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A RAPID RESPONSE ASSESSMENT

# BLUE CARBON

THE ROLE OF HEALTHY OCEANS IN BINDING CARBON

OCTOBER 2009



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## THE ROLE OF HEALTHY OCEANS IN BINDING CARBON

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**If the world is to decisively deal with climate change, every source of emissions and every option for reducing these should be scientifically evaluated and brought to the international community's attention.**

The burning of fossil fuels is generating levels of what one might term 'brown' and 'black' carbon in the atmosphere and unless checked may take global temperatures above a threshold of 2°C. Dramatic reductions are possible by accelerating energy efficiency measures and boosting the deployment of cleaner energy generation and renewables such as solar, wind and geothermal. Over the past few years science has been illuminating other sources of emissions and other opportunities for action. Deforestation for example now accounts for close to 20% of global greenhouse gas emissions.

In a matter of weeks, governments will meet in Copenhagen where there is an urgency to Seal the Deal on a new and forward-looking agreement. Part of that package of measures needs to include 'green' carbon – the carbon stored in the globe's forests and their soils and especially in the tropics. Financing a partnership for Reduced Emissions from Deforestation and forest Degradation (REDD) can play an important role in keeping that green carbon where it belongs while also assisting the development and employment objectives of developing economies by giving an economic value to these vital ecosystem services.

Science is now also telling us that we need to urgently address the question of 'blue' carbon. An estimated 50% of the carbon in the atmosphere that becomes bound or 'sequestered' in natural systems is cycled into the seas and oceans – another example of nature's ingenuity for 'carbon capture and storage'. However, as with forests we are rapidly turning that blue carbon into brown carbon by clearing and damaging the very marine ecosystems that are absorbing and storing greenhouse gases in the first place.

This in turn will accelerate climate change, putting at risk communities including coastal ones along with other economically-important assets such as coral reefs; freshwater systems and marine biodiversity as well as 'hard' infrastructure from ports to power-stations. Targeted investments in the sustainable management of coastal and marine ecosystems – the natural infrastructure – alongside the rehabilitation and restoration of damaged and degraded ones, could prove a very wise transaction with inordinate returns.

This report, produced by some of the world's leading scientists and in collaboration with the FAO and UNESCO, finds that the most crucial, climate-combating coastal ecosystems cover less than 0.5% of the sea bed. But they are disappearing faster than anything on land and much may be lost in a couple of decades. These areas, covering features such as mangroves, salt marshes and seagrasses, are responsible for capturing and storing up to some 70% of the carbon permanently stored in the marine realm.

If we are to tackle climate change and make a transition to a resource efficient, Green Economy, we need to recognize the role and the contribution of all the colours of carbon. Blue carbon, found and stored away in the seas and oceans, is emerging as yet another option on the palette of promising opportunities and actions, one that can assist in delivering a bright rather than a dark brown and ultimately black future.

**Achim Steiner**

UN Under-Secretary General and Executive Director, UNEP

*“Out of all the biological carbon captured in the world, over half is captured by marine living organisms – hence it is called blue carbon.”*

*“The objective of this report is to highlight the critical role of the oceans and ocean ecosystems in maintaining our climate and in assisting policy makers to mainstream an oceans agenda into national and international climate change initiatives.”*

## KEY OPTIONS:

In order to implement a process and manage the necessary funds for the protection, management and restoration of these crucial ocean carbon sinks, the following options are proposed:

### **1 Establish a global blue carbon fund for protection and management of coastal and marine ecosystems and ocean carbon sequestration.**

- a. Within international climate change policy instruments, create mechanisms to allow the future use of carbon credits for marine and coastal ecosystem carbon capture and effective storage as acceptable metrics become available. Blue carbon could be traded and handled in a similar way to green carbon – such as rainforests – and entered into emission and climate mitigation protocols along with other carbon-binding ecosystems;
- b. Establish baselines and metrics for future environmentally sound ocean carbon capture and sequestration;
- c. Consider the establishment of enhanced coordination and funding mechanisms;
- d. Upscale and prioritize sustainable, integrated and ecosystem-based coastal zone planning and management, especially in hotspots within the vicinity of blue carbon sinks to increase the resilience of these natural systems and maintain food and livelihood security from the oceans.

### **2 Immediately and urgently protect at least 80% of remaining seagrass meadows, salt marshes and mangrove forests, through effective management.**

Future funds for carbon sequestration can contribute to maintaining management and enforcement.

### **3 Initiate management practices that reduce and remove threats, and which support the robust recovery potential inherent in blue carbon sink communities.**

### **4 Maintain food and livelihood security from the oceans by implementing comprehensive and integrated ecosystem approaches aiming to increase the resilience of human and natural systems to change.**

### **5 Implement win-win mitigation strategies in the ocean-based sectors, including to:**

- a. Improve energy efficiency in marine transport, fishing and aquaculture sectors as well as marine-based tourism;
- b. Encourage sustainable, environmentally sound ocean-based production, including algae and seaweed;
- c. Curtail activities that negatively impact the ocean’s ability to absorb carbon;
- d. Ensure that investment for restoring and protecting the capacity of ocean’s blue carbon sinks to bind carbon and provide food and incomes is prioritized in a manner that also promotes business, jobs and coastal development opportunities;
- e. Catalyze the natural capacity of blue carbon sinks to regenerate by managing coastal ecosystems for conditions conducive to rapid growth and expansion of seagrass, mangroves, and salt marshes.



*“Improved integrated management of the coastal and marine environments, including protection and restoration of our ocean’s blue carbon sinks, provides one of the strongest win-win mitigation efforts known today.”*

**<http://grida.no/publications/rr/blue-carbon>**