



# **Wetland & Coastal Carbon: Developing new asset classes**

**Joshua Bishop (IUCN)**

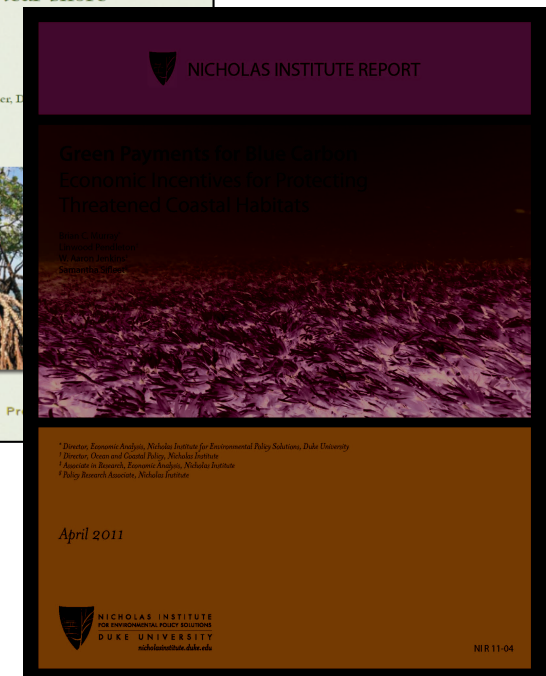
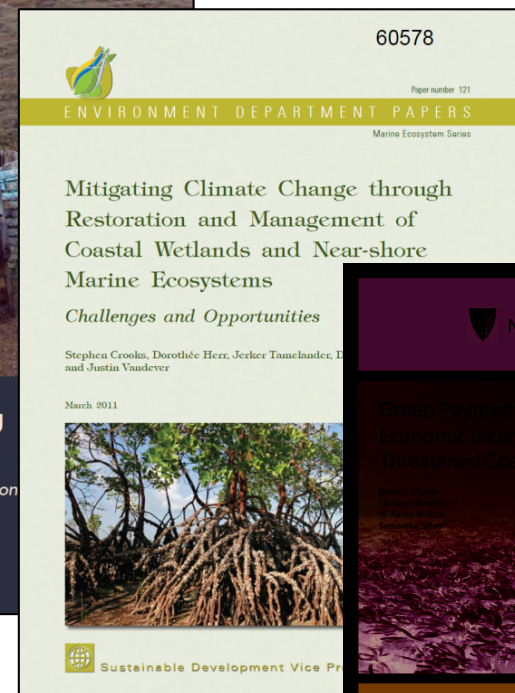
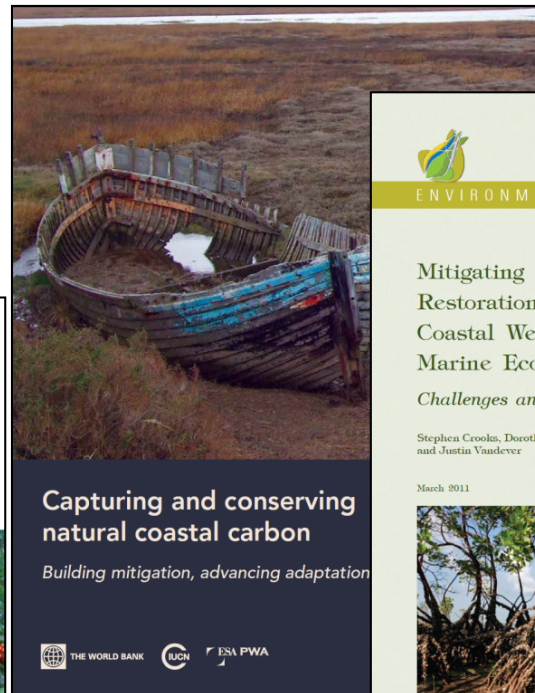
**Jean-Pierre Rennaud (Danone)**

