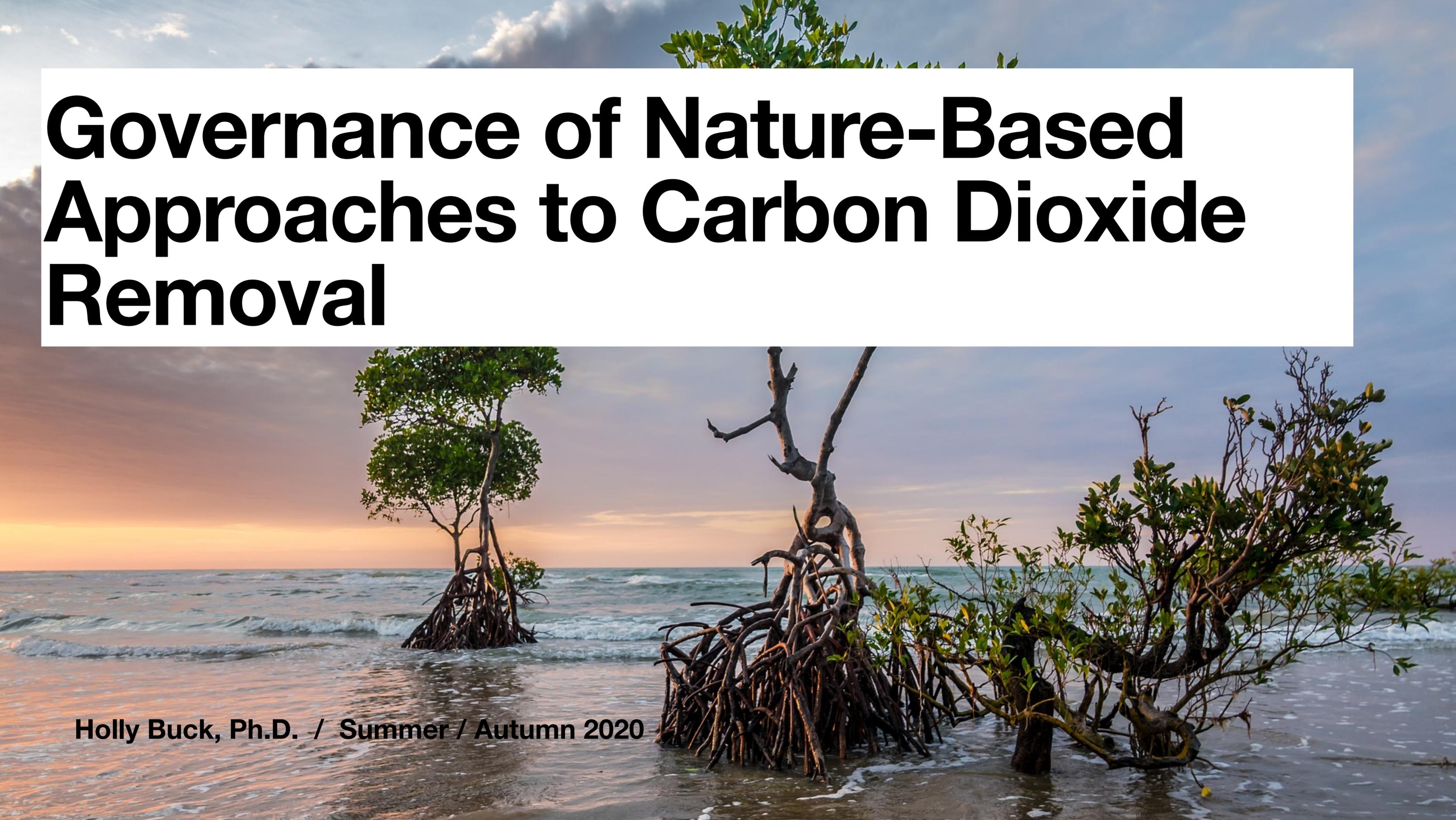


# Governance of Nature-Based Approaches to Carbon Dioxide Removal

Holly Buck, Ph.D. / Summer / Autumn 2020



# What this talk will cover

- Big-picture governance challenges of scaling up nature-based approaches to carbon dioxide removal
- Existing frameworks for governing nature-based approaches
- Current efforts to address governance challenges

