Agricultural Mitigation
Pilot Sites:
Ghana & Vietnam

Ghana
by Francis Tetteh (Savannah Agricultural Research Institute, Tamale, Ghana)

Agriculture, the mainstay of Ghana’s economy, accounts for nearly 40% of the gross domestic product (GDP) and employs about 60% of the population. An estimated 3 million households are engaged in small-scale farming, using rudimentary technology to produce some 80% of Ghana’s agricultural products.

The country’s agriculture is characterized by bush burning, soil erosion, and inappropriate agronomic practices that lead to poor soils with low nutrient content. Some of these practices could result in the release of GHG. Therefore, the implementation of alternative practices have the potential not only to increase or stabilize crop yields, but also reduce GHG emission by increasing total biomass produced per unit area of farmland and the amount of organic carbon stored in the soil.

Cassava, a food security staple that grows in low fertility soils without fertilizers and maize are the only crops that are grown in all of Ghana’s provinces. Cassava yields could triple if soil fertility is improved and good agronomic practices are used.

The IFPRI-SRI pilot project on agricultural mitigation focuses on cassava production at two pilot communities. Most cassava growers use low-yielding local varieties due to their cooking quality and taste. The IFAD-funded Root and Tuber Improvement and Marketing Programme (RTIMP) has supported the introduction of new high-yielding cassava varieties for use by the farmers to improve cassava production. The programme also improves market access through value addition to products by training farmers in the processing of cassava into different products.

The goal of the IFAD-IFPRI-SRI pilot study is to study cassava production in the Bekwai and Agona areas of Ashanti, looking at the effect of implementing improved agronomic practices (such as using improved high yielding varieties, applying optimum recommended fertilizers when necessary, preventing erosion on farmlands, and proper weed control) on yield, total biomass produced, and total organic carbon sequestered in the soil. The project also looks at the proportion of farmers using improved agronomic practices to those using the traditional practices. The project can then estimate how much biomass increase will be expected if the adoption rate is increased by at least 50% and how much soil carbon will be sequestered. Soil fertility has been identified by
the RTIMP as one of the limiting factors in cassava production and there is therefore a need to look at improving integrated soil fertility management in cassava growing communities.

Twenty farmers’ fields within each community have been sampled for soil organic carbon measurement. Farms will be sampled again for soil organic carbon testing after the harvesting of cassava. All the minimum data set necessary to run a crop growth simulation model to assess changes in soil organic carbon are being collected from pilot sites to estimate whether current or alternative agronomic practices for cassava can improve the soil carbon stock over the next 20-30 years. The results will be up-scaled for all of Ghana for all of the agricultural crops grown in the country’s various ecologies. This could give a picture of how much carbon could be sequestered if smallholder farmers are trained to adopt improved agronomic practices to improve crop yields, increase their incomes, and improve their livelihood for food security and poverty alleviation.

Vietnam
by Mai Trinh (Institute for Agricultural Environment, Hanoi, Vietnam)

In Vietnam, we identified alternative management practices for paddy--the main staple crop that is harvested annually on approximately 7.4 million hectares--as the key to pro-poor agricultural mitigation. Our pilot site to study GHG emission-reducing rice management practices is the village of Cam La in Dong Lac commune, Nam Sach district, Hai Duong province, in the Red River Delta.

The commune, which has nine villages with a combined population of 7,200, is located 20 km from the city of Hai Duong and 80 km from Hanoi. It has one cooperative. The land is flat with alluvial soils from the Thai Binh River system. Rice yields average 6 tons per ha.

Four alternative management practices are being studied in the pilot during three crop seasons, including: 1. Alternative wetting and drying; 2. Introduction of high-yielding varieties; 3. Application of biochar to increase carbon sequestration; and 4. Composting/mulching of rice straw.

For all treatments, inputs and outputs are being recorded for the calculation of carbon and nutrient balances.

In the first season (fall/winter 2010), the alternative wetting and drying experiment was implemented on four farmer fields. Each field was split into two equal plots with conventional cultivation and alternative wet dry irrigation, respectively. Alternative wetting and drying was implemented through adjusting the water level from -15cm to +5cm. Water levels were monitored through monitoring wells.
**COP16**

Despite high-level efforts, no agriculture in Cancun Agreement

“We know that we need to increase agricultural production by 70 percent by 2050 to feed nine billion people and that climate changes risk more uncertainty and potentially serious downside possibilities. Agriculture, forestry, and land use change account for more than 30% of greenhouse gas emissions. So we need to make the agriculture sector and soil carbon part of the solution to climate change.”

*World Bank Group President Robert Zoellick, December 9, 2010.*

Despite efforts by Zoellick and other global leaders and policymakers to raise agriculture’s profile during the UNFCCC climate treaty negotiations in Cancun, Mexico (November 30-December 10), negotiators did not mention the sector in the final Cancun Agreement.

On December 9, Zoellick, as well as Cao Duc Phat, Vietnam Minister of Agriculture; Tom Vilsack, US Secretary of Agriculture; and Erik Solheim, Norway Minister of Environment and Development, delivered to negotiators the *Roadmap for Action: Agriculture, Food Security and Climate Change* (http://cot.ag/h5POFV), which was based on the document produced by the participants at the Global Conference on Agriculture, Food Security, and Climate Change (The Hague, October 31-November 11). Read it here (http://cot.ag/bTDm1z).

Their call for the integration of agriculture into the treaty’s climate finance architecture echoed the action points generated at Agriculture and Rural Development Day 2010 (December 4. http://www.agricultureday.org), a side event co-organized by the Consultative Group on International Agricultural Research (CGIAR). This gathering of more than 400 policymakers, negotiators, farmers, journals, and members of the science and civil society communities, concluded in their final statement (http://cot.ag/hoUc3y) that climate security and food security are inextricably linked.

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**In the News**

In a *New York Times* editorial, economist Paul Krugman linked recent food price spikes to climate change:

“In a New York Times editorial, economist Paul Krugman linked recent food price spikes to climate change:

“While several factors have contributed to soaring food prices, what really stands out is the extent to which severe weather events have disrupted agricultural production. And these severe weather events are exactly the kind of thing we’d expect to see as rising concentrations of greenhouse gases change our climate — which means that the current food price surge may be just the beginning.”

Read it here: http://cot.ag/hpqr4I

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For more information, visit the IFAD-IFPRI Partnership online newsletter http://ifadifpri.wordpress.com/ or contact Alex de Pinto (A.DePinto@cgiar.org) or Claudia Ringler (c.ringler@cgiar.org).

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