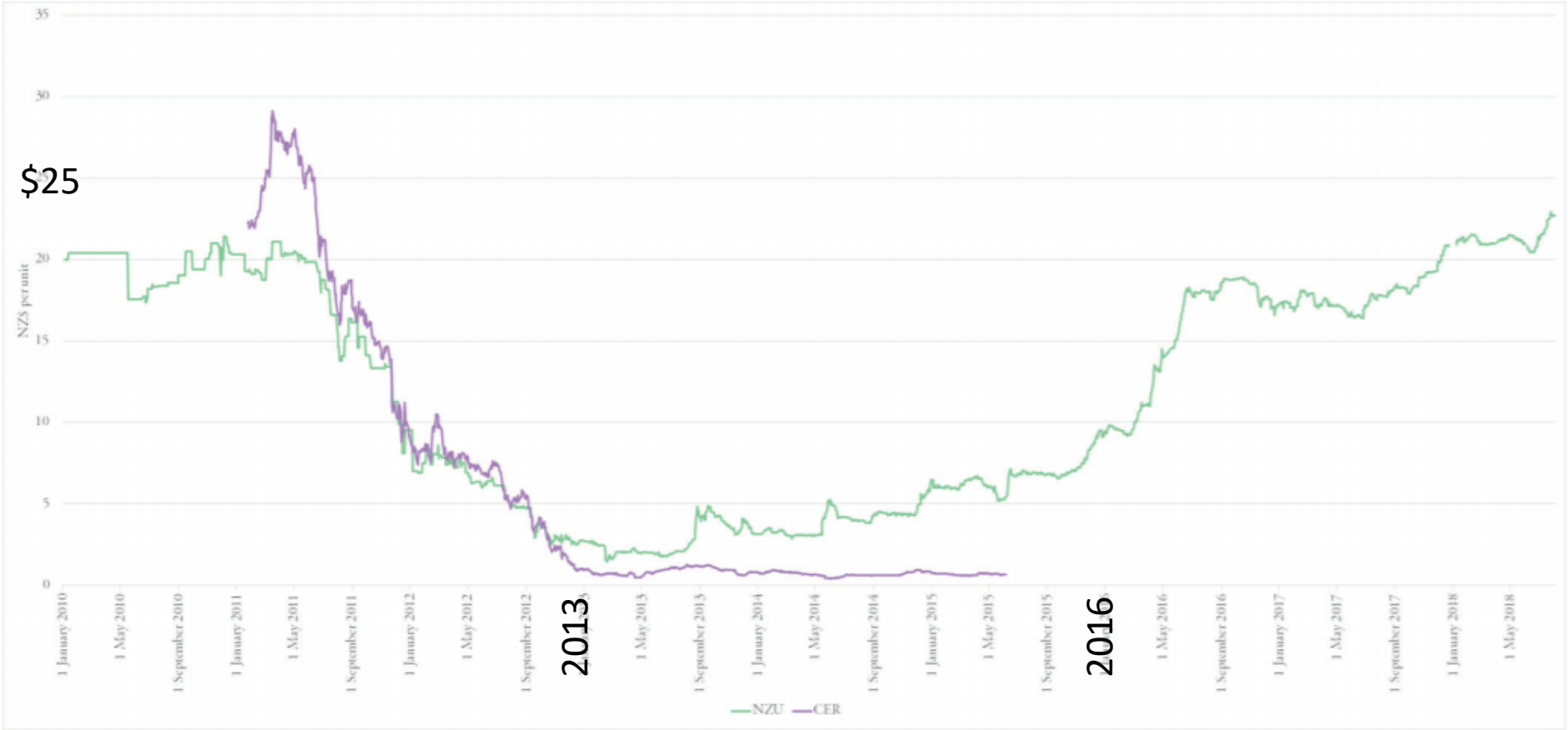
A potted history of NZ's price incentives for reforestation