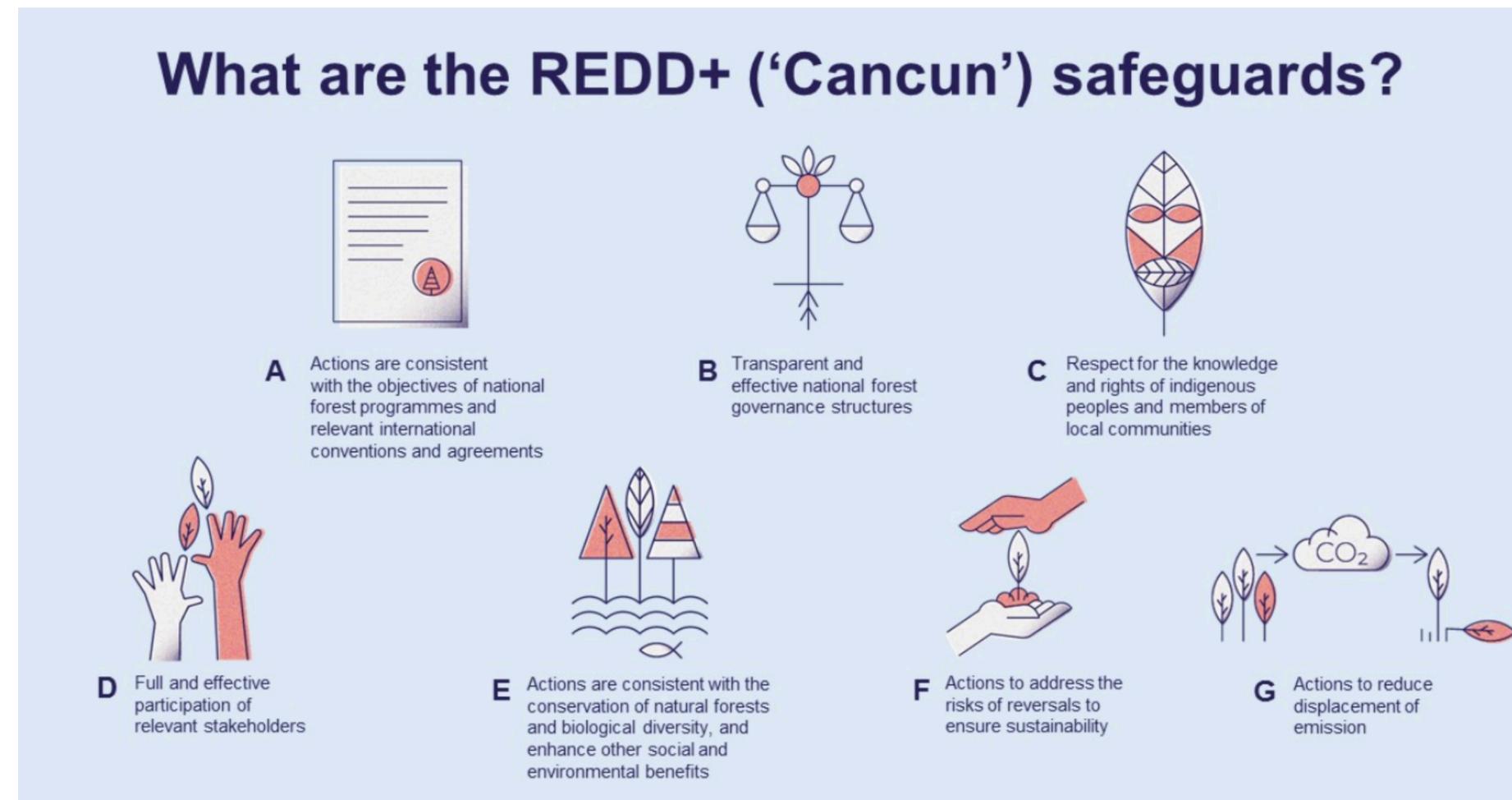


# Key governance challenges

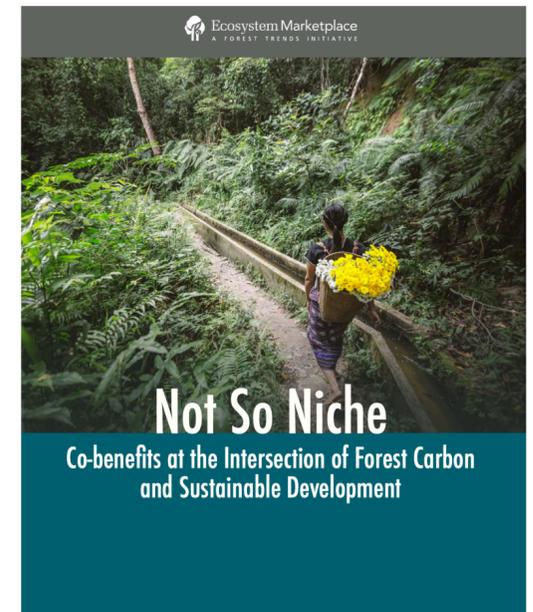
1. Social and environmental safeguards
2. Capturing co-benefits
3. Ensuring long-term storage and preventing leakage
4. Monitoring, reporting, and verification
5. Responsible incentivization
6. Avoiding mitigation deterrence

# Social and environmental safeguards

- Safeguards are measures to avoid risks (“do no harm”)
- Social safeguards have been proposed and debated with REDD+
- Carbon must be balanced with biodiversity and other environmental goals
- Cross-boundary governance challenges could require bodies like the CBD, UNFCCC, and IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) to work together
- Align with implementation of SDGS



# Capturing co-benefits



- Co-benefits might include larger yields or lower fertilizer and water costs (soil carbon sequestration), or community benefits like jobs, empowering women, biodiversity, and climate resilience (forest carbon)
- Many projects may be done for the co-benefits first, and carbon benefits second
- Can't assume that co-benefits naturally follow implementation — policy needs to be designed to maximize them

# Permanence and leakage

- Permanence: “the risk of release of stored carbon from a project activity back into the atmosphere as CO<sub>2</sub> during the permanence period”
  - fire, pests, disease, harvesting...
- Leakage: if you protect forests in one place, it won't mean that forests are lost in another place

# Monitoring, reporting, and verification

- Transparency is critical
- Costs of monitoring soil carbon makes it difficult for farmers to participate in some schemes
- Governments may need to support monitoring frameworks

