Greenhouse Gas Pricing for Land Use, Agriculture and Forestry

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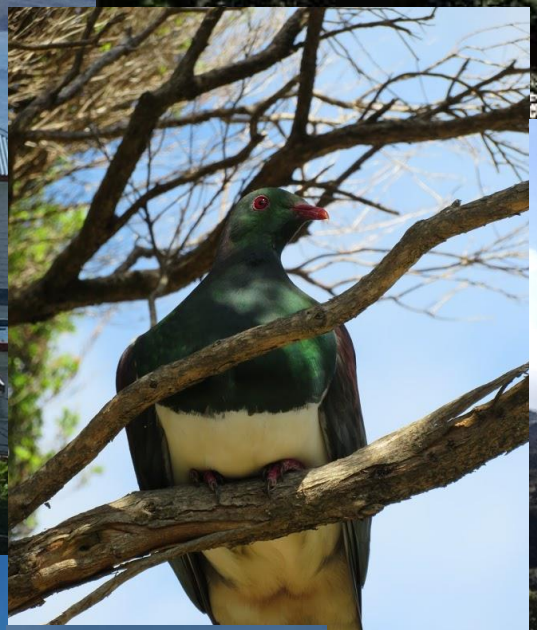
Finding the ways that work









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Using pricing to enable and encourage mitigation in agriculture and forestry

1. Who acts and who pays?
2. Measurement, additionality, permanence, leakage
3. How can we ‘price’ sequestration and storage in forests?
4. How can we price biogenic emissions from agriculture and carbon storage in soils?

Who acts and who pays?

Who needs to act?

- Landowners, farmers, communities, companies

Who pays?

- Opportunity cost and economic incentive to mitigate is the same (almost) whether the farmer/landowner is paid or pays.
- Distribution of benefits and costs is quite different under different policies
- Remember that the person who pays is not necessarily the one who is most affected
  - People can often pass on costs to customers and others.

Policy design determines who pays

- Farmers / landowners pay – government receives revenue
  - ETS liability or tax/levy
    - e.g., livestock methane, N_2O, deforestation
- Farmers / landowners or communities are paid – government, buyers, funder pays
  - Credits for individual projects and/or jurisdictional
    - e.g., forests, agricultural soils

Measurement, additionality, permanence, leakage

Measurement doesn't need to be perfect

unbiased and **unmanipulable** are the key goals

Low transaction costs is also important – focus on mitigation not paperwork

Additionality and leakage

except for a few specific clearly unprofitable technologies, we can't really know if a specific farmer would have been taken an action – don't waste time trying

Similarly accurately identifying the impact of one farmers' action on the economic system isn't possible – meet economic needs in other ways to reduce leakage

Permanence

Can be enforced in some countries for a long period, and others not at all, but nowhere forever. (But we can't guarantee to keep coal in coal mines forever either.)

Aim to shift the system so we don't want to revert to high emissions activities

Scale and long-term low-emissions vision help

Jurisdictional programs – where results are measured over a large area relative to a baseline for that area and then benefits shared within the jurisdiction – can be effective solutions.

New Zealand ETS treatment of deforestation

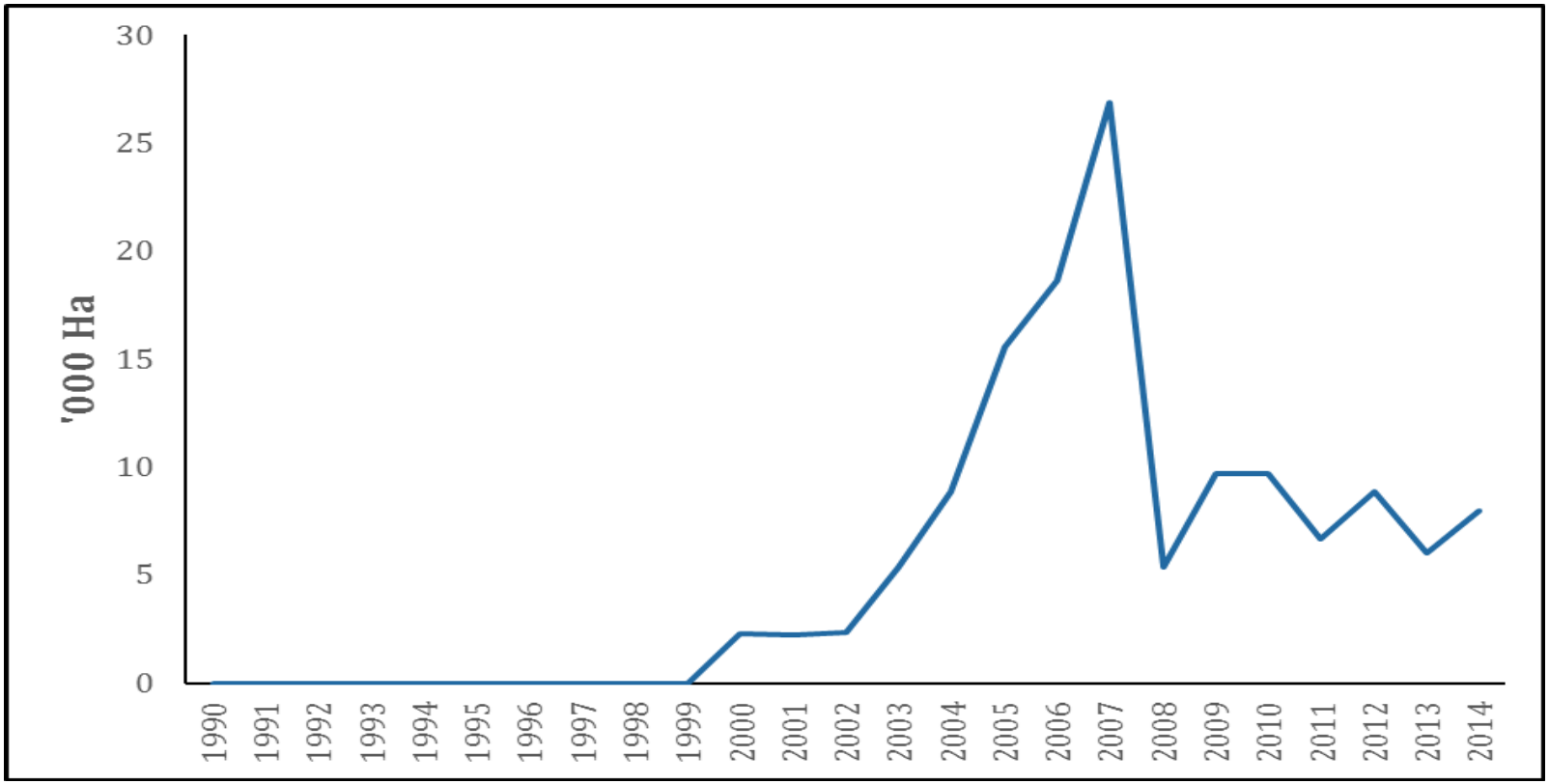
Full liability imposed high cost on a concentrated group