# Outline

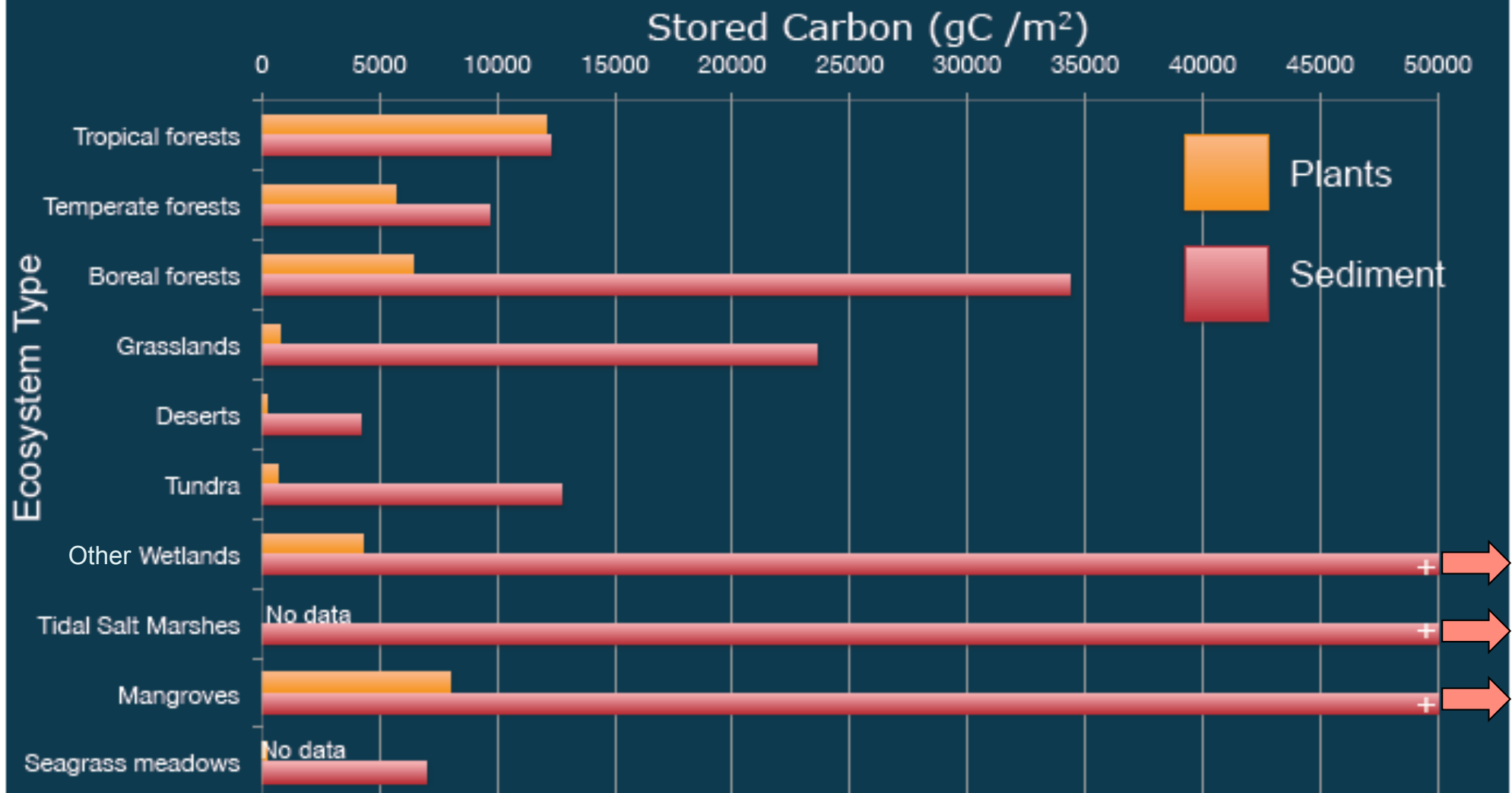
Part 1 – Science & Policy (J. Bishop)

Part 2 – Finance & Implementation (J.P. Rennaud)

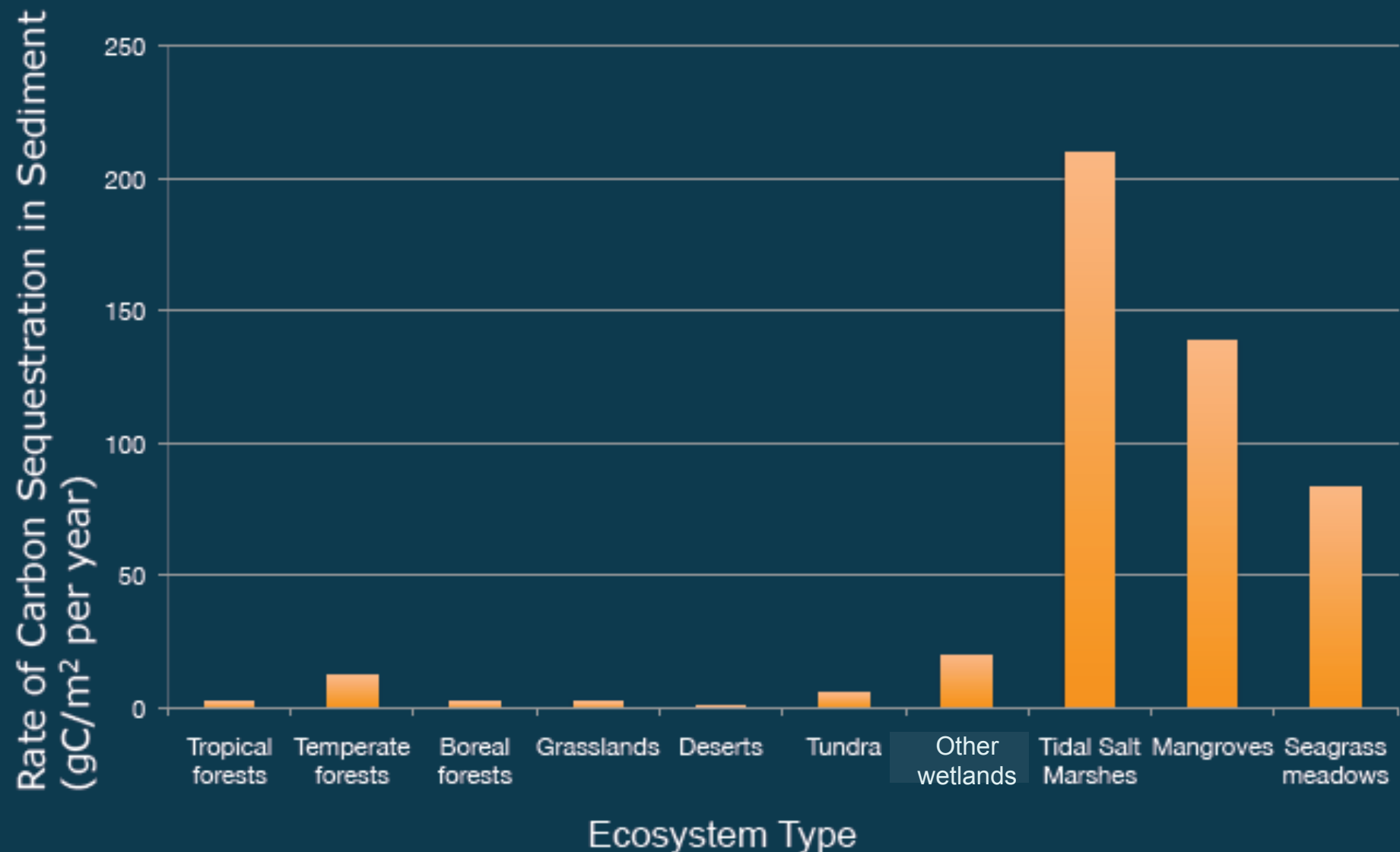
# New science and policy guidance on the role of marine and coastal ecosystems in climate change mitigation and adaptation