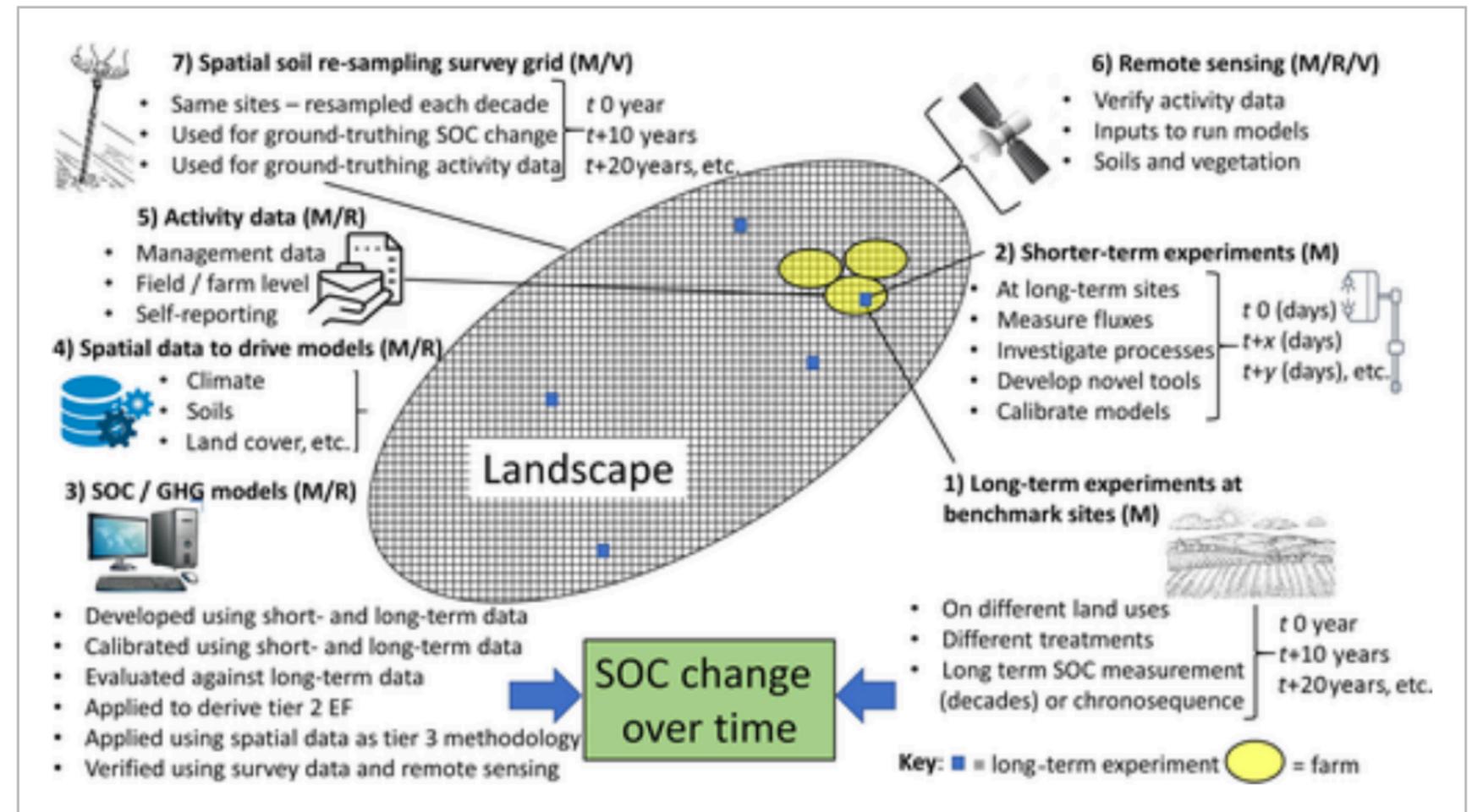


Figure 3

[Open in figure viewer](#) | [PowerPoint](#)

Components of a soil measurement/monitoring, reporting and verification framework, indicating which components contribute to measurement/monitoring (M), reporting (R) or verification (V). See text in Section 8 for explanation of linkages between the components

# Responsible incentivization

## from supporting R&D to project financing and scale-up

- The challenge is not just avoiding harms, but enabling and supporting nature-based approaches to carbon removal
- What makes an incentive “responsible”? Public choice of what to give public support to? Transparency?

**Incentivize negative emissions responsibly**

Rob Bellamy 

*Nature Energy* 3, 532–534(2018) | [Cite this article](#)

# Avoiding mitigation deterrence

- Some people are concerned that developing nature-based carbon removals as offsets will allow for continued emissions, and thus delay mitigation
- Because of this concern, some analysts have suggested separate targets for mitigation and removals



**Shell** ✓ @Shell · Apr 9, 2019

What is Shell doing?

- 🌱 Supporting reforestation projects with @LandLifeCompany
- 🌲 Planting millions of trees with @staatsbosbeheer
- 🚗 Making it possible for motorists to drive carbon neutral in the #Netherlands
- 🌳 Buying carbon credits from nature-based projects

(3/7)



**POLICY BRIEF ARTICLE**

Front. Clim., 21 August 2019 | <https://doi.org/10.3389/fclim.2019.00004>



## Beyond “Net-Zero”: A Case for Separate Targets for Emissions Reduction and Negative Emissions

 Duncan P. McLaren<sup>1\*</sup>,  David P. Tyfield<sup>1</sup>,  Rebecca Willis<sup>1</sup>,  Bronislaw Szerszynski<sup>2</sup> and  Nils O. Markusson<sup>1</sup>

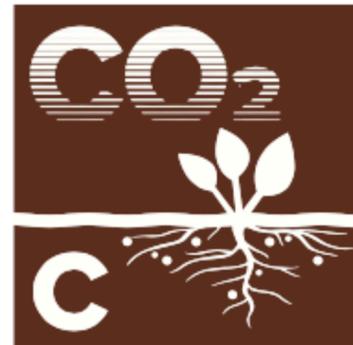
# Existing frameworks: Forestation

Techniques	Readiness	Active Research Area	Governance Framework	Social Acceptability
 <p>Afforestation and forest ecosystem restoration</p>	<p>Already widely practiced. Could be deployed at scale with little further development.</p>	<p>Yes. Exploring gas fluxes from trees, land use change effects and albedo changes.</p>	<p>The United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol, Paris Agreement, the Food &amp; Agricultural Organisation (FAO). Questions remain regarding social justice (i.e., land use issues). A requirement for better monitoring, verification and reporting of achieved sequestration.</p>	<p>Competing demands for land use need governance. A lack of financial incentives to encourage afforestation.</p>



- Many states are including forestation in their NDCs
- Experience with REDD+ has surfaced social justice issues
- Forest carbon experience has led people to study how to deal with permanence and leakage risks, such as planning for some loss in models, liability schemes, etc.