- conversion to dairy or urban

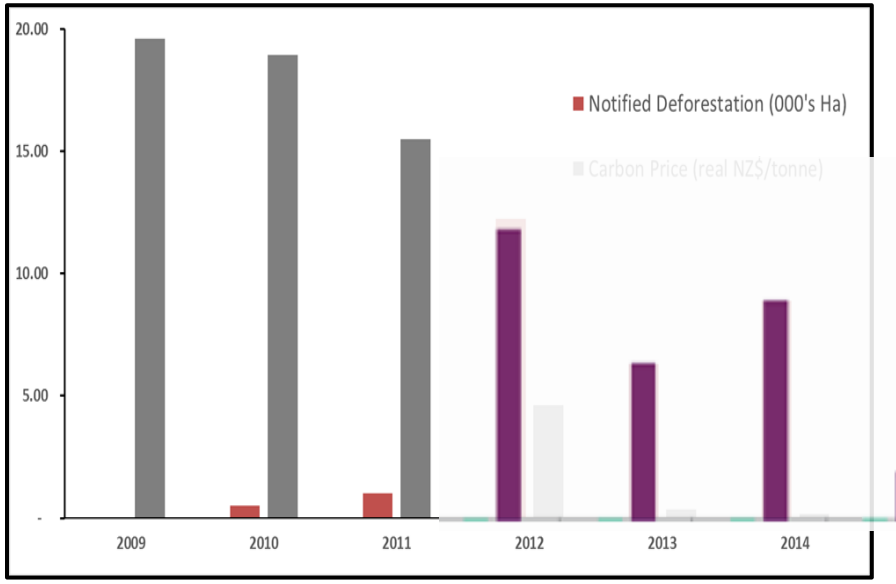
Free allocation of some units – to all pre 1990 forest

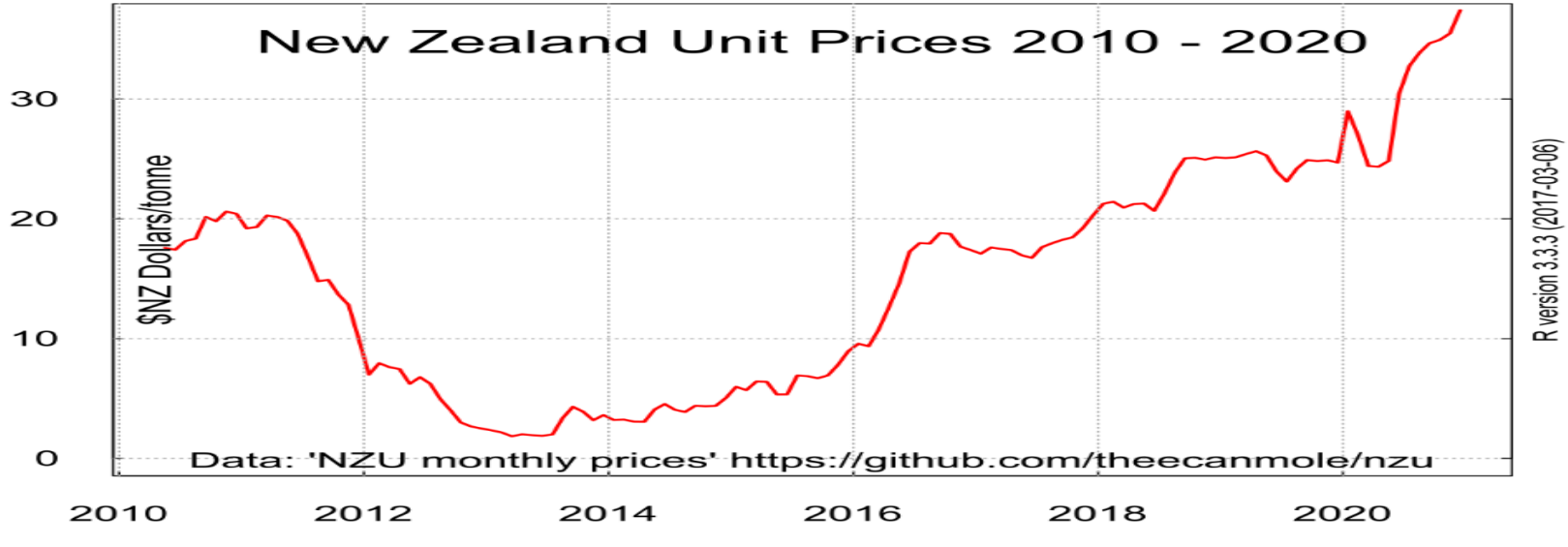
Deforestation – as observed by satellite

