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Blue Carbon: A Hidden Treasure in the Climate Change Science

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The rapid industrialization and urbanization in recent times has altered the climate of the planet Earth. The abrupt hike in the level of GHG has not only affected the temperature, rainfall pattern, humidity, snowfall etc., but at the same time, the biodiversity has also been impacted to a great extent. It is now the right time to develop a register for carbon sequestration activity series by coastal vegetation. In several conferences and conventions, the terrestrial forest vegetation is given priority for studying carbon sequestration. The blue carbon vertical, which basically includes the stored carbon in seaweeds, tidal marshes, mangroves and seagrass meadows, has not yet been emphasized as the potential sink of CO₂. Although blue carbon was not included as a separate item on the agenda for SBSTA 35 at the COP 17 meetings in Durban in December 2011, the report from SBSTA 35 invited parties and organizations “to provide information on the technical and scientific aspects of emissions by sources, removals by sinks, and reserving all Green House Gases, including emission and removals from coastal and marine ecosystems, such as mangroves, tidal salt marshes, wetlands and seagrass meadows” [1]. This topic was given stress at SBSTA 36 in May 2012 in Bonn. The submission from a number of members of the Coalition for Rainforest Nations (CfRN), forwarded the view that sufficient time should be dedicated for discussing “emissions and removals from coastal and marine ecosystems, such as mangroves, tidal salt marshes, and seagrass meadows,” and that it should be considered a theme of the SBSTA 36 Research Dialogue. They also called for a workshop on Coastal Marine Ecosystems to be held in Honduras before SBSTA 37 (at COP 18 in Doha), in order to provide information to support the UNFCCC process, and requested that SBSTA invite the Intergovernmental Panel on Climate Change (IPCC) to start a work program “aimed at quantifying the role of coastal marine ecosystems on global atmospheric fluxes of greenhouse gases.” Lastly, CfRN stated that SBSTA should address “the contribution of networks for the monitoring and reporting of greenhouse gas emissions by sources, removals by sinks and reservoirs of coastal and marine ecosystems, such as mangroves, tidal salt marshes and seagrass meadows”.

It is noteworthy that Denmark and the European Commission on behalf of the European Union (EU) and its member states, Nauru on behalf of the Alliance of Small Island States, the Russian Federation

and Japan also submitted their views on themes to be discussed as part of the SBSTA 36 Research Dialogue, but none of their submissions mentioned blue carbon or related topics.

Today very little emphasis is given on the domain of blue carbon, although the marine and coastal ecosystems store huge amounts of carbon in vegetation and the sediment/soil below them. When these ecosystems are degraded or destroyed—which is occurring at annual rates 0.7%-2.1% for mangroves, 1.0-2.0% for salt marshes and 1.2-2.0% for seagrass meadows due to unplanned tourism, intense industrialization, urbanization, and aquaculture etc.—significant amounts of CO₂ are released in the atmosphere contributing to climate change risk [2]. As thick sediment or soil layer is present below mangroves, seagrasses or saltmarsh beds, therefore, they act as large carbon sinks. It is, therefore, obvious that there is substantial potential to develop blue carbon based CDM methodologies by capturing carbon through photosynthesis, and using the resulting biomass as a substitute for fossil hydrocarbons (particularly for seaweeds).

Considering the recent scenario of global economy, thrust should be given to expand the horizon of blue carbon sector through afforestation, scientific soil management, protected area development and conservation measures, rather than investing in costly technology to sequester carbon. Already researchers have initiated the census of blue carbon in different corners of the world [3,4], but the data are patchy and sporadic and need to be standardized to get a global picture.

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