# Existing frameworks: Soil carbon and biochar



Carbon sequestration in soils

No significant barriers. Some have adopted the practice. Limited knowledge of the techniques in the agriculture community.

Yes. A better understanding of gas fluxes from enhanced soil is required.

The UNFCCC and Paris Agreement, the FAO and the 4p100 initiative. A requirement for better monitoring, verification and reporting of achieved sequestration.

No major social concerns.



Biochar

A well-established technology with an evolving market.

Yes, explorations of decomposition rates and the relationship with feedstock and temperature.

State and customary law, UNFCCC and FAO. Better reporting, monitoring and verification is required. A transboundary trade in biochar may require international agreement regarding carbon credit allocation.

No major social concerns.

# Existing frameworks: Macroalgae cultivation



Technologies are readily available. Development may be required to maximise methane and CO<sub>2</sub> capture and use.

Yes. Limited research underway.

Dependent on the location of cultivation, which could be within in-shore or off-shore waters. The FAO may have interests.

As an extant farming method, a proliferation of the technique will not pose insurmountable challenges.



- States have governance over coastal waters and 200-mile exclusive economic zones

# Existing frameworks: Restoring wetlands



Requires little new technology.

Yes. Reducing methane release and its capture.

The UNFCCC, Kyoto Protocol, Paris Agreement and FAO. Land use trade-offs. A requirement for better monitoring, verification and reporting of achieved sequestration.

A key barrier may be the lack of financial incentives to encourage land-use change.