Beware pre-program clearing



Deforestation and carbon liabilities





Reforestation in the NZ-ETS

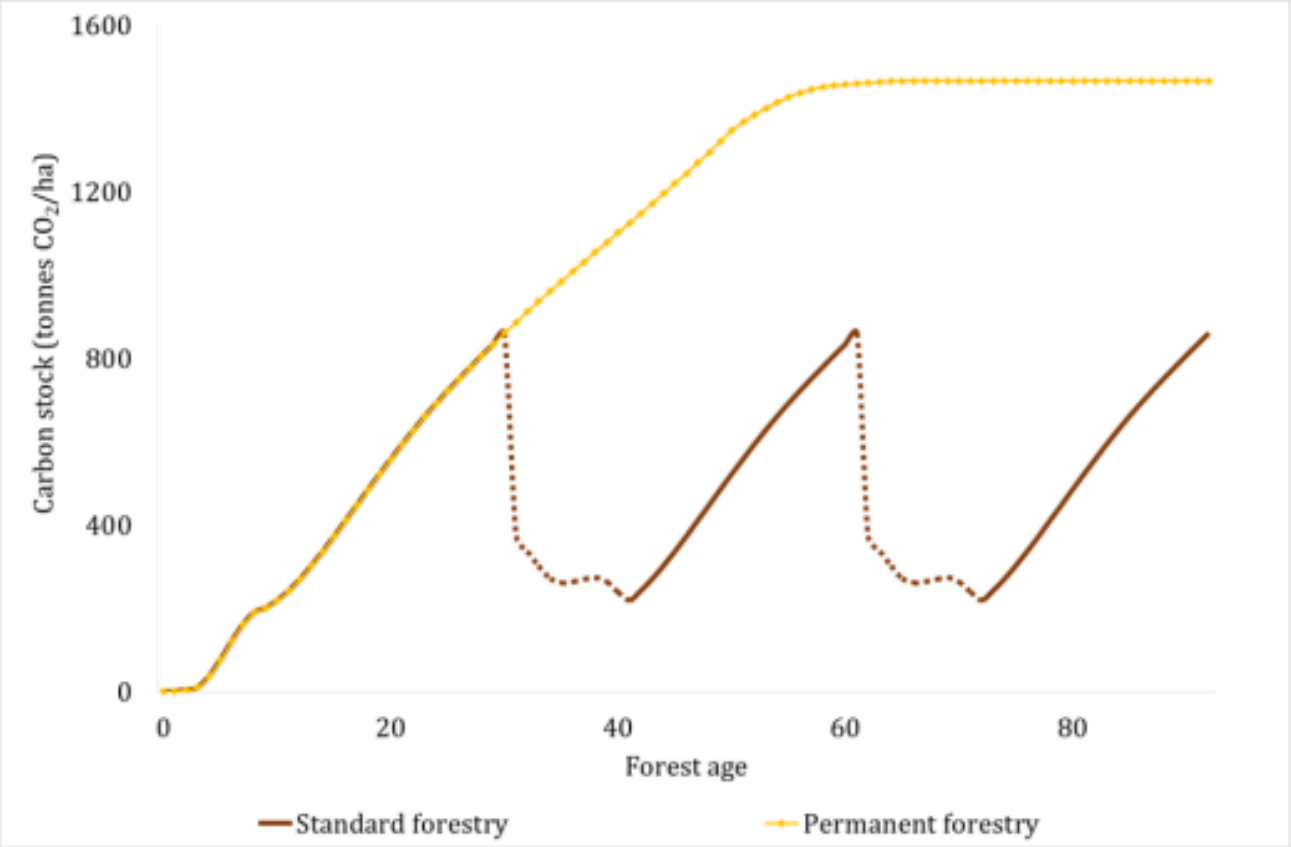
A credit is one tonne of carbon dioxide sequestered in plantation forests (or regenerating natural forest)

Participation for reforestation is voluntary

Baseline is no planting (no additionality check)

Crediting reforestation in the NZ-ETS

Trees store carbon as they grow but lose it when they are harvested (or burn)



