



# An Update on the World Bank's Experimentation with Soil Carbon

PROMISE OF KENYA AGRICULTURAL CARBON PROJECT REMAINS ELUSIVE

## SUMMARY

Two years after the launch of the Kenyan Agricultural Carbon Project (KACP), the World Bank and FAO are pushing for an expansion of the program despite unclear benefits to farmers and a history of dubious promises. The program, its deep flaws, and the process by which it was “endorsed,” must be reassessed.

At the first Hague Conference on Food Security, Agriculture and Climate Change in November 2010, the World Bank launched its first agricultural soil carbon project in Africa. The Kenya Agricultural Carbon Project (KACP) has been promoted as a “triple win” for mitigation, adaptation and increased crop yields. It has been used by the World Bank and others to convince developing country governments that this is the right approach to attract urgently needed finance for both adaptation to climate change and agricultural development. The World Bank issued a press release at the time stating, “the direct benefit to local communities is over \$350,000, with an initial payment of \$80,000 to be made in the first year, 2011.”<sup>1</sup> Even beyond the funding, a key objective of the Bank’s BioCarbon Fund through such projects is to “inform the debate on opportunities and challenges for operationalizing GHG mitigation operations in the agriculture sector.”<sup>2</sup>

Yet two years after its launch, any lessons the Bank has learned from the project remain obscure. The two implementation-related World Bank documents<sup>3</sup> on the Kenya Project contain little information about its development. And neither the Bank nor the FAO have held an open public consultation on the merits of this approach for small farmers and food security. Yet in the second Global Conference on Food Security, Agriculture and Climate Change held in Vietnam 3–7 September with developing country governments, the World Bank, along with the FAO, once again promoted the “scaling-up” of this approach.

The concept note for the World Bank BioCarbon Fund’s third tranche outlines a plan to develop a trading scheme centered on full landscape accounting (which would broaden this approach to include agriculture and forestry) and expand the types of agriculture credits that can be included in carbon trading. It is no coincidence then, that the Vietnam agenda featured these issues prominently. The Bank, in its conflicting roles

**INSTITUTE FOR AGRICULTURE AND TRADE POLICY**

Written by Shefali Sharma, September 2012

2105 First Avenue South Minneapolis, Minnesota 55404 USA

[iatp.org](http://iatp.org)

as carbon broker and policy advisor for “climate smart” agriculture, has a financial interest in getting support for the BioCarbon Fund’s third tranche. The extent to which these carbon-market approaches are “climate-smart,” contribute to real agriculture development, and meet urgent adaptation needs of food producers and farming systems in the Global South, merit carefully scrutiny and a rigorous public debate.

Before governments endorse scaling up, they should consider the following issues: How time-consuming and expensive is the carbon-market approach and does it have the confidence of investors? Will carbon revenues cover the costs of setting up projects and scaling them up? Will communities feel adequately compensated for their efforts?

Vi Agroforestry (a respected Swedish development organization) has operated for 25 years with agroforestry extension services to farmers in the Lake Victoria Basin.<sup>4</sup> It started developing the KACP with the help of the World Bank as early as 2007. The Bank has spent \$1 million USD from the BioCarbon Fund on international consultants to create and work through seven drafts of the soil carbon sequestration methodology, hire assessors to approve the methodology and obtain approval by the voluntary Verified Carbon Standard (VCS) at the end of 2011. The Bank also helped guide the project developers on various monitoring, reporting and verification (MRV) tasks to account for the carbon.

Vi Agroforestry has been tasked with aggregating 60,000 farmers and 45,000 hectares of land over 20 years in the KACP. Without the Swedish International Development Cooperation Agency’s (SIDA) help in pre-financing over \$1 million USD in implementation costs for years 1–3 of the project,<sup>5</sup> it is unlikely that Vi Agroforestry could carry out this enormous undertaking. This high-cost “phase 1” is expected to last much longer than the 1–3 years originally predicted for recruiting, “aggregating” farmers

and training in MRV. This first phase will likely extend to between five and 10 years.<sup>6</sup>

The KACP is one project amidst other Vi Agroforestry operations in the region. Vi Agroforestry has reached out to many farmers in its long tenure in the region with not only extension services on sustainable agriculture land use management and agroforestry, but also on farm enterprise development, financial services in the form of village savings and loans, and organizational development support of farmer groups and organizations.<sup>7</sup> They were therefore a good candidate for the Bank to use as a model for success on soil carbon. However, their success has been garnered through their regular operations, prior to the KACP. It appears that their package of services is also offered to the farmers involved in KACP, but KACP has drained significant financial and human resources on systematizing MRV requirements based on the carbon methodology that could have been better utilized to work more effectively with communities on a comprehensive adaptation package (see section on “triple win” below).