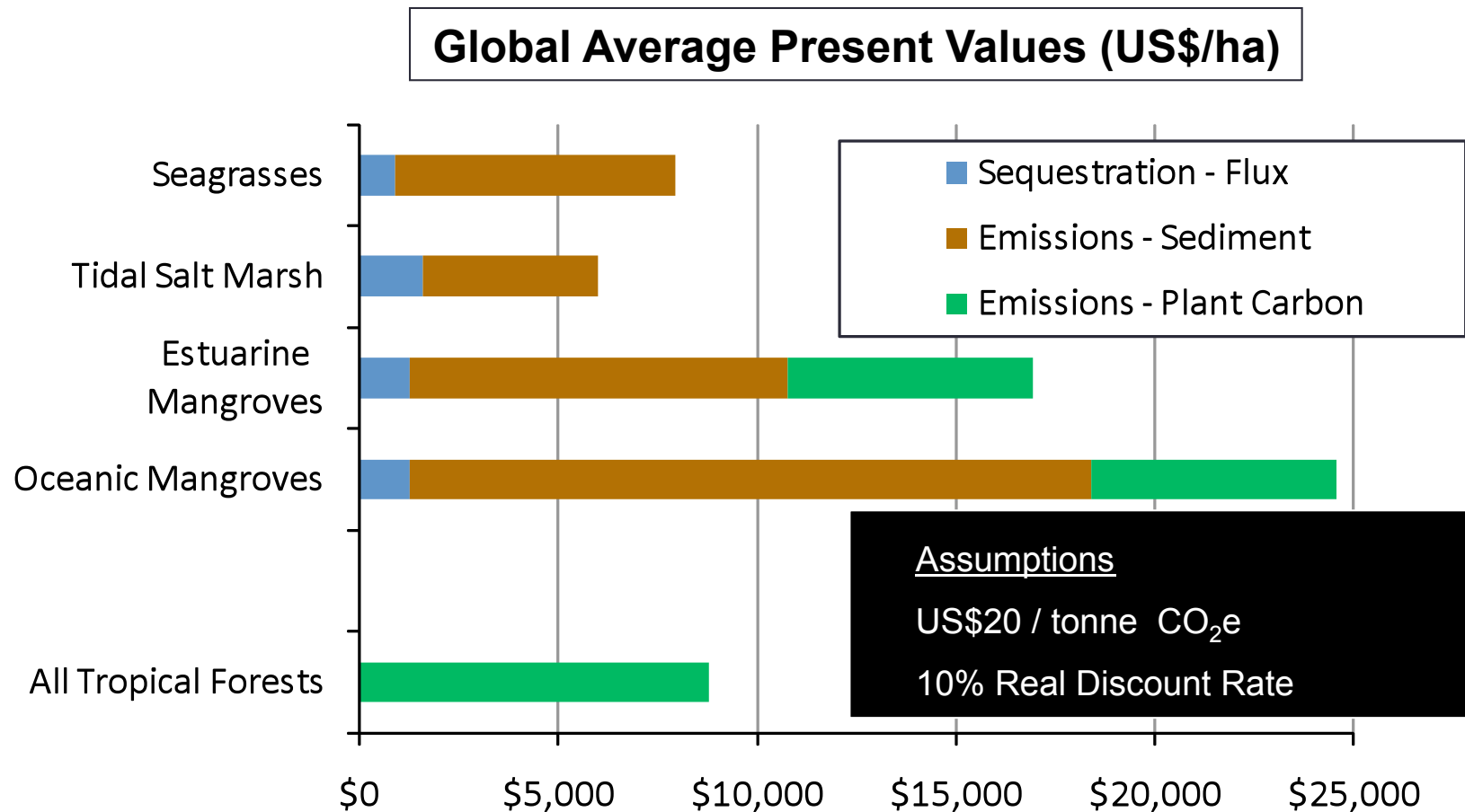
# Coastal ecosystems sequester large amounts of carbon in the sediment



