Role of wetlands in carbon storage and sequestration

This short intervention has been prepared by Chris Perceval, Head of Strategy & Partnerships, to present to the UNFCCC TEM meeting on land use, in Bonn on June 11th 2014.

Introduction

The mission of the Ramsar Convention on Wetlands is to promote conservation and wise use of wetlands, and international co-operation, as a contribution to sustainable development. The Ramsar Convention defines wetlands broadly, including rivers, lakes, coral reefs, marshes, estuaries, mangroves, etc. and we work with 168 contracting governments and 2100 designated Ramsar sites, wetlands of international importance, to balance development and the protection of ecosystems and ecosystem services.

We are pleased to share some data and reflections at this meeting. I briefly present two 'wetland carbon' solutions that demonstrate good potential:

1. **Coastal Wetlands**

Action to take:

Protect and/or invest in restoration of mangroves, tidal marshes and sea-grass meadows.

Key facts and figures:

The storage potential for all three main types (mangroves, tidal marshes and sea grass meadows) is over 1000 MgCo2/Ha[1]. Current annual loss and degradation of these wetland types are estimated to result in emissions of 0.45 billion tons of carbon dioxide per yr, which is roughly the same as the emissions of the UK. Simply protecting existing coastal wetlands would be a high impact approach.

The sequestration potential of both mangroves and tidal marshes is significant – well over 200 gC/m/yr and can be a cost-effective approach. For example, a Danone Livelihoods Fund mangrove restoration project in Yagasu, Indonesia, has replanted 5000 hectares of mangroves with a storage capacity of 2.1 million TeqCO2 after 20 year, currently being validated under VCS.

Co-benefits of action taken:

Increasing fisheries habitats, preventing coastal erosion, water filtration and shelter from storm surges and extreme weather, once the mangroves are established.

2. **Peatlands**

Action to take:

Protect and/or invest in the maintenance of and restoration of peatlands.

[1] CI and IUCN Blue Carbon Initiative

Key facts and figures:

According to estimates from Wetlands International, peat-lands cover 3% of the world's land, and contain 500 Gt of carbon. 1.3 billion tons of carbon dioxide equivalent per year are released from drained peatlands. Simply protecting existing peatlands would be a high impact approach.

Researchers in Belarus[2] have made some calculations of the global carbon emissions reduction potential for re-wetting peatlands to prevent the release of carbon dioxide as being 2 Gtons on 500,000 km2 but also note that the reality is much less, partly because rewetting only reduced net emissions by about half of that given other microbial processes release methane, and only a fraction of the available peatlands can feasibly be rehabilitated.

Wetlands International has implemented a significant project in Ruoergai, a designated Ramsar Wetland of International Importance in central China, which is estimated to store as much as 750 m tons of carbon, putting up low dams and re-wetting, which has helped to rehabilitate thousands of hectares of peatland.

Co-benefits of action taken:

Biodiversity in the high altitude plains, water regulation for the flow of the Yellow river, reduced risk of wildfires and increased grazing for stock.

Final comments

The two solutions described offer clear and obvious opportunity for closing the gap.

The scientific evidence is complex and incomplete on questions about the role of bio-geochemistry, microbial processes within wetlands, the accuracy of different observation methods, and the time period to determine the extent of carbon storage and sequestration.

From the perspective of the Ramsar Convention secretariat, we believe that leveraging remote sensing data and analysis that is coupled with ground data, including measures of carbon storage and emissions, will create enormous potential for pin-pointing the best locations (in terms of sequestration, storage and co-benefits) for wetlands conservation and restoration. Efforts are also underway to refine more accurate modeling to rapidly assess the potential of wetlands to store and sequester carbon and provide more rapid assessments. In line with these efforts contracting parties to the Convention are being encouraged to obtain more accurate data on the area of wetlands with the potential to store and sequester carbon, and the ecological dynamics, including water regimes and fire, that will affect carbon storage.

[2] Jooston, H. Telmatology & Palaeo-ecology Uni-Greifswald