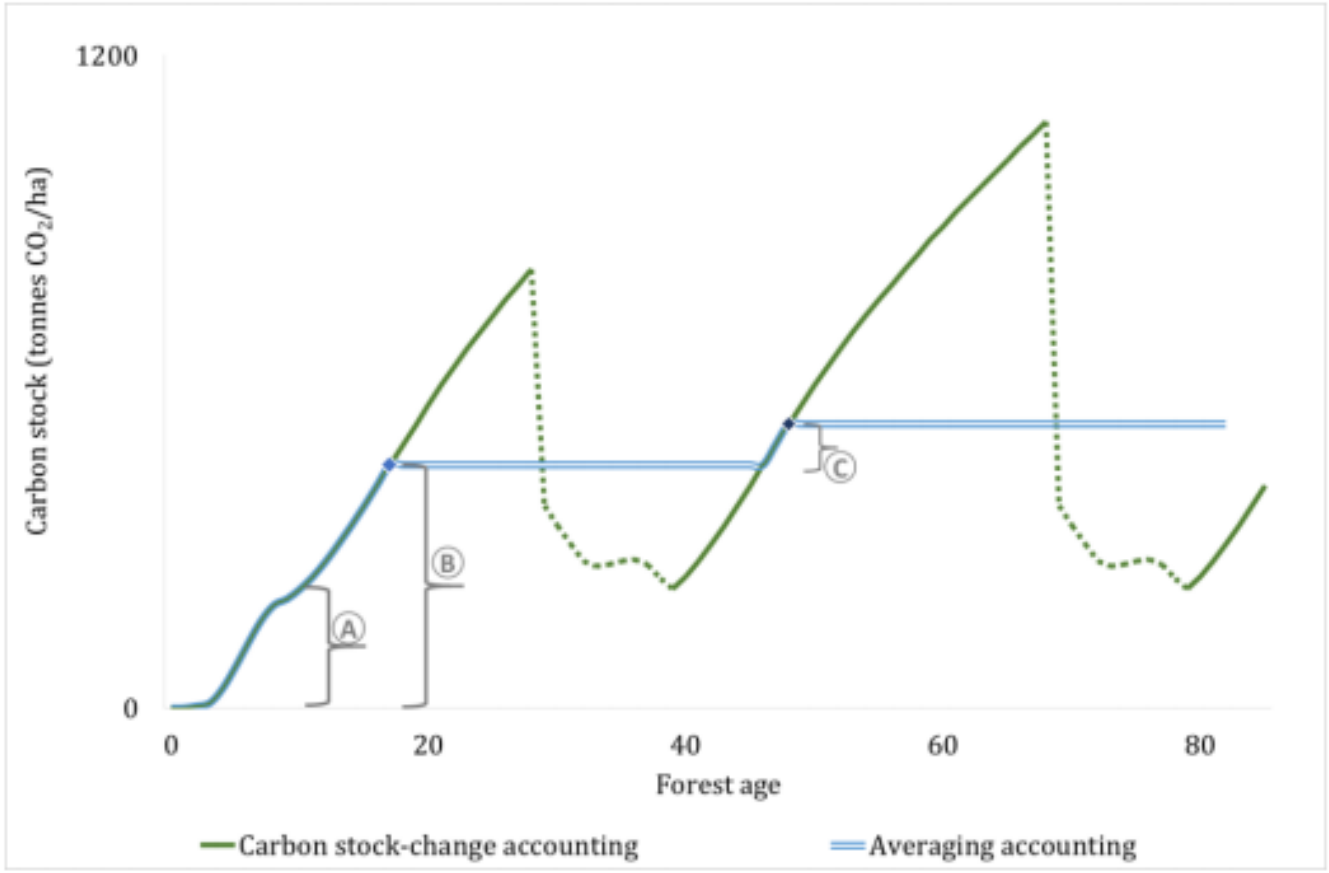
Source: Cortés Acosta et al. 2020

Managing loss of carbon

Credits received as trees grow either

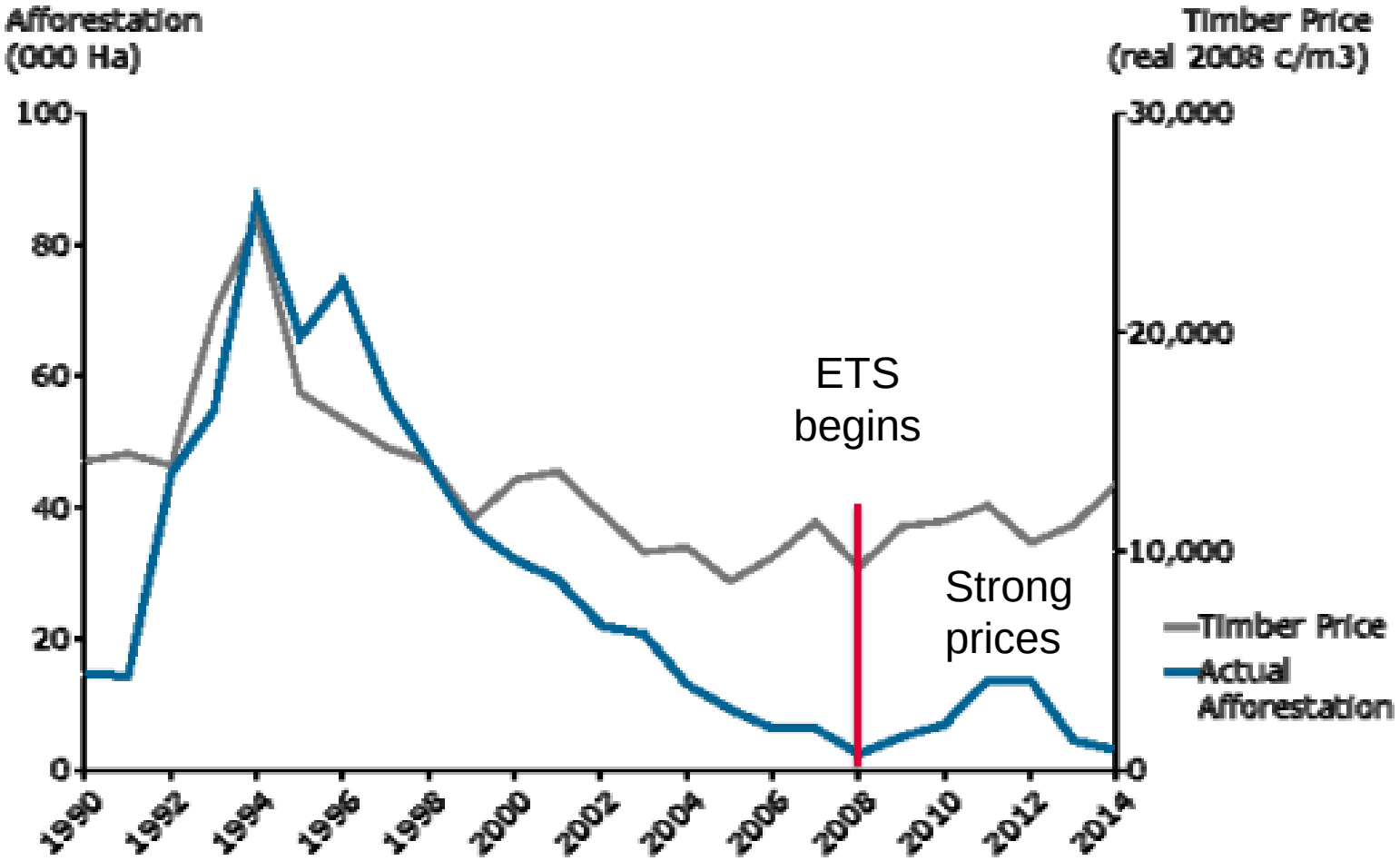
up to average stock; or

without limit but repay on harvest



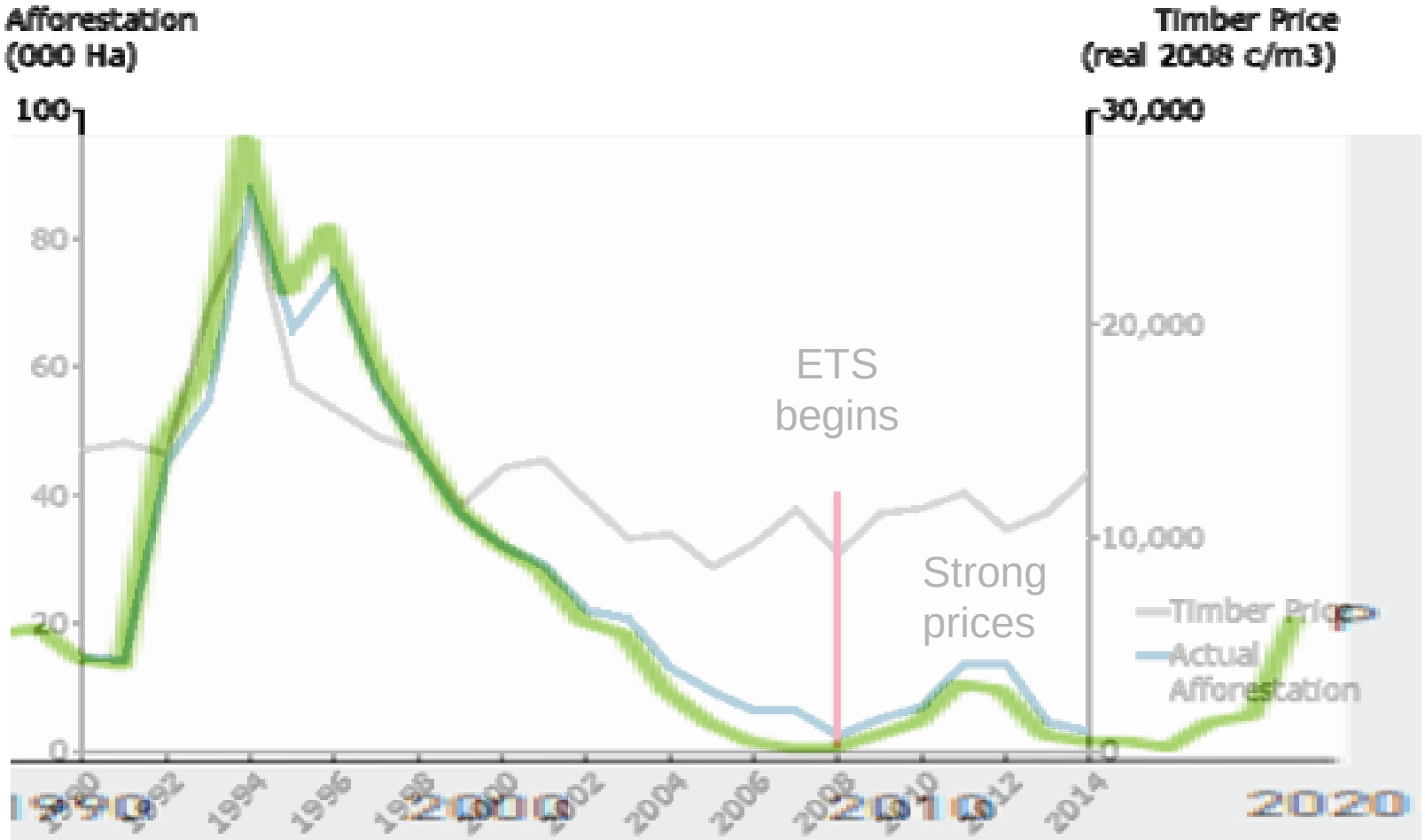