# Coastal ecosystems have very high rates of carbon sequestration.



# Coastal ecosystems have high potential carbon value



**Source:** Murray et al. (2011)

# Coastal ecosystems deliver multiple benefits, in addition to carbon



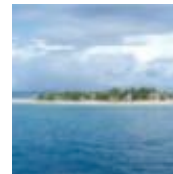
Marine Biodiversity



Fish Nurseries



Coastal Water Quality



Coastline and  
Beach Stabilization



- Climate Change Adaptation
- Sustaining Community Resilience and Coastal Livelihoods

# On-going loss and degradation of high-carbon marine and coastal ecosystems

Coastal Habitat	Estimated Global Area (km <sup>2</sup> )	Annual Loss	Total Loss
Seagrass	300,000	2%	29%
Salt Marsh	400,000	2%	*
Mangrove	152,000	1.8%	35%

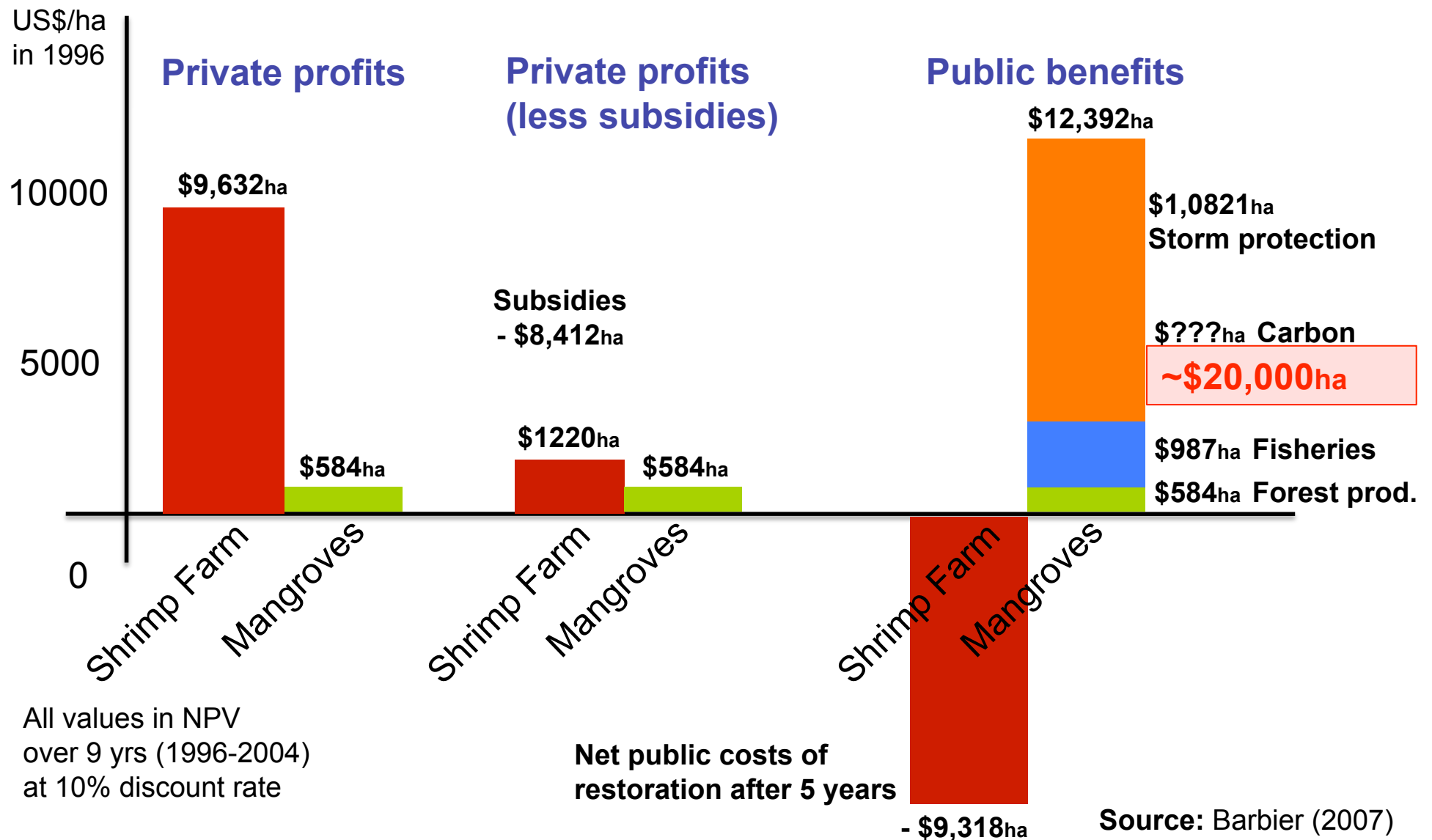
**Compare to forests:**  
**3.3% loss since 1990**  
(FAO 2010)