## An unviable economic model

Today, even after two years, the farmer groups enrolled in the project have not been paid. The validation (assigning of the actual voluntary carbon credits that should be delivered from the project) did not occur until June of this year, and Bank documents state that the verification that carbon has been sequestered will take place sometime in “late 2012.”<sup>8</sup> Thus the first carbon payments will take place roughly 5.5 years after the project was first developed. The project’s termination date is 2017 (another 5.5 years), according to Bank documents. Proponents can argue that the carbon methodology took this necessary time and other projects will not require a new methodology, however, the methodology itself is highly questionable (see section on “triple win” below).

The great uncertainties in measuring soil carbon make it difficult for it to become a valued asset by credible investors.<sup>9</sup> Moreover, the KACP methodology for obtaining carbon revenue is based on farmers self-reporting. This makes revenues conditional on how good the reports are because there is no consistent soil sampling to verify these reports. Given their obligation to the World Bank to deliver carbon credits, the organization has had to aggregate a large number of farmers (30,000 so far) in a short time. The sustainability of these farmer groups in KACP as opposed to those participating in their other operations should be monitored closely and assessed. Though Vi Agroforestry is committed to rural development, other more profit-oriented project developers may simply try to aggregate farmers for carbon revenue as opposed to maintaining a strong rural development focus.

IATP demonstrated in 2011—using the project developer’s own figures—that the carbon revenue from the project would yield less than a dollar per hectare per year<sup>10</sup> for 60,000 farmers (depending on what was included in the transaction costs) and taking the carbon calculations at face value. The Bank has guaranteed to pay Vi Agroforestry \$4/tonne for at least 150,000 credits generated by the project. This is a small proportion of the 1.2 million tonnes of CO<sub>2</sub> the project is supposed to sequester in its lifetime.<sup>11</sup> At that rate, the revenue from a 150,000 tonnes of CO<sub>2</sub> would be worth \$600,000, but the Bank has spent over \$1 million USD on the methodology alone and over a million dollars would be spent by Vi Agroforestry in the first three years of the project. It is highly unlikely that the Bank will continue to guarantee a \$4/tonne price for the remaining credits, particularly if the price of soil carbon remains low. The going market rate for soil carbon credits on the voluntary market averaged \$1.20/tonne in 2010.<sup>12</sup> But if forced to sell the remaining carbon on the market, Vi agroforestry may have to build resource-intensive expertise in their organization to find buyers

and market this carbon in a dwindling market. This is once again a diversion of valuable expertise and resources for development organizations, particularly since the carbon market is in deep trouble with no mandatory targets for greenhouse gas reductions after the expiration of the Kyoto protocol in 2012.

The World Bank estimates of the total carbon sequestration potential from this project are overly optimistic<sup>13</sup>, but even if we use their figures and do not deduct any transaction costs, each farmer would get at most \$2.47 per hectare per year (assuming a price of \$4/tonne) because farmers will receive only 60 percent of the carbon revenue. The remaining 40 percent will go to Vi Agroforestry for its operational costs.<sup>14</sup> According to interviews conducted in the project area by Anne Maina of the Africa Biodiversity Network, farmers expect carbon payments for their efforts. Due to the relatively low payments, there is a risk that farmers may actually drop out of the project due to unmet expectations.

The international Climate Change, Agriculture and Food Security institute (CCAFS) case study on the project asserts that the project will pay for itself, but this assumption is based on the idea that the carbon will be worth something. In fact, the CCAFS study assumes that 30 percent of the carbon revenue earned by farmers will be put back into the project.<sup>15</sup> The economics of this undertaking and its claims for being a self-financing model are highly questionable, particularly as financial investors are giving concrete market signals that they have no confidence in a carbon market that is failing. Tricorona, a major carbon trading company with offices in Stockholm (where Vi Agroforestry has headquarters) was just sold by Barclay's Bank, a move that is "seen as a vote of no-confidence in the ailing carbon markets."<sup>16</sup> More and more financial investors see this as a losing approach. Carbon trading is therefore a big gamble for the efforts and credibility of development organizations

to finance real agriculture extension in local communities. Subjecting small farmers to this market risk should be a non-starter.