ETS prices crashed…



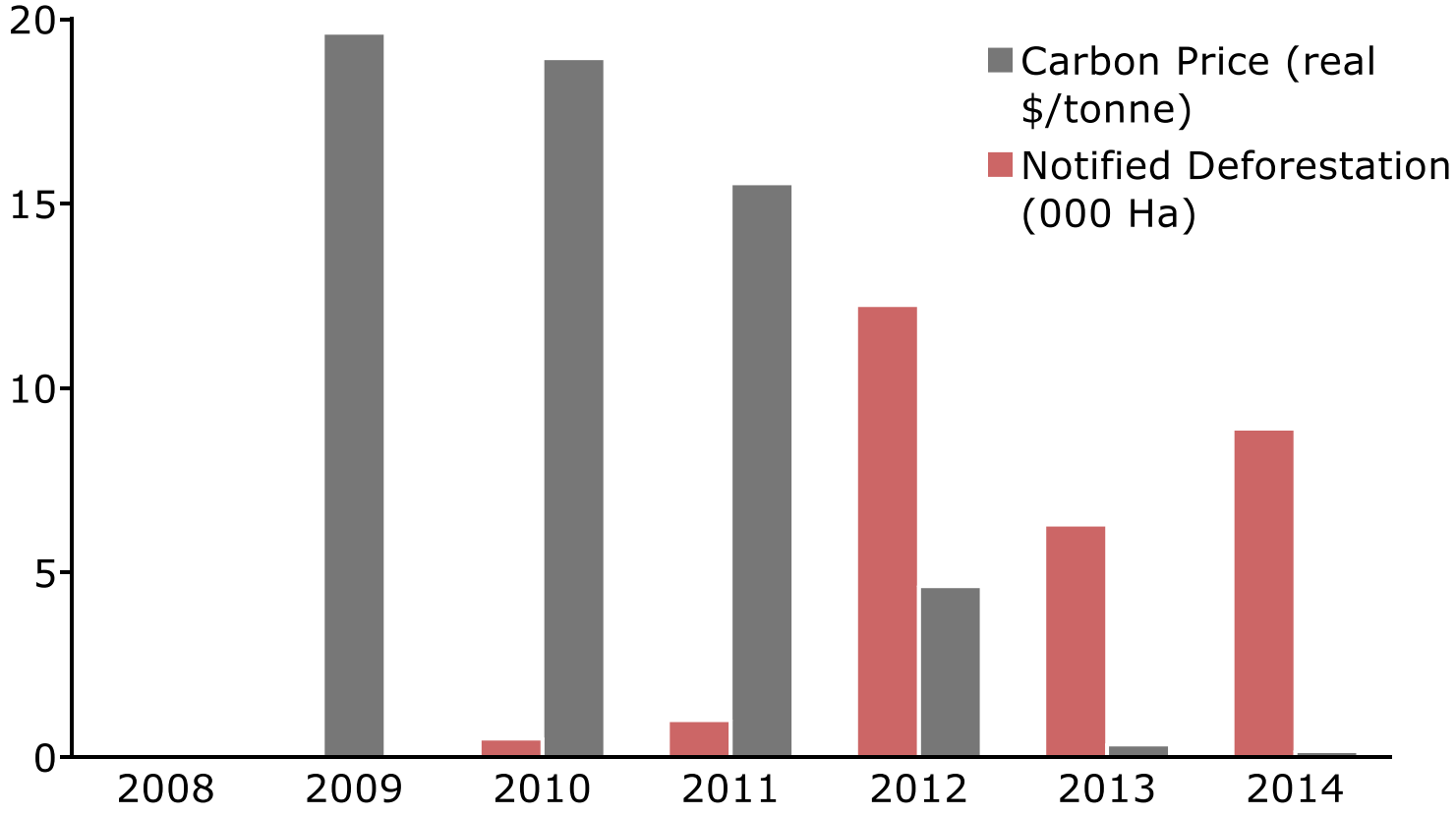
Source: Data from OM Financial Ltd and Carbon Match Ltd