**20% since 1970**  
(Butchart et al. 2010)

**19% since 1980**  
(Butchart et al. 2010)

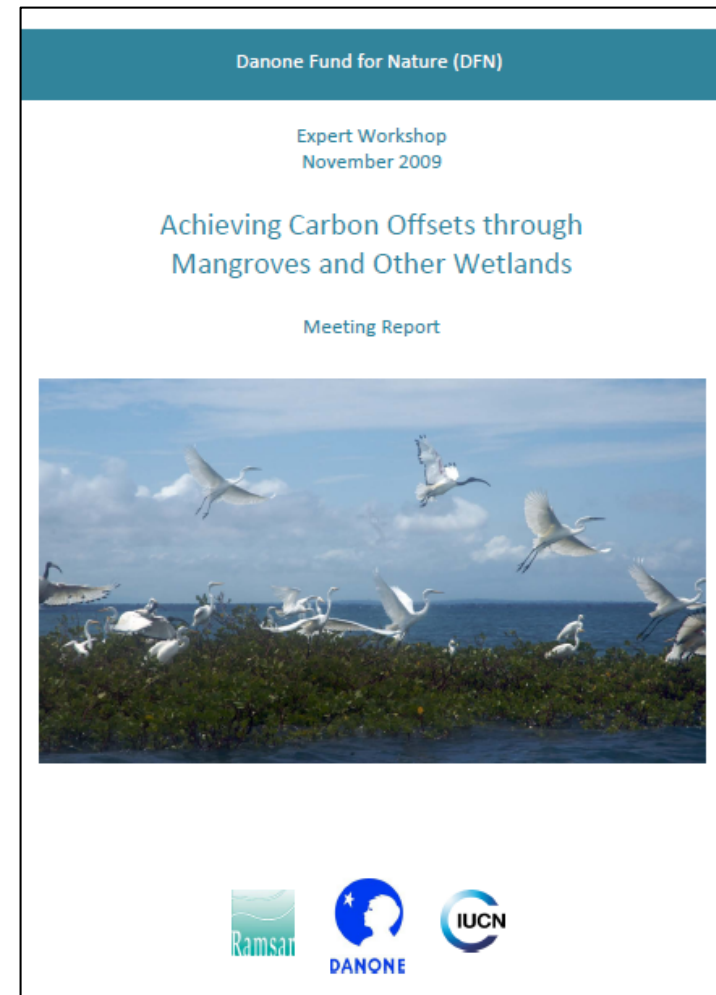


# Skewed incentives, missing markets and lack of finance for coastal conservation



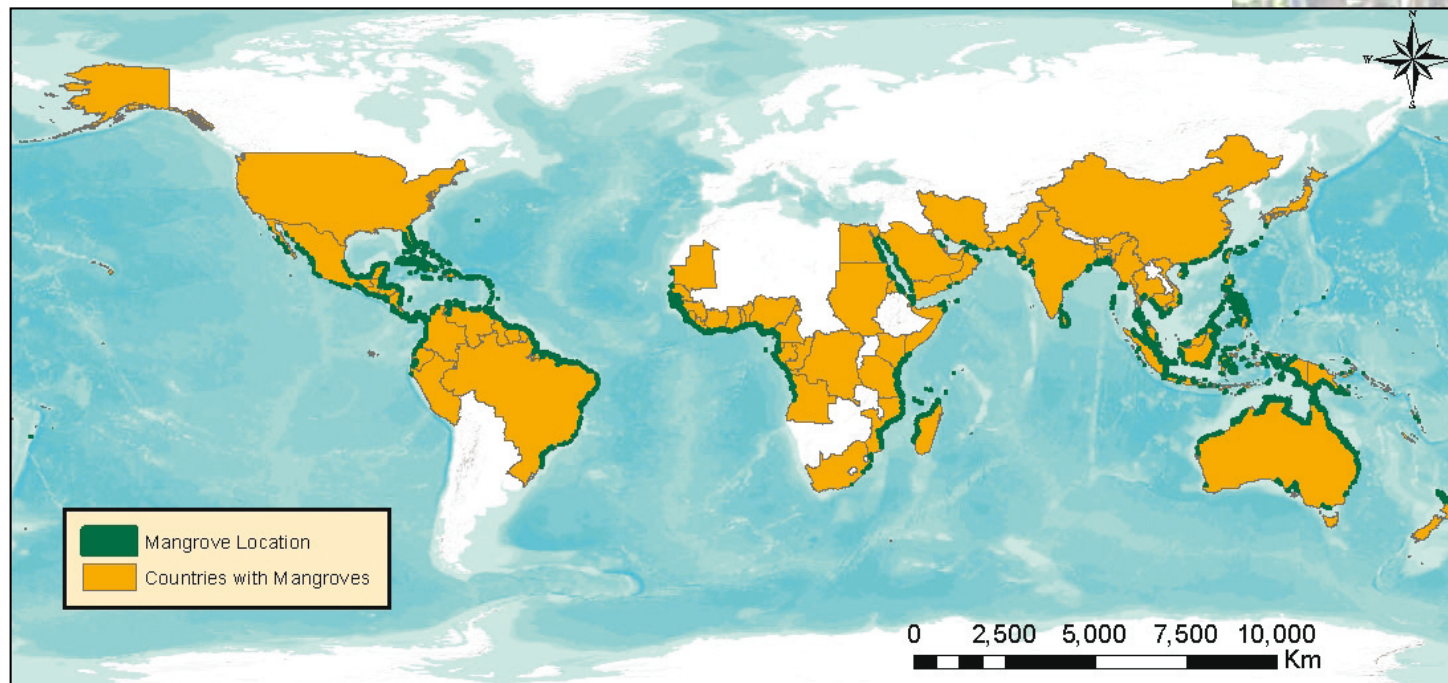
# Mangroves identified by IUCN, Ramsar & Danone as high potential and priority

- Medium-to-High C storage per unit area
- High C sequestration rates
- Low trace gas emissions
- High restoration potential (if hydrology is still functional)
- High conservation potential (if incentives for conversion can be overcome)
- High ecosystem services at local level
- Well positioned for market development
- ***Very high potential carbon offset potential through restoration and/or conservation (avoided loss)***



# More mangrove facts

- Tropical and subtropical shores
- Global extent about 160,000 km<sup>2</sup>
- No or low production of methane



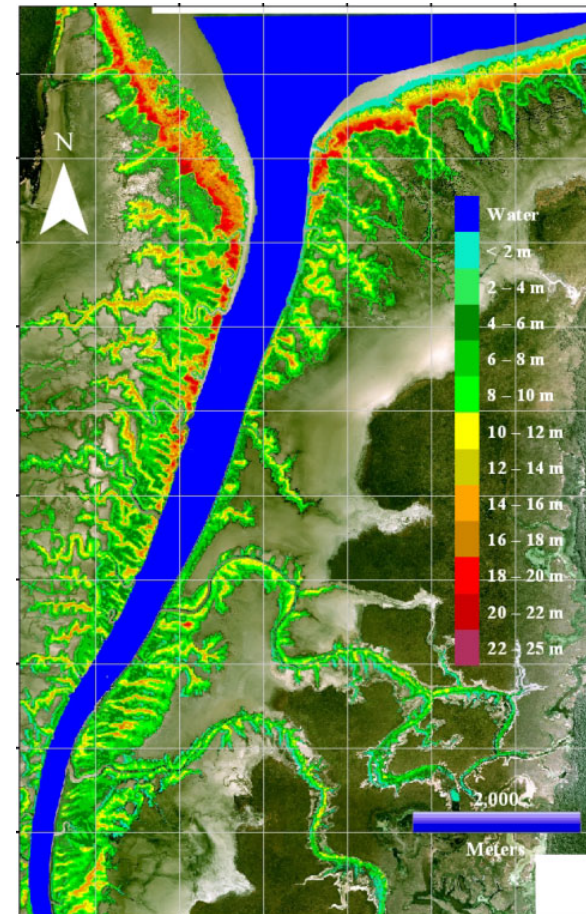
Source: Mangroves (version 3.0) of the global polygon dataset compiled by UNEP World Conservation Monitoring Centre (UNEP-WCMC) in collaboration with the International Society for Mangrove Ecosystems (ISME), 1997. For further information, e-mail [spatialanalysis@unep-wcmc.org](mailto:spatialanalysis@unep-wcmc.org).

Note: Mangroves of Western Central Africa raster dataset processed from Landsat imagery, circa 2000. East African mangroves extracted from version 4.0 of the polygon dataset compiled by UNEP World Conservation Monitoring Centre (UNEP-WCMC), 2006.



# Mangrove restoration is complex but increasingly well-understood

“A typical zonation of coastal fringing mangroves in the region [of northern Australia] would be *Sonneratia alba* and *Camptostemon schultzii* on the seaward margin, *Rhizophora stylosa* further inland, and *Avicennia marina* on the landward margins. In the intermediate zones of mangroves facing estuarine shores, *Bruguiera* species are frequently found, whilst *Ceriops tagal* and *Lumnitzera racemosa* favour areas further inland” (Lucas et al. 2002).



