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Supplying Carbon Sequestration From West African Rangelands: Opportunities and Barriers

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Abstract

The emergence of markets for mitigation of climate change presents new opportunities for increasing economic and ecological returns to rangelands in developing countries. Improving rangeland management is a potentially significant source of mitigation from sequestration. It is appealing due to the likely links to sustainable agricultural development and poverty reduction. Many of the changes needed to sequester carbon are also associated with improved rangeland productivity and incomes. We provide an overview of the key issues that arise in determining the potential of carbon markets to support improved rangeland management focusing on West Africa, an area where pastoralism is a major economic activity with extensive rangelands that offer considerable potential for sequestering carbon. Estimates of the potential for increasing sequestration through improved rangeland management are summarized. Per hectare amounts are low, but aggregate potential is high. Carbon emission reductions are generated by reducing or avoiding land degradation, rehabilitating degraded lands, and increasing native carbon stocks by increasing aboveground and belowground biomass. Avoiding degradation and rehabilitating lightly degraded lands are the least costly and can generate significant carbon emission reductions. Carbon offsets from agricultural sources are currently limited under regulatory cap and trade regimes, and prices in voluntary markets are relatively low. Low returns to carbon offsets per hectare mean that significant co-benefits in the form of increased rangeland productivity and incomes would be necessary to induce participation. High transactions costs can be a problem in carbon markets and in adopting improved rangeland management practices, highlighting the need for institutions to provide effective coordination, monitoring, and enforcement. Evidence from Burkina Faso suggests the potential for existing local-level institutions to play an important role in future carbon payment programs, should they emerge.

Resumen

La emergencia de mercados para la mitigación del cambio climático presenta nuevas oportunidades para incrementar los retornos económicos y ecológicos de pastizales naturales en países en vías de desarrollo. El mejoramiento del manejo de pastizales es una fuente potencialmente significativa de mitigación a través del secuestro de carbono. Esta es una opción atractiva por sus probables conexiones con el desarrollo de agricultura sustentable y la reducción de la pobreza. Muchos de los cambios requeridos para el secuestro de carbono están también asociados con el mejoramiento de la productividad de los pastizales y de los ingresos. Proveemos una reseña de los asuntos clave que surgen en la determinación de mercados potenciales de carbono para mantener mejoras en el manejo de los pastizales haciendo énfasis en África Occidental, un área en el que el pastoralismo es una actividad económica de envergadura y que cuenta con superficies extensas de pastizales naturales que ofrecen un potencial considerable para el secuestro de carbono. Se resumen las estimaciones del potencial para incrementar el secuestro de carbono a través de mejoras en el manejo de los pastizales. Las cantidades por hectárea son bajas, pero el potencial acumulado de la región es alto. Las reducciones en emisiones de carbono se logran a través de la disminución o evitación de la degradación de la tierra, la rehabilitación de áreas degradadas, y el incremento de stocks nativos de carbono incrementando la biomasa aérea y subterránea. La evitación de la degradación y la rehabilitación de tierras levemente degradadas son las estrategias menos costosas, y pueden generar disminuciones significativas en la emisión de carbono. Las compensaciones de carbono de fuentes agrícolas están limitadas actualmente por las regulaciones de los regímenes de “cap and trade” y los precios en mercados voluntarios son relativamente bajos. Los retornos bajos de compensación de carbono por hectárea hacen que sean necesarios incrementos significativos en la productividad del pastizal y los ingresos para inducir participación. Los altos costos de transacción pueden ser un problema en los mercados de carbono y en la adopción de prácticas que mejoren el manejo de los pastizales, subrayando la necesidad de que las instituciones provean coordinación, monitoreo, y aplicación efectiva. La evidencia de Burkina Faso sugiere que, de emerger, existe el potencial para que instituciones locales jueguen un rol importante en el futuro de los programas de comercialización de carbono.

Key Words: carbon sequestration, climate change, rangeland management

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