Prices began to recover after Paris



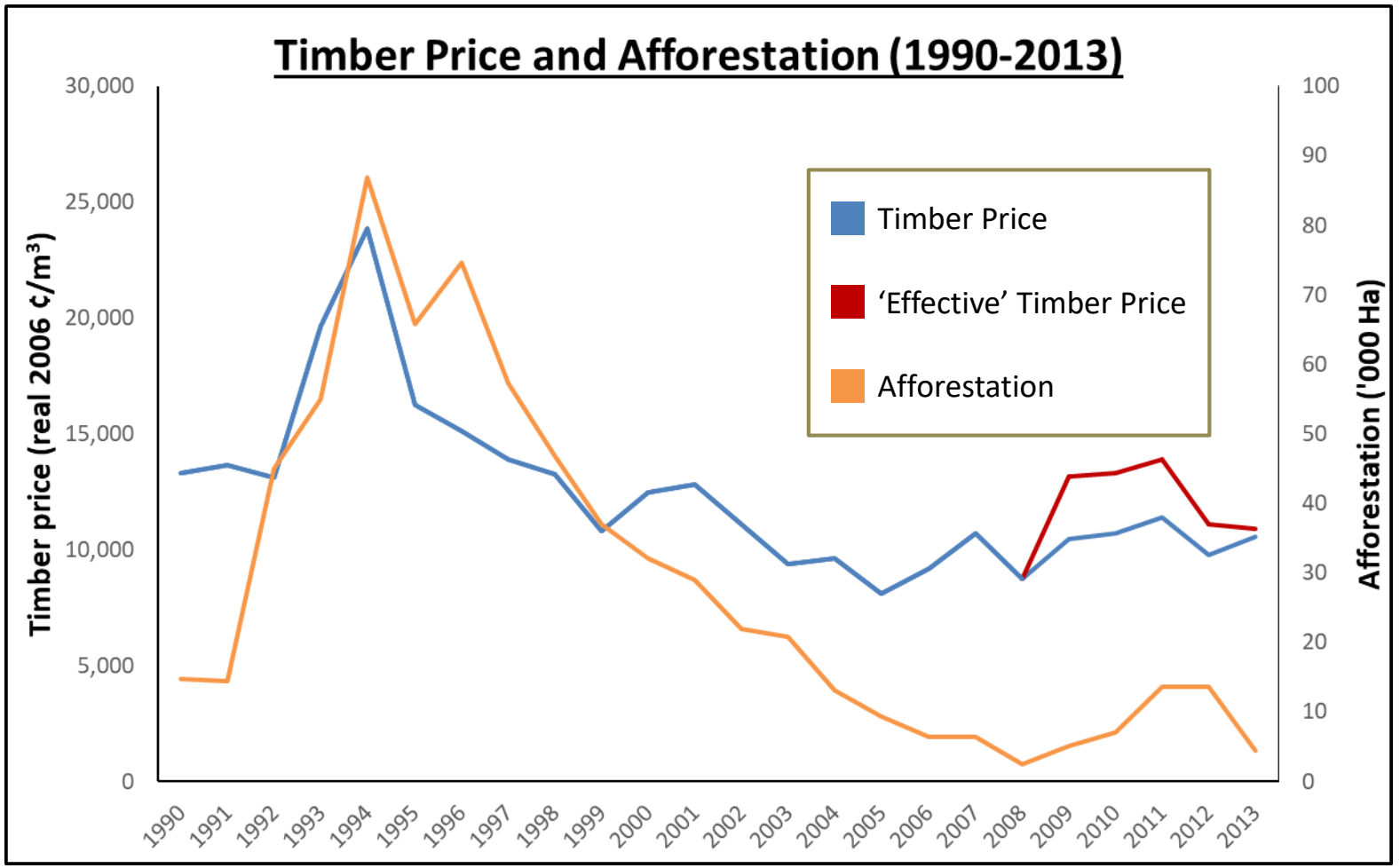
Source: Data from OM Financial Ltd and Carbon Match Ltd