Orthomosaic with canopy heights for mangroves of the West Alligator River (Mitchell et al. 2007)

# Existing small-scale CDM wetland A/R methodology fails to meet investor needs



UNFCCC/CCNUCC



CDM – Executive Board

AR-AMS0003 / Version 01

Sectoral Scope: 14

Simplified baseline and monitoring methodology for small scale CDM afforestation and reforestation project activities implemented on wetlands

➤ **Limit: 16,000 tonnes CO<sub>2</sub>e per year**

# Development of a new, large-scale mangrove A/R methodology



- Joint submission by IUCN, Ramsar and Danone, with technical support from Silvestrum, Orbeo and TUV
- Sample PDD based on first pilot project in Senegal
- January 2011: draft methodology submitted to CDM
- February: methodology revised by CDM A/R Working Group, in consultation with Silvestrum
- March: revised methodology (*"Afforestation and reforestation of degraded mangrove habitats"*) sent to Ramsar for final comments
- April: methodology endorsed by Ramsar Secretariat
- May: final recommendation of ARWG to CDM Executive Board (expected)
- ***NOTE: separate initiative to develop guidance to include wetlands in the VCS AFOLU program (with Restore America's Estuaries)***

# Selected differences in methodologies

	AR-AMS0003	New Methodology
<b>Ecosystems:</b>	Degraded wetlands	Degraded mangrove habitats
<b>Carbon pools:</b>	<ul style="list-style-type: none"> <li>• Above- and below-ground biomass</li> <li>• CO<sub>2</sub></li> </ul>	<ul style="list-style-type: none"> <li>• Above- and below-ground biomass, dead wood and soil organic carbon</li> <li>• CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O</li> </ul>
<b>Applicability:</b>	<ul style="list-style-type: none"> <li>• Excludes changes in hydrology</li> <li>• Simplified baseline assessment</li> <li>• Simplified leakage assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration/restoration of hydrology is allowed if &gt;90% of the area is planted with mangrove species</li> <li>• Full baseline assessment</li> <li>• Leakage assessment limited to displacement of fuelwood collection</li> </ul>
<b>Scale:</b>	<16,000 tCO <sub>2</sub> e / year	No limit

# Outline

Part 1 – Science & Policy (J. Bishop)

**Part 2 – Finance & Implementation (J.P. Rennaud)**

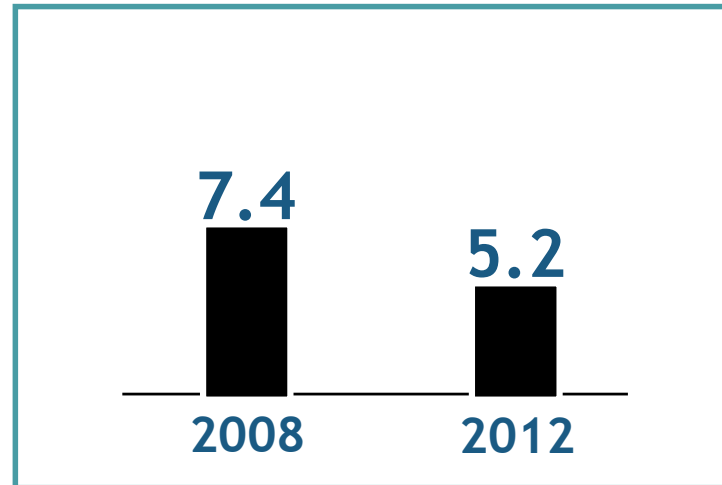




# Investing in mangrove carbon offsets: the catalytic role of Groupe Danone

## Danone objectives by end 2012

- 1 Reduce CO<sub>2</sub> emissions by 30% (internal target)



- 2 Achieve carbon neutrality of Danone brands



# Piloting mangrove carbon offsets

- >20 project proposals reviewed by IUCN, Ramsar & Danone
- IUCN and Ramsar “due diligence” of 4 high-potential projects
- Danone has invested in 2 projects to-date



# Oceanium (Senegal)



**D.F.N.**



	2008	2009	2010	2011
	240 Hectares	1645 Hectares 30 M Trees 300 Villages 120 kTCO2	4630 Hectares 60 M Trees 800 Villages 320 kTCO2	4000 Hectares 50 M Trees

## LEARNING

### 2008-2009

→ *Organization*

- Rural Communities Agreement
- 10 years Protocole Government
- Status: DNA approval

→ *Indicators*

### 2010

→ *Organization*

- Partnership Insolites Voyageurs
- Methodology Large Scale
- Status: PPD preparation



# Sundarbans (India)



**D.F.N**



110  
Hectares

2009

820  
Hectares  
10 M  
Trees  
30  
Villages  
85  
kTCO2

2010

2180  
Hectares

60 M  
Trees

55  
Villages

340  
kTCO2

2011

3000  
Hectares

60 M  
Trees

75  
Villages

480  
kTCO2

2012

2010

→ Organization

- M.O.U. on 3 planned years  
6000 ha

- Methodology Large Scale  
Status: PDD preparation

→ Indicators







# LIVELIHOODS FUND

“THE FUTURE DEPENDS  
ON WHAT WE DO IN THE PRESENT”