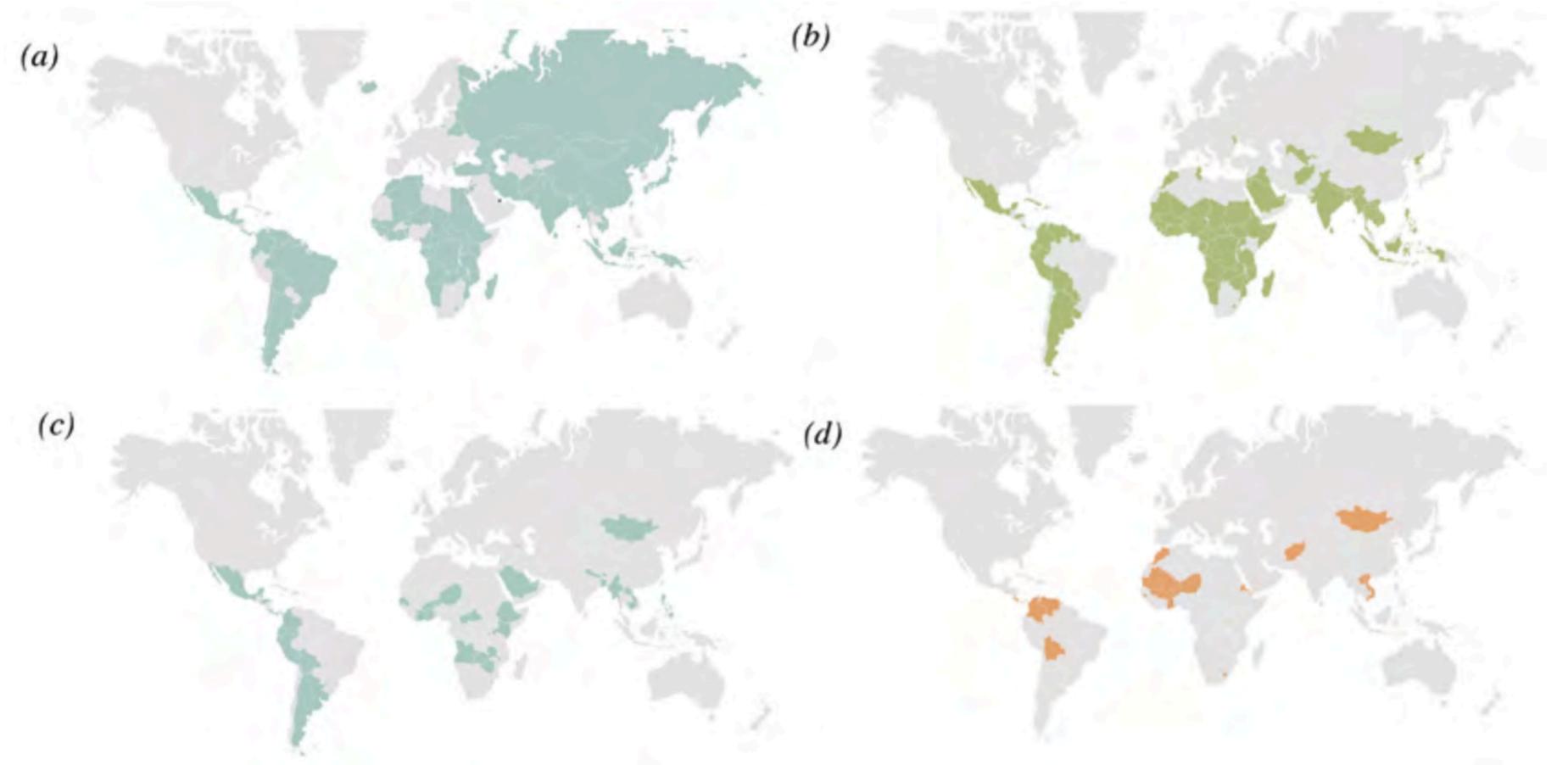
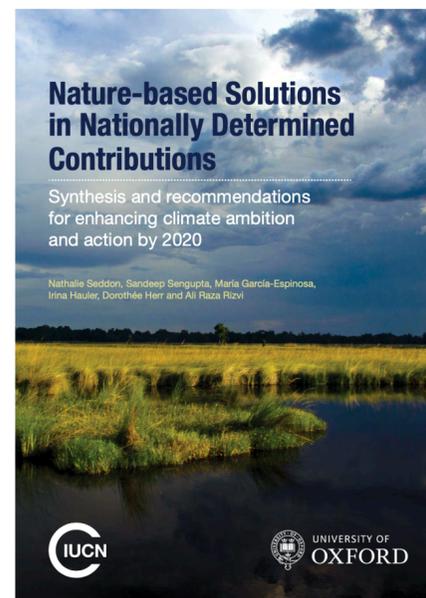


- Many coastal wetlands are being lost, so protecting them is a first order of business
- Falls partially under Paris Agreement reporting requirements
- Ramsar Convention on Wetlands could potentially play a role in frameworks for blue carbon