Less deforestation when carbon price was high



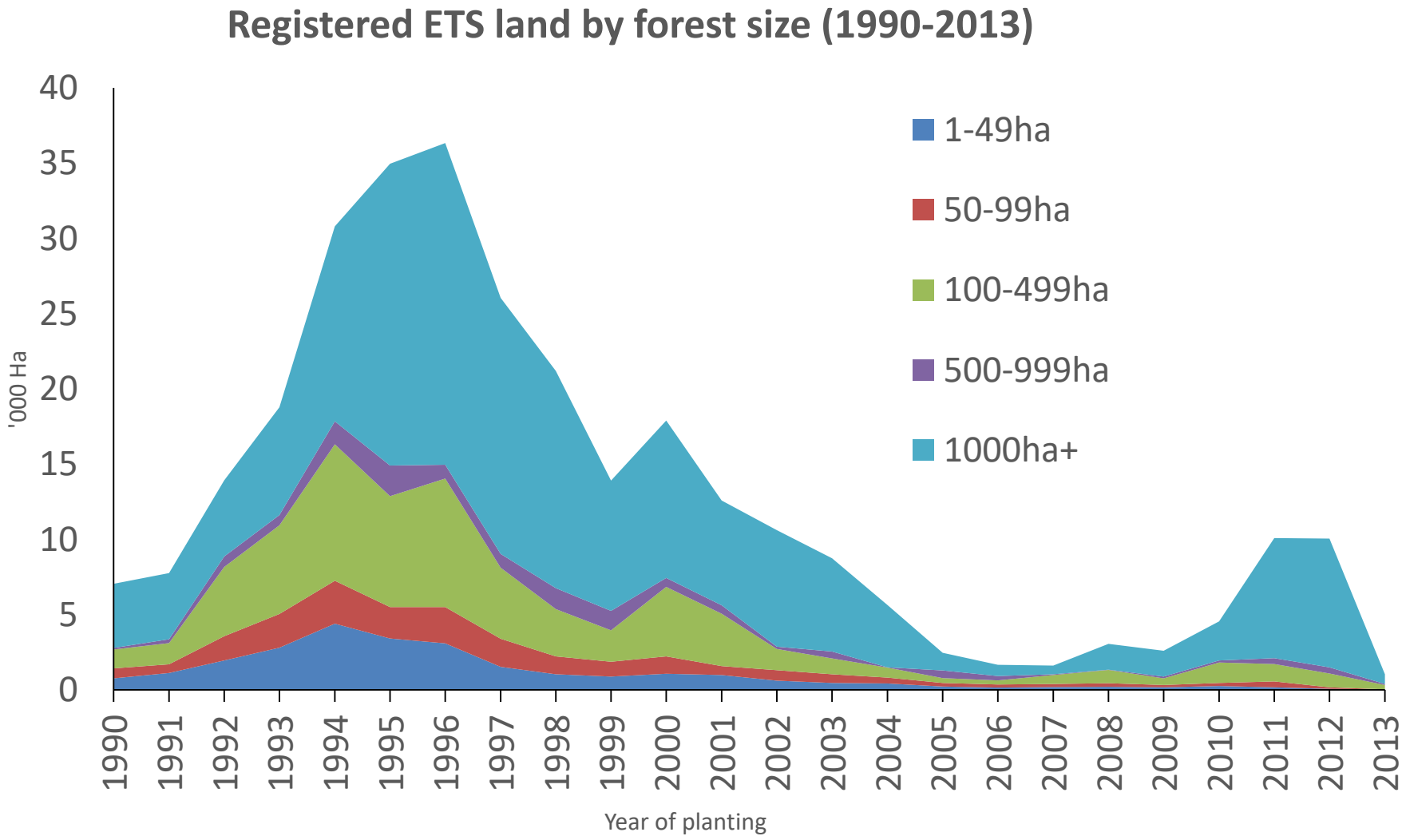
Note: Deforestation figures 'extracted' from EPA graph
Source: EPA ETS Facts & Figures 2014; OM Financial

(Slightly) more afforestation when carbon price was high previously



Source: Annual Forest Export Statistics 1981-2015; National Exotic Forest Description 2014; NZ's Greenhouse Gas Inventory 1990-2013

Most new forests in large blocks (>1000ha)



Effective emissions pricing

Long-term expectations of price, and regulatory and consumer pressure is what matters for investment

Emissions pricing has to operate under:

- genuine uncertainty (technology, international cooperation)
  - We know neither the correct price nor the correct quantity of emissions
- political uncertainty (free-riding)

Aim: Provide consistent signals of intent and allow flexible responses to genuine change

- Predictable cap and price management mechanisms can help
- Governance is key

Administration must be efficient – especially when small actors need to be involved

Key leadership characteristics

Courage

- Try new approaches and be prepared to fail

Intelligence

- make it simple!