Source: Cortés Acosta et al. 2020

New forest planting



Source: New Zealand National Exotic Forest Description 2019

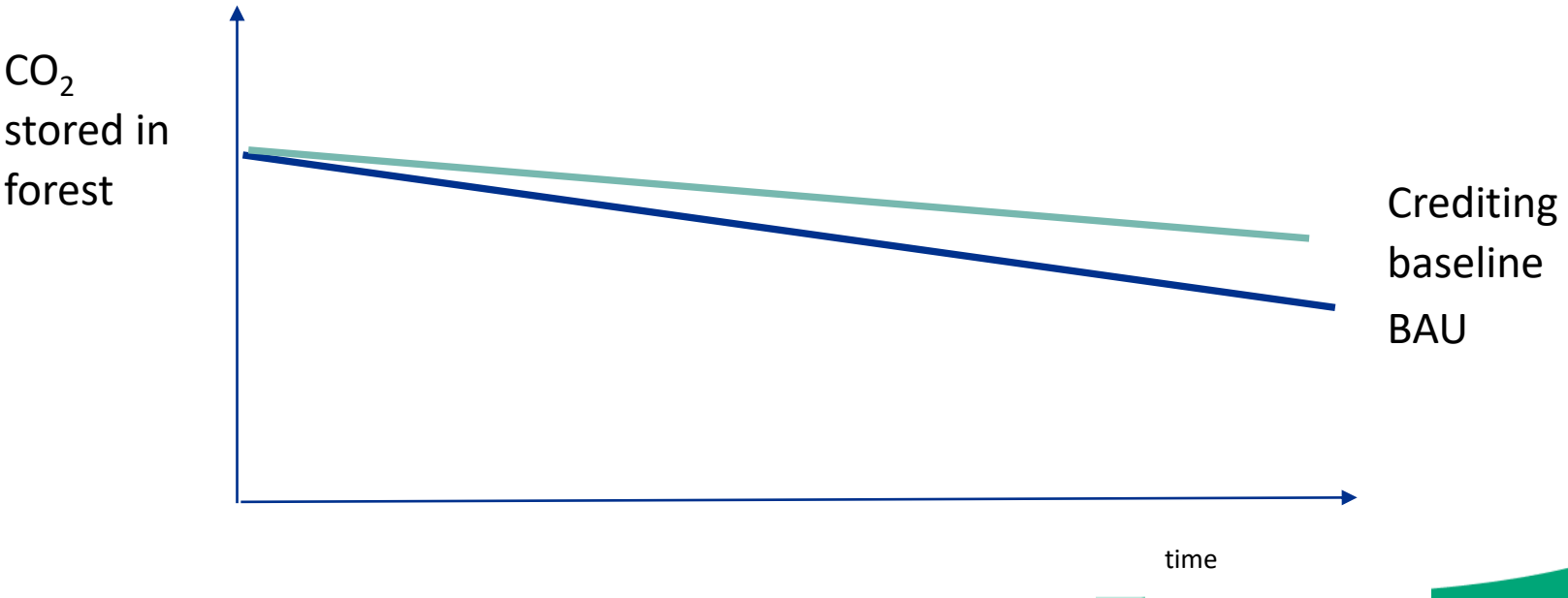
New forest planting



Source: New Zealand National Exotic Forest Description 2019

Latin American proposal: Deforestation