## **BioCarbon Fund's first Inspection Panel complaint**

These problems are not limited to the Kenya project. Indian farmers recently brought a case to the World Bank Inspection Panel complaining that communities' expectations of carbon revenues from a BioCarbon Fund project have not been met. The World Bank Inspection Panel is a quasi-independent accountability mechanism established by the Bank's Board so that communities can file complaints when they feel the Bank has failed to comply with its own policies and a project has resulted in harm. The Inspection Panel officially registered the complaint of farmers who are "inhabitants of the backwards districts of Orissa and Andhra Pradesh," against the BioCarbon Fund for its project, "India: Improving Rural Livelihoods through Carbon Sequestration Project" on July 27, 2012.

Like the KACP, this is the first carbon sequestration project in India that combines forestry and agro-ecosystems. The Bank is spending \$1,117,800 million USD on the project, which is supposed to deliver 182,000 emissions reductions (ERs) by 2018.<sup>17</sup> And, as with the Kenya project, the expected "co-benefits" were poverty alleviation and biodiversity conservation. Ironically, biodiversity meant raising Eucalyptus and Causeirina tree plantations. The farmers, represented by Veda Climate Change Solutions Limited, argued that they "have the right to receive the carbon revenue generated by their plantations. They reiterated that they followed all the procedures mandated by the Project to plant and harvest the trees, and were harmed by delays in project execution attributable to the Bank and not the farmers themselves. According to the requesters, the income they expected from the carbon sequestration, though

a small percentage compared to income they received from the sale of timber, is essential to their livelihoods. Both income sources, from emission reductions and timber sales, were an incentive for the requesters to participate in the project."<sup>18</sup>

In both cases, project implementation has been slow and expensive, in large part because of the complexities involved in carbon accounting. Farmers have not received compensation for their efforts. In any case, if one objective of the BioCarbon Fund's projects was to "inform the debate" about such approaches, it has thus far failed to provide an honest assessment of the costs involved.

The triple wins of this approach are supposed to be mitigation, adaptation and food security. While carbon payments are supposed to be the "icing" on the cake in such projects,<sup>19</sup> we question whether there is actually a cake.

With regards to mitigation, the VCS methodology used in the KACP ignores several crucial issues and does not actually require regular soil measurement across the project area because it is too costly. Instead, it primarily relies on farmer surveys and computerized estimations to cut costs. The model assumes that soil will be sequestered at a linear rate from baseline equilibrium to the 20 year project equilibrium. The simplicity of the methodology lies in the project area's soil being classified as "degraded." As long as it is considered degraded, "the degradation is likely to result in relatively uniformly low carbon stocks through the soil depth (up to 30 cm)" according to DNV, the World Bank-funded project assessor.<sup>20</sup> The model fails to take into account the fluctuation of carbon in soils. The impermanence of carbon in soils results from variance in soil content, temperature and moisture within one field over time let alone on thousands of hectares—in other words, soils do not store carbon at uniform rates. Numerous activities (natural and unnatural) can upset the

rate at which the soil stores or releases carbon in the atmosphere.<sup>21</sup> The methodology approved for mitigation by VCS lacks environmental integrity.

Critical issues such as “leakage”—the idea that while carbon could be stored within project boundaries, the project activities might lead to further carbon leakage into the atmosphere outside of the project area—are largely side-stepped. DNV explicitly states in its assessment of the methodology that several sources of leakage are excluded from the calculation of net emission reductions because VCS does not apply these particular criteria of leakage as a condition to approve the methodology.<sup>22</sup>

Second, the conflation of adaptation and mitigation in the promotion of the KACP and other soil carbon projects is problematic. The focus on carbon skews the approach toward genuine adaptation. Sustainable agriculture land management (SALM) practices promoted by the project and Vi Agroforestry include such laudable practices as mulching, inter-cropping, agroforestry and soil rejuvenation. They are critical factors of adaptation, but there are other components of a comprehensive approach to agriculture adaptation that are excluded in an approach hinged on soil carbon trading. Disaster risk-management, seed diversity and resilience and efforts to cope with the slow onset of temperature rise are critical components of adaptation that a “soil carbon” approach does not address. The needs and priorities of small food producers must take precedence over carbon accounting. The BioCarbon Fund has thus far failed to demonstrate how the project fulfils these urgent adaptation needs and does not divert resources away from them—potentially making small farmers even more vulnerable to climate change in the long run.