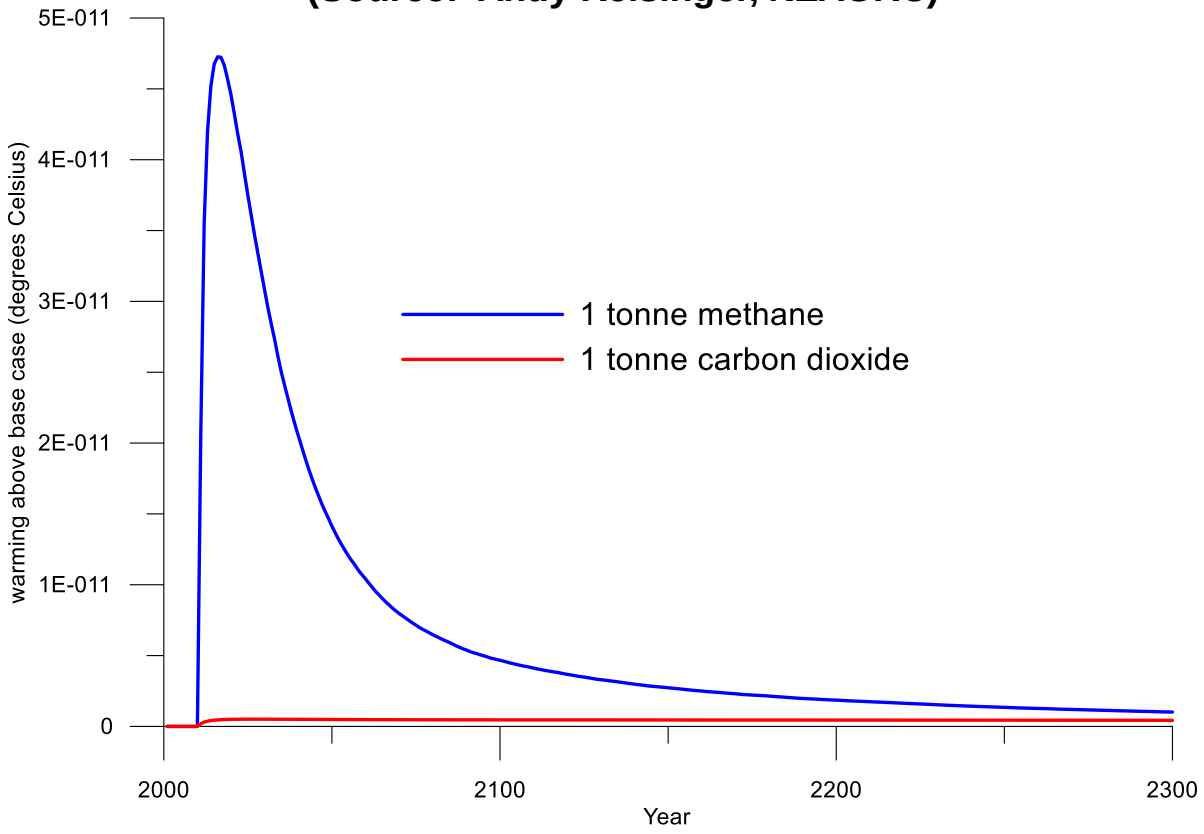
Humility

- much land-use change is driven by non-economic factors
- sometimes our instruments don't work as we expected and we have to be ready to adapt

3. Economics, cows, sheep and burps

Modelled warming from 1 tonne of emissions

(Source: Andy Reisinger, NZAGRC)



Short- and long-term climate outcomes: how hard should we push on methane now if there is a tradeoff with effort to reduce carbon-dioxide?

When will marginal damage to humans be greatest?
Not just a science question – expectations and ethics