GANDHI



AN INITIATIVE BY DANONE



# LIVELIHOODS FUND is investing upfront with a local project developer on.....



**Awareness**



**Community Agreement**



**Preparation Nursery**



**Food & Economic Activities  
for  
Communities**



**Logistics**



**Maintenance & Monitoring 20years**

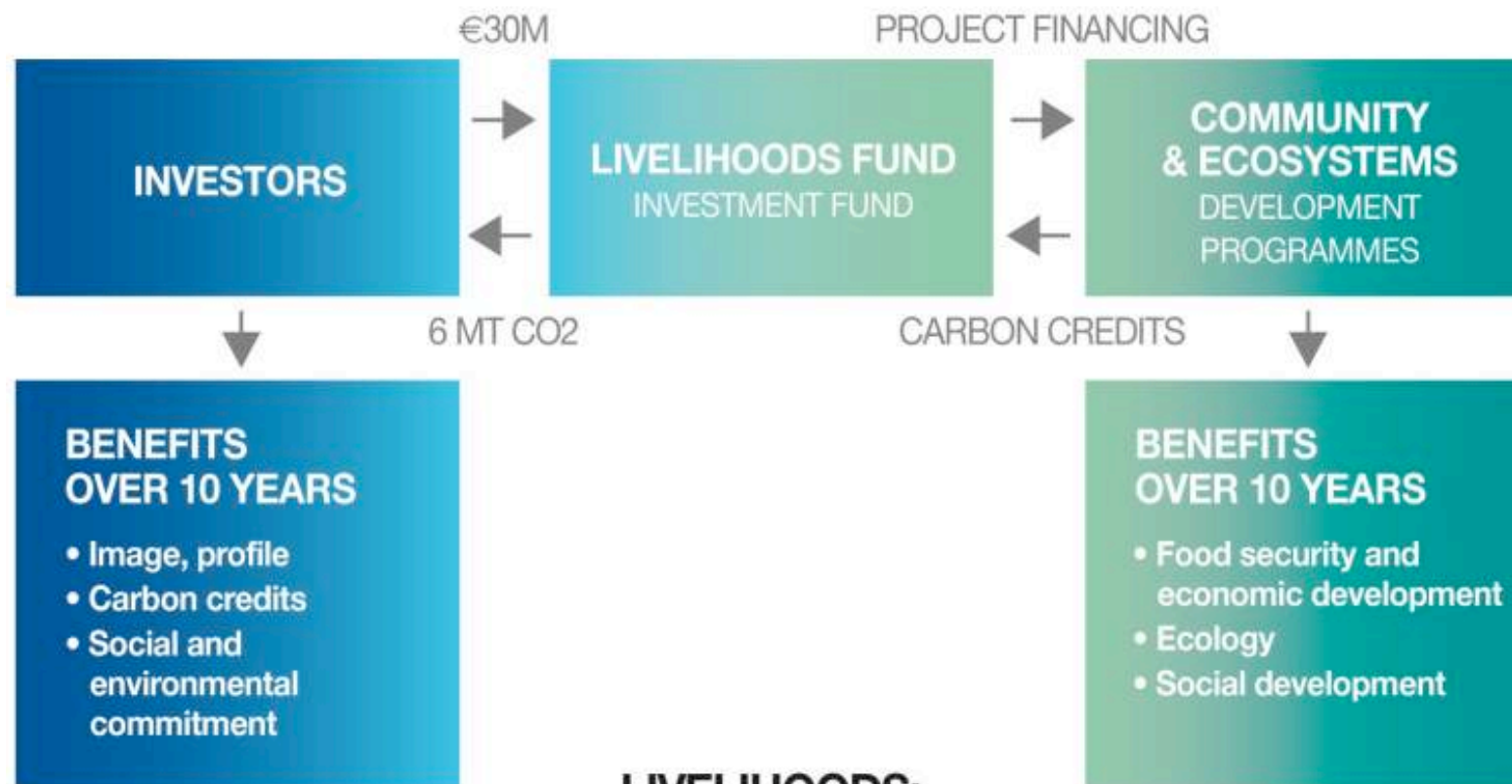


**Plantation**

**... and will collect carbon credits**

# LIVELIHOODS FUND

## AN INNOVATIVE APPROACH TO CARBON OFFSETTING AND SUSTAINABLE DEVELOPMENT



**LIVELIHOODS:**  
Joint socio-economic benefits for investor partners and rural communities



## For more information:

**Carl Gustaf Lundin**

[[carl.lundin@iucn.org](mailto:carl.lundin@iucn.org)]

**Nick Davidson**

[[davidson@ramsar.org](mailto:davidson@ramsar.org)]

**Jean-Pierre Rennaud**

[[jean-pierre.rennaud@danone.com](mailto:jean-pierre.rennaud@danone.com)]