Given the limited information available from farmers currently enrolled in the KACP, it is difficult to decipher how many farmers have actually adopted SALM practices in the KACP and to what

extent this adoption will be long-lasting. The CCAFS case study reveals that each year, only 5 percent of the farmers’ activity surveys will be reviewed “after the project is established.”<sup>23</sup> This means that in total, the reports of only 3,000 out of 60,000 farmers will be scrutinized to verify whether they are following SALM practices. Carbon accounting proponents have tried to make the case that soil rejuvenation and the resulting yields constitute adaptation, but they have failed to take into account the feedback loops related to carbon with rising temperatures and the impact these temperatures will have on yields. Rather than conflating the concepts of mitigation and adaptation in the quest for carbon markets, the climate and agriculture community should comprehensively examine the real tradeoffs for small farmers in delaying a comprehensive adaptation plan for communities.

In terms of yields and their correlation with SALM in the KACP, it may be that some aspects of farmers’ food security have been enhanced under the project. Early reports from Vi Agroforestry indicate that corn yields have increased 15 to 30 percent. It is unclear, however, how much of that increase is due to the mulching and other improvements to the soil and how much is due to the hybrid seeds and increased inputs provided by Syngenta. The multinational agribusiness is referenced as “a local seller” of hybrid seeds and herbicides in the CCAFS case-study. The World Bank estimates that 5 percent of its \$1,046,000 USD costs up to 2017 will go towards seeds and seedlings. Thus, presumably Syngenta stands to make up to \$52,300 USD out of the project too (along with other hybrid seed sellers)—but it also positions the company to benefit from future projects. It should come as no surprise that the Syngenta Foundation is one of the investors in the World Bank BioCarbon Fund’s second tranche which supports this project’s methodology. Agribusiness promoting “high” technology, high input, high cost seeds and herbicides are eager to be decision-makers in the design of such

projects. Improving food security under climate change means much more than increased corn yields and richer soils. It also means that farmers are able to diversify their harvests to manage against climate-change induced risk to crop failure, that they are better able to predict impacts on their harvests and make planting choices to effectively meet their (and their country’s) adaptation and food security needs, in the short and the long-term. Insisting that farmers dedicate scarce resources to carbon accounting, rather than comprehensive efforts to address these urgent adaptation and food security needs is bad policy and poor use of very limited funds.

## Conclusion

Developing country farmers like those in the KACP need reliable support to enable them to make a transition to agricultural practices that will work in a changing climate. Development organizations such as Vi Agroforestry should be enabled to do the work they do best; some of this will involve extension services (whether through NGOs or public services); some will necessarily involve sharing knowledge on best practices. These and other efforts will require sustained funding, but wasting valuable time and resources and pinning hopes on the mirage of carbon markets and land use offsets is a mistake. Alternative ways of financing agriculture adaptation do exist—from insisting that developed countries honor their climate debts, to considering a Financial Transactions Tax (which is being adopted in several countries already), among others. Those options should be on the table at future meetings on climate and agriculture.

There should be a much more exhaustive, public and inclusive debate about carbon-market based approaches and their appropriateness for small farmers, food security and sovereignty. There has been far too little public information from the World Bank about the implementation of ongoing projects such as the KACP. The little information



that comes from proponents of these approaches (who are also donors to these projects) asserts their benefits without much analysis and data to back up their claims. An independent assessment must take place, led by grassroots organizations who are not vested in promoting the carbon market to analyze the merits of this approach for preparing small farmers to adapt to and protect their agriculture systems from climate change, for ensuring food security and creating food sovereignty.

In the run up to the second Global Conference on Food Security, Agriculture and Climate Change in Vietnam,<sup>24</sup> the Bank once again called for a scaling up of this approach and its expansion to a landscape level. The process of these two global conferences has been highly problematic. The outcome documents of both of these global conferences were neither negotiated or formally endorsed by governments or CSO participants present, but they imply the participants' endorsements because they were labeled as a final "communiqué," or a "roadmap," that included many of these flawed approaches. It is time that governments pushed back against these illegitimate mirages of consensus. They should instead demand an independent assessment of the Bank's claims and that donor governments meet their climate finance obligations for adaptation as the key climate change priority for developing country governments and their food producers.

