

Payments for soil carbon seques

“A good incentive for soil conservation”

Soil carbon is important for soil structure and related nutrient and water holding properties. Increasing soil carbon stocks results in improved crop growth and contributes to enhanced climate resilience. In addition, the increase in soil organic carbon through sustainable agricultural land management (SALM) practices, such as the use of cover crops, residue management and agroforestry, will also reduce the need for synthetic nitrogen fertiliser at a given level of crop production.

Soils are the largest terrestrial store of carbon. Following the Industrial Revolution, soil carbon emissions from changing land-use and agricultural activities have come to account for about 19 per cent of total atmospheric carbon emissions, with cumulative losses of as much as 110–145 t CO₂/hectare occurring on cultivated soils. A significant proportion of these losses are, however, recoverable. The International Panel on Climate Change (IPCC) estimates that, at a carbon price of between 50–100 US dollars/t CO₂, agriculture has the second largest economic mitigation potential (after energy saving measures in buildings). Within the agricultural sector, 70 per cent of this potential could be realised in developing countries. Soil carbon sequestration contributes 89 per cent of the total agricultural mitigation potential.

■ Paying small farmers for soil carbon sequestration

Since 2007, the author has been assisting the government of Kenya to access global carbon markets for soil carbon as part of the Kenya Agricultural Carbon Project (KACP). The project is being implemented in Western Kenya by some 60,000 smallholder farmers on 45,000 hectares of land. They have extension and project management support from the NGO Vi Agroforestry and receive technical assistance from the World Bank BioCarbon Fund, which purchases their emission reductions. Based on consensus among world leading soil carbon researchers, a soil carbon accounting methodology was developed and double validated by independent certifiers against the Verified Carbon Standard, which is the most widely used standard in the voluntary carbon market. In line with the roll-out plan, SALM practices have now been adopted on 35,000 hectares



Timm Tennigkeit
UNIQUE forestry and land use
Freiburg, Germany
timm.tennigkeit@unique-landuse.de

in this successfully validated and verified project. Successful verification, including verification of safeguards, grievances and benefit-sharing mechanisms, was set as the basis for payment to farmers for providing environmental services. From a farmer perspective, as reported in Rural 21 back in January 2009, the increase in climate risk-adjusted crop yields is the main incentive for farmers to participate in the project. In 2012, farmers participating in the project had on average 40 per cent higher yields than farmers in a control site.

■ Overcoming barriers to adopting sustainable land management practices

If climate adaptation is to be possible, we need to use every available means – including soil carbon sequestration – to turn down the heat from present emission trends towards 4°C warming within the century. The above project demonstrates, along with other scientific evidence, the synergies between soil carbon sequestration, smallholder income and adaptation to climate change. This project developed and then applied carbon accounting methodologies to provide conservative and cost-effective estimates for soil carbon stock changes as a basis for environmental service payments. Of course there are weaknesses, limits and challenges that need to be addressed, but payments for soil carbon sequestration is one promising approach to overcoming current barriers to the adoption of sustainable agricultural land management practices.

A scaled approach at the landscape or regional level and an appropriate financing mechanism, possibly through Nationally Appropriate Mitigation Actions (NAMAs), is required to enable more farmers to benefit from adopting these practices. Monitoring arrangements should be improved not only to provide data on mitigation performance but also to give farmers the information they need to manage crops better and cope with climate change. Safeguards and benefit-sharing mechanisms also need to be developed to ensure equity and to address other potential issues, such as land use rights. At least thirty developing countries have already expressed an interest in implementing agricultural NAMAs, which testifies to the high level of interest in exploring similar options.

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For references and further reading: ► www.rural21.com