# Current efforts to address governance challenges

## Including Nature-Based Approaches into Nationally Determined Contributions

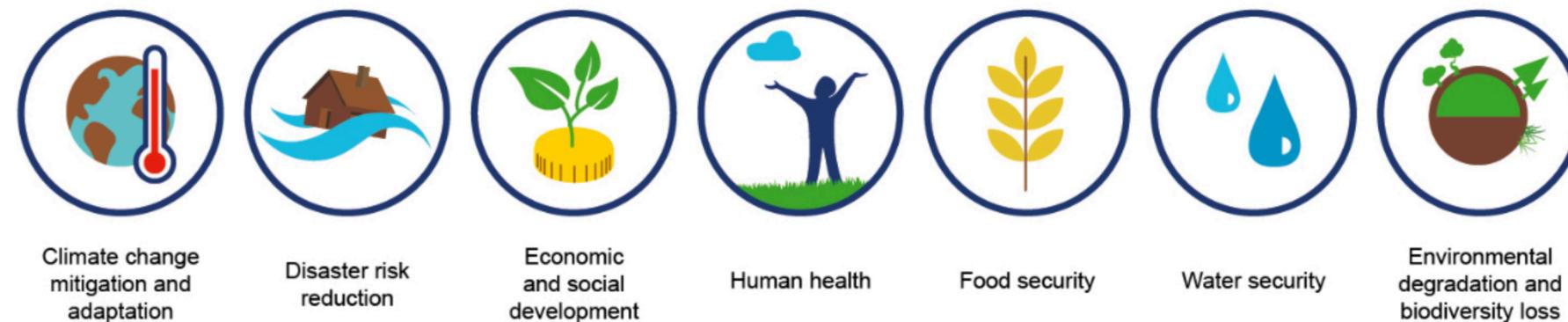
- At least 66% of Paris Agreement signatories include nature-based solutions in some form to help achieve mitigation and/or adaptation goals
- But more concrete, evidence-based targets are needed (IUCN, 2019)