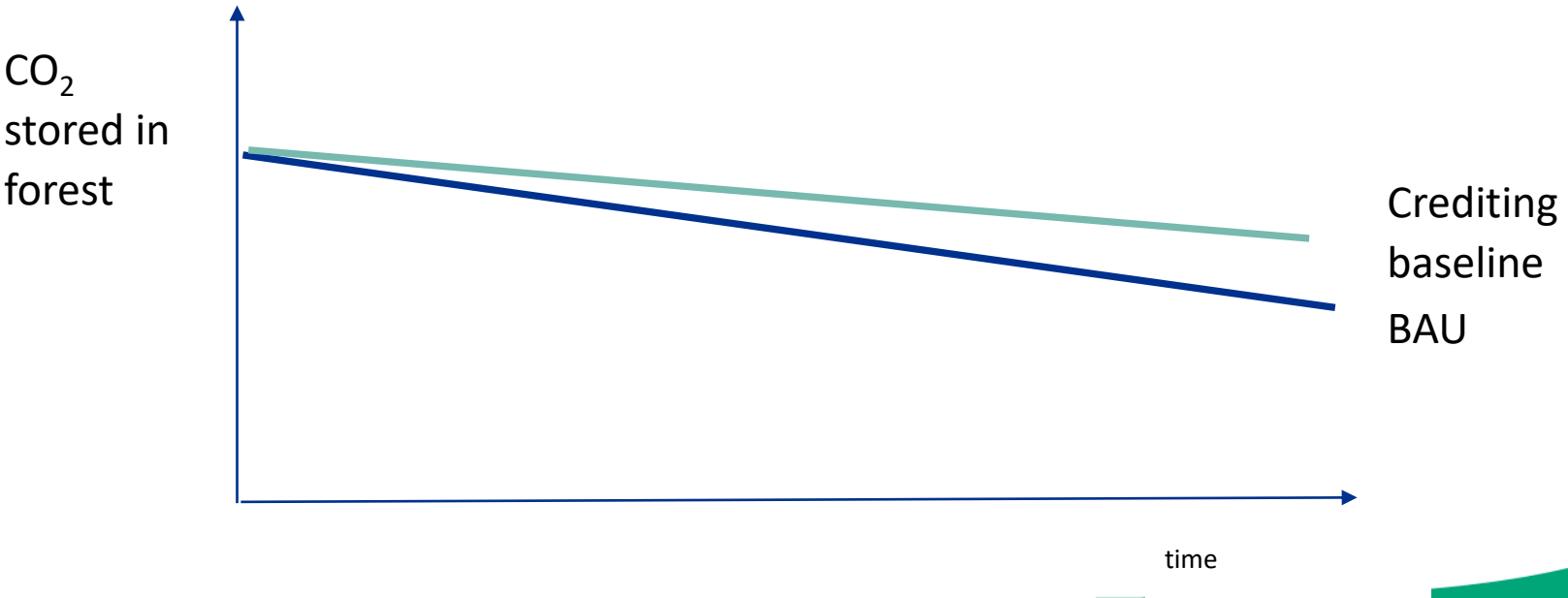
1. Large development companies have liability
2. Jurisdictional program: results-based
   E.g. Level of department within country



Jurisdictional program: results-based

Consortium of local actors who can influence deforestation:

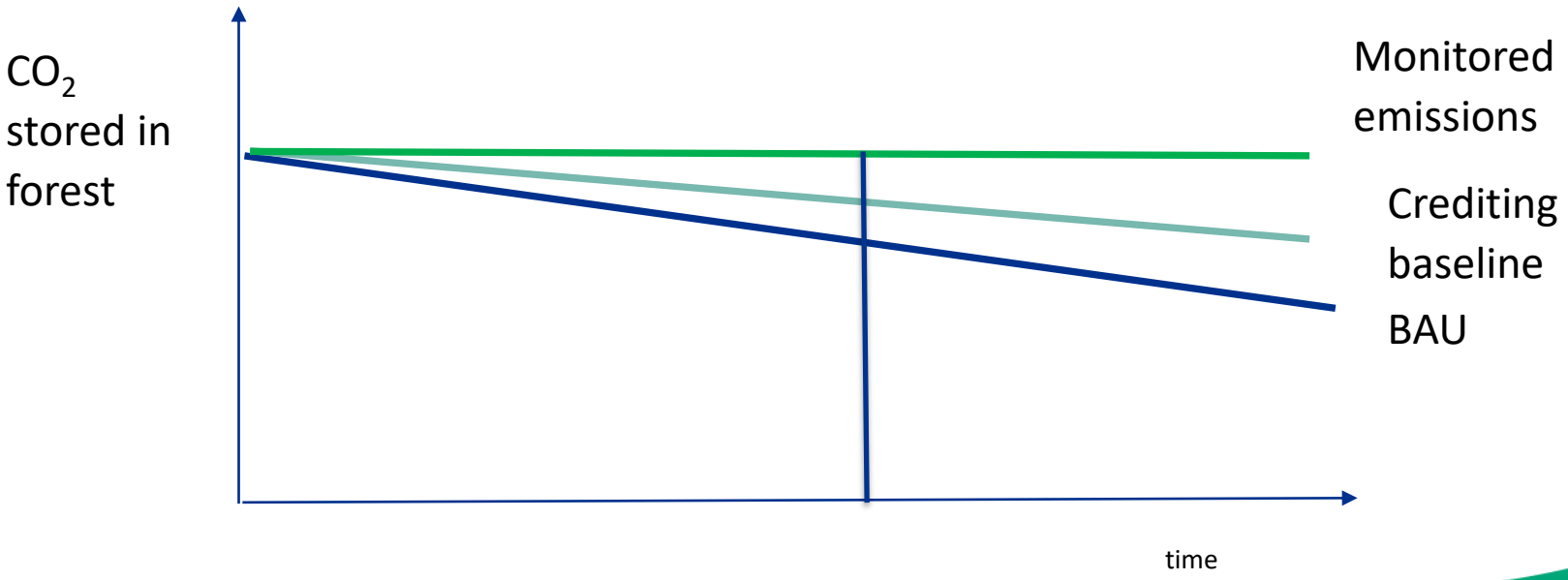
Department, municipio, farming association, NGO, project developers, companies….



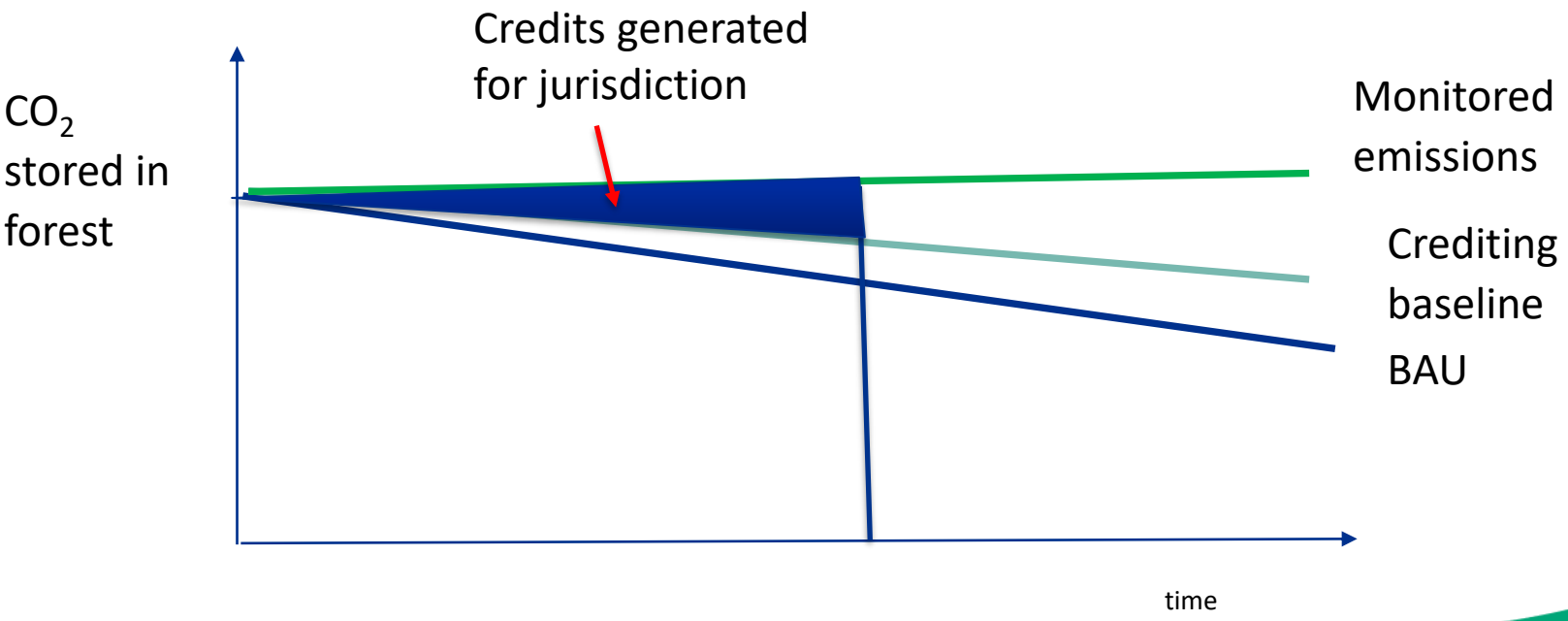
Jurisdictional program: results-based

Activities:

- Enforcement capability building,
- Strengthen supply chains for timber and local agricultural products,
- Bolsa Verde….?