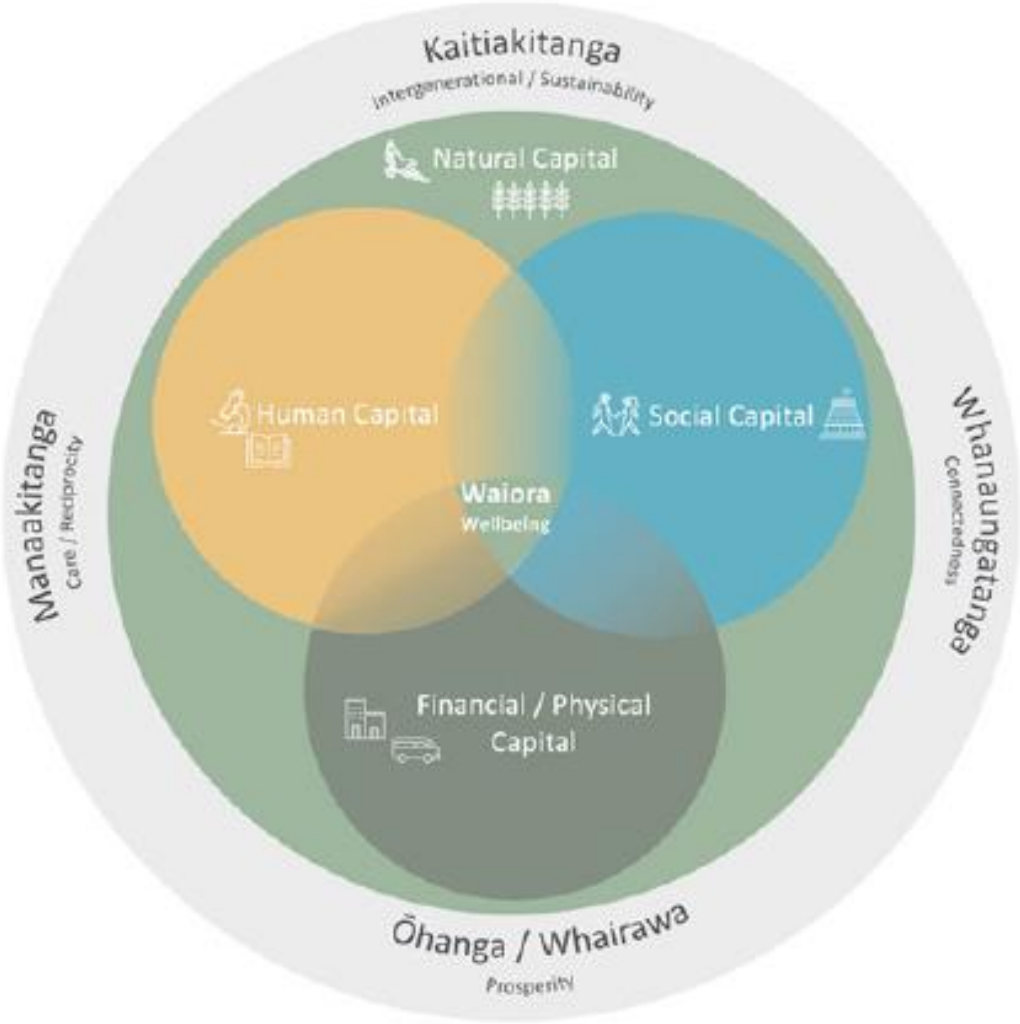
How rapidly can humanity adapt?
Will new adaptation behaviours and technologies be found in the long term?
Will negative emission technologies allow us to reduce temperature in the very long term?
How much do we focus on the wellbeing of people this century versus in later centuries?

Biological emissions from agriculture: a good 'tax' base?

1. Influence environmental outcomes?

2. Efficient source of revenue?

3. Fair?



Can we efficiently influence behaviour using emission pricing?

Land-use change is a major mitigation option and is, slowly, price responsive

- price responsiveness of on-farm behaviour is less clear

Do we just push activity offshore – emissions leakage?

- what will the new land use in NZ be?

Pricing alone is unlikely to drive rapid transformation of the land sector

Would including biological emissions in the ETS be an efficient way to raise revenue?

The usual answer with externality taxes is yes – no unwanted distortion in behaviour.

But what if pricing leads to rapid land-use change and rural communities can't adjust so costs are very high and social capital is lost?

- social externalities are inefficient

Price below the full cost during a transition?

Can putting biological emissions in the ETS be 'fair'?

Who is the 'polluter' – the farmer or the consumer?

Should around 25,000 farming families bear the cost of half New Zealand's emissions?

- Difficult to pass tax on to international consumers.
- Some farmers are wealthy but many are not.

Farmers need to act, but do they need to pay?

How can we provide efficient price signals but reduce the impact on households, communities and farm balance sheets?

Probably not a good source of revenue

Low emissions in the land sector

- It's not farmers' fault – but farmers must help reduce climate impacts from agriculture
- No emission is a good emission.
  - All mitigation has value – including methane
- New technology on dairy and sheep-beef farms will probably not be enough
  - But synthetic meat and milk might be
- Need land-use change toward horticulture and native and exotic forests
  - This is price responsive but will take time if we want an attractive transition – start now

Leadership characteristics

Intelligence

- need to understand how to facilitate structural change in a sector with many actors and deep social consequences

Generosity

- avoid the blame game and support rural communities through the change

Courage

- talking about diet and land-use changes
- innovative farmers creating new options and new rural identities

Humility

- support those who can make the real change

Let's build our waka, be brave but humble, use all our intelligence to see our 'island' & paddle together – all with excellent economics!