Marine & Coastal Ecosystems provide a number of services to human well-being including climate regulation:
- Surface temperature
- Ocean current – nutrient cycling
- Carbon capture/cycling
the fact that near 55% of all green carbon is captured by living organisms in oceans and not on land, yet one of our greatest asset in mitigating climate change has been widely ignored.
Two Stories to capturing carbon
1. Burial – long-term
2. “pumps/flows” (up to 71% of all the carbon stored in oceans)
# Current Carbon Storage Potential

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Potential Storage Ton C/ha/yr (average)</th>
<th>Global Area (million km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mangroves</td>
<td>1.89</td>
<td>.17</td>
</tr>
<tr>
<td>Salt Marshes</td>
<td>2.37</td>
<td>.40</td>
</tr>
<tr>
<td>Seagrasses</td>
<td>1.37</td>
<td>.33</td>
</tr>
<tr>
<td>Open Oceans</td>
<td>.00018</td>
<td>330</td>
</tr>
</tbody>
</table>
The ocean blue carbon stores "flows" are disappearing faster than any other ecosystem on the planet and may be lost in two decades.
Restoration and management of oceans and coasts provide the cheapest carbon investments available and provide jobs, food security, business and increased health

"GREEN ECONOMY"
Multiple Benefits

Restoration of mangrove system in Vietnam provided natural flood control, storm protection, improved fish catches and water quality.
If there was a market of $1/km$ annually for sound management of oceans, Indonesia could generate $3.6$ million/year alone.

Add mangroves within a REDD+ program.
Tuna fisheries agreements – around 10% of landed value

Better management of marine ecosystems with a carbon market could:
• add value to their resource base
• food security
• pay management costs
What is needed?

• Research linked to IPCC
• Strengthen existing mechanisms to maintain and restore carbon pumps
• Explore development of carbon offset/credit scheme
Research

• Agreement marine ecosystems key to carbon capture and storage – devil is in the detail:
  – Other sources of blue carbon – kelp, muddy bottoms,
  – Better understanding of ocean carbon cycling
  – Better estimates of storage – species, latitude, temperature
  – Estimates of aerial extent of blue carbon storage
  – Role of fisheries and aquaculture in storage of blue carbon
Existing Mechanisms

• Implement existing conventions, protocols and codes of practices
• Development of tools for assessing the trade-offs in maintaining carbon pumps versus other uses
• Lessons learned from other carbon offset schemes
• REDD - mangroves
Blue Carbon Fund – what is needed?

- Carbon credit scheme – similar to REDD
- Establish baselines and metrics for carbon capture/storage
- Enhanced coordination and funding mechanisms
- Prioritize sustainable, integrated and ecosystem-based coastal zone planning and management