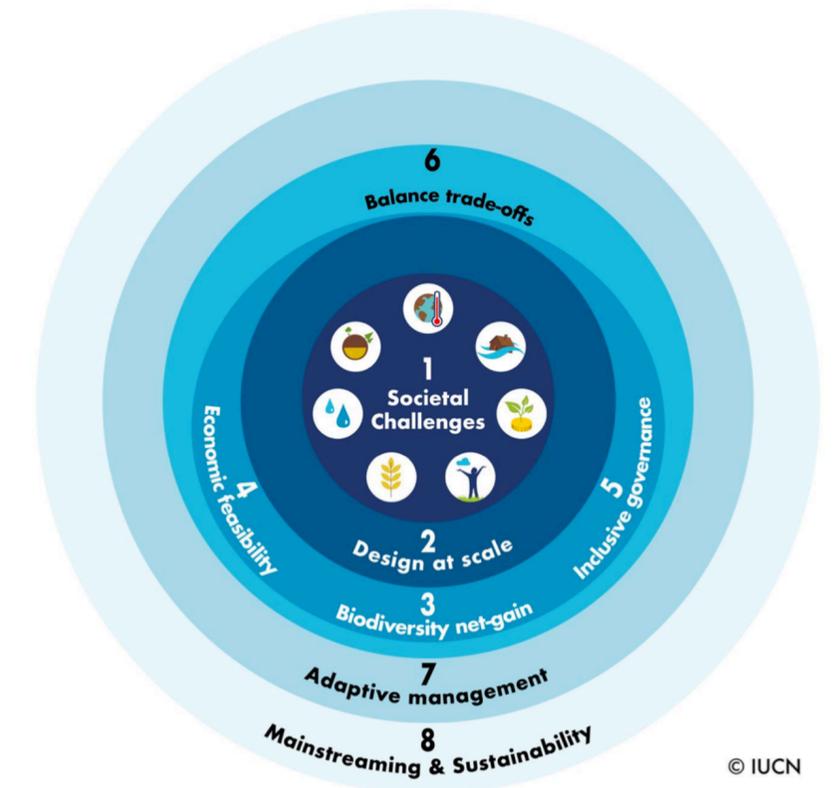
**Figure 2.** Global distribution of countries that included in their NDCs: (a) NbS in the mitigation component; (b) NbS in the adaptation component; (c) explicit mention of synergies between mitigation and adaptation actions; and (d) several quantitative adaptation targets. Figures generated using the Nature-based Solutions Policy Platform in August 2019 ([www.nbspolicyplatform.org](http://www.nbspolicyplatform.org)).

# Current efforts to address governance challenges

## Emerging standards – e.g. IUCN Standard for Nature-based Solutions



**Figure 4** Major societal challenges addressed by NbS. The first six challenges, from left to right, were formulated within the IUCN definition (IUCN, 2016). The seventh societal challenge, reversing ecosystem degradation and biodiversity loss, was an outcome of the second public consultation on the Standard © IUCN



**Figure 2** The eight Criteria that make up the IUCN Global Standard for NbS are all interconnected. © IUCN

- Tool that governments, planners, donors, and more can use to make sure that nature-based solutions yield desired outcomes
- Nature-based solutions have a much broader definition, with climate change as just one part – but nature-based approaches to CDR could be evaluated using this standard

# To sum up...

- Compared to other carbon removal techniques, nature-based approaches have a lot of existing experience and partial governance frameworks
- That experience — with social justice concerns around forest carbon, with monitoring challenges for soil and forest carbon, — has highlighted the governance challenges, and we are no longer naive about them
- NGOs are currently playing a major role in moving things along, but states will need to step up further