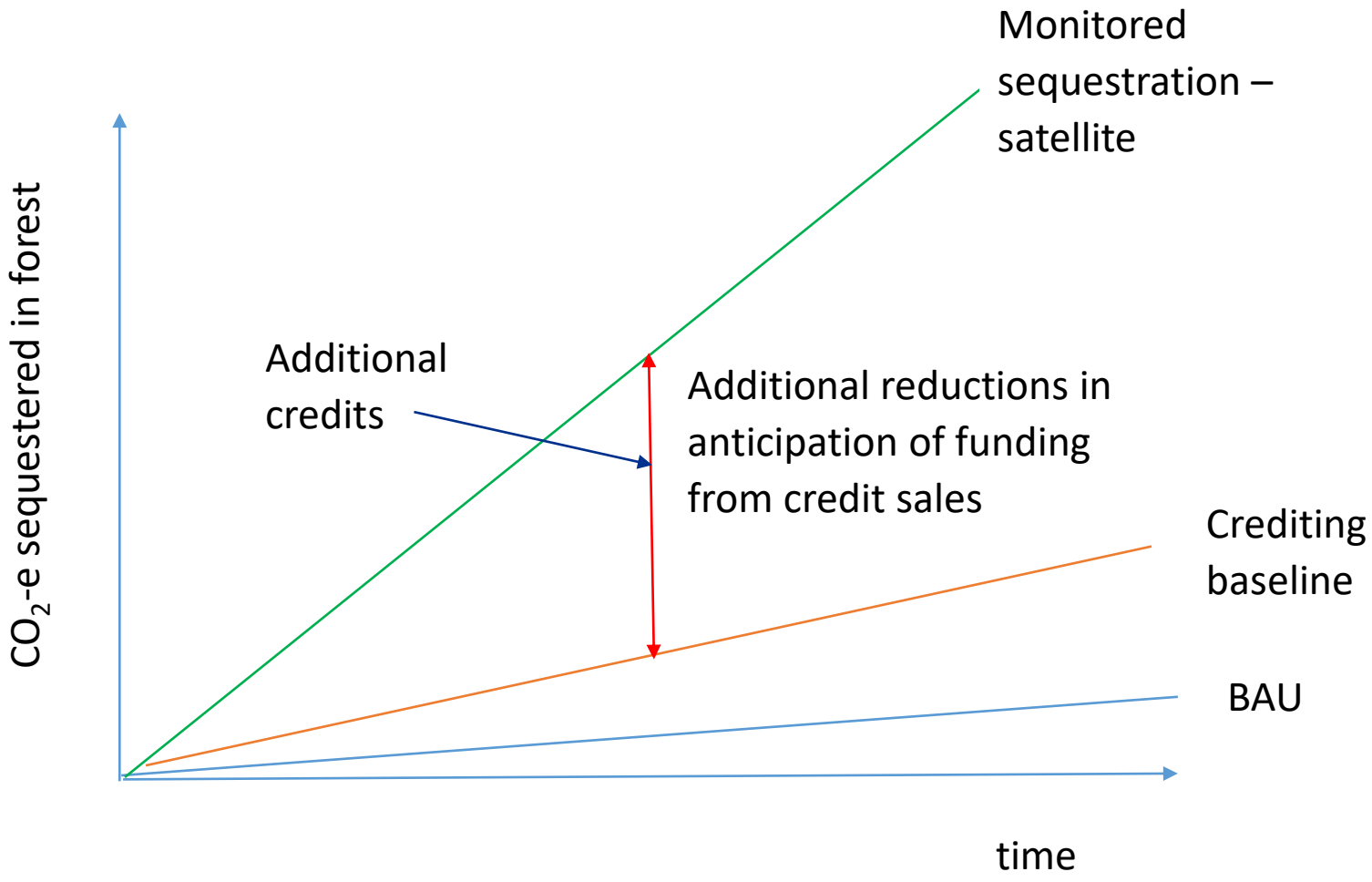


Jurisdictional program: results-based



Latin American proposal: reforestation

1. Jurisdictional: results-based



2. Rental payments for parcel ‘owners’ ($ not credits)

a. Map of eligible land – no forest in a given year
b. Owner proves ‘ownership’ and registers with bank account details
c. Forest sensed remotely
d. If forest is observed, rental payment is given to bank account based on inferred forest age / carbon stock
e. If forest is not observed, no payment

Low transaction costs; avoids permanence issues

Incentives are not enough

Complement with:

- training in forestry
- establishing nurseries
- research
- programs to directly plant trees
- development of industries to use and export sustainable timber and other forest products

Key messages for forestry

1. It is possible to include forestry in ETS
2. Co-benefits can be large
3. Don’t need to assess ‘additionality’ for domestic credits
4. Don’t need to require ‘permanence’
5. Any investment is highly sensitive to returns – carbon prices need to be more stable
6. Needs to be simple for small players
7. Not a substitute for reductions in fossil fuel emissions

Pricing biogenic agricultural emissions (CH_4, N_2O)

Some Options:

Farm-scale levy on all emissions – only in countries like NZ!

Credits: problematic – but sometimes the only option to encourage new practices, or for unprofitable technologies (e.g. biodigesters)

Jurisdictional systems could work – if can model emissions at this scale

Levy on fertilizer – good proxy for N_2O

Levy at processor on meat/milk proportionate to average emissions

Subsidy for methane inhibitors – when available

Farmers need to act – but not pay

Consumers need to act too – while protecting the vulnerable.

Key messages

Keep your eyes on the ball:

- Mitigating climate change in the short and long term
  - Long-term reduction in emissions and increase in carbon storage
  - Meet human needs: food, fibre, energy
  - All people thrive

KISS: keep it simple

- Let farmers/ landowners focus on mitigation not compliance

Complex problems require multiple tools:

- Pricing is part of a suite of policies – not a complete solution

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