## Endnotes

1. World Bank 2010. First African Emission Reductions Purchase Agreement For Soil Carbon Signed in the Hague. Press Release No. 2011/165/SDN, November 3, accessed at: <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22753334~pagePK:64257043~piPK:437376~theSitePK:4607,00.html> on 09/05/2012

2. PID 2010: Project Information Document (PID) Appraisal Stage; Report No. 53088, January, pg 4.

3. World Bank 2012 Kenya - Kenya Agricultural Carbon Project : P107798 - Implementation Status Results Report : Sequence 02 (English), Report No. ISR6745, July 9. And World Bank 2011 Kenya - Kenya Agricultural Carbon Project : P107798 - Implementation Status Results Report : Sequence 01 (English) Report No. ISR4425 Oct 21 accessed at: <http://www.worldbank.org/projects/P107798/kenya-agricultural-carbon-project?lang=en> on 29 August 2012.

4. See <http://www.sccportal.org/Vi-Agroforestry-Programme.aspx>

5. Shames, S et al. 2012. Case Study: Western Kenya Smallholder Agriculture Carbon Finance Project: Vi Agroforestry. Institutional Innovations in African Smallholder Projects. CCAFS, June.

6. Ibid, pg.16

7. Vi Agroforestry Annual Report 2011

8. Ibid.

9. See Stabinsky, D. 2012. Soil Carbon and the Offset Market: Practices, Players and Politics. Institute for Agriculture and Trade Policy (IATP)

10. Sharma S. et al 2011. "Elusive Promises of the Kenya Agricultural Carbon Project." IATP

11. See initial World Bank Documents on the KACP for Co2 estimations for the project.

12. See Stabinsky, D. 2012. Soil Carbon and the Offset Market: Practices, Players and Politics. Institute for Agriculture and Trade Policy (IATP), August 2012.

13. Many policy analyses assume that at least one ton per hectare per year can be sequestered on a steady, long-term basis, however, Lal, R. 2004 shows much lower amounts depending on environmental conditions: from 0 to 150 kg carbon per hectare per year in dry and warm regions, and 100 to 1000 kg carbon per hectare per year in humid and cool climates. Lal, R. 2004. "Soil carbon sequestration impacts on global climate change and food security." *Science* 304: 1623-1627. More recent studies predict that rising temperatures are likely to emit more carbon into the atmosphere than remove it from soils (see Hopkins et al.) "Warming accelerates decomposition of decades-old carbon in forest soils" May 2012 accessed at: <http://www.pnas.org/content/early/2012/06/07/1120603109.abstract>.

14. Shames, S et al. 2012.

15. Ibid.

16. <http://www.capitalalternatives.co/barclays-has-sold-tricorona-the-swedish-carbon-trading-company-it-bought-two-years-ago/>

17. IBRD and IDA 2012. "Request for Inspection: India: Improving Rural Livelihoods through Carbon Sequestration" July 27, accessed at: <http://documents.worldbank.org/curated/en/2012/07/16565930/india-improving-rural-livelihoods-through-carbon-sequestration-project-request-inspection>, on 30 August 2012.

18. Ibid.

19. Summaya Israel, "The Climate Gamble on African Soil," Al-Jazeera, September 17, 2011.

20. Det Norske Veritas (DNV) 2011. "VCS Methodology Element Assessment Report as Second Validator. Adoption of Sustainable Agricultural Land Management. Report for World Bank." Report Number 2011-9480

21. See also Stabinsky, D. 2012. Soil Carbon and the Offset Market: Practices, Players and Politics. Institute for Agriculture and Trade Policy (IATP) and its summary: Sharma, S. 2012. A Climate Smart Idea? Understanding the Politics, Practices and Players of the Agricultural Soil Carbon Market (IATP)

22. Ibid, pg 8-9. These leakage areas include: Increase in the use of fossil fuel for cooking and heating purposes due to the decrease in the use of manure and/or residuals as an energy source; displacement of biomass from outside to inside the project boundary causing the depletion of soil organic carbon outside the project boundary; and displacement of manure from outside to inside the project boundary causing an increase in the use of inorganic fertilizers or an increase in the amount of fossil fuel for cooking outside the project boundary."

23. Shames, S et al. 2012, pg 6.

24. <http://www.afconference.com/>.