

C-AGG, T-AGG and M-AGG: A model for building collaborative actions and common understanding on agricultural GHG mitigation

Working Paper No. 3

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Abstract

A multi-stakeholder forum has successfully used information sharing and collaborative learning to accelerate progress and bridge differences in policy and implementation approaches related to agricultural greenhouse gas mitigation opportunities. The Coalition on Agricultural Greenhouse Gases (C-AGG) is an open-tent umbrella initiative focused on developing agreement to promote progressive policies to incentivize GHG emissions reductions from the agricultural sector. C-AGG spawned the formation of two related initiatives – the Technical Working Group on Agricultural Greenhouse Gases (T-AGG), which assembles technical experts to develop scientific and analytical works to underpin policy development; and the Market Mechanisms for Agricultural Greenhouse Gases (M-AGG), which focuses on the development of the market access tools and methodologies necessary for agriculture to participate in carbon markets. Working together, the initiatives have successfully engaged diverse perspectives to find common ground, and forge new areas of progress to advance agricultural GHG mitigation opportunities and efforts. Similar networking approaches may be effective for accelerating progress in developing countries.

Keywords

Agricultural greenhouse gas mitigation; multi-stakeholder coalition(s); collaborative learning; information sharing

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Acronyms

AOS	Alberta Offset System
ACR	American Carbon Registry
CAR	Climate Action Reserve
C-AGG	Coalition on Agricultural Greenhouse Gases
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
GHG	Greenhouse gases
T-AGG	The Technical Working Group on Agricultural Greenhouse Gases
M-AGG	Market Mechanisms for Agricultural Greenhouse Gases
VCS	Verified Carbon Standard
X-AGG	Term applied to the 3 related groups acting jointly: C-AGG, T-AGG and M-AGG

Introduction

Building collaborative learning and action among farmers, scientists, policy makers and businesses is critical for the success of greenhouse gas (GHG) mitigation in agriculture. In the United States, the absence of a shared vision for how agriculture could engage in greenhouse gas mitigation under proposed new laws and programs undercut support for such activities. Agricultural mitigation in developing countries requires engaging smallholders where knowledge is fragmented and capacities are weak. Success will require developing supportive networks of scientists, government or industrial farm and rural extension organizations, and investment or market based institutions. Networks can accelerate the sharing of information and enhance shared learning and collaborative action to more rapidly mobilize mitigation efforts.

Background

In the US, three connected networks – The Coalition for Agricultural Greenhouse Gases (C-AGG), The Technical Working Group on Agricultural Greenhouse Gases (T-AGG) and Market Mechanisms for Agricultural Greenhouse Gases (M-AGG) – emerged as an effort to pave the way for the inclusion of agriculture in the then likely carbon markets in the United States.¹ The intent was to help the US to be better positioned to articulate agriculture’s role, assess the opportunities for the sector, and have the necessary tools and shared understanding to create a rational policy that makes sense for agriculture and food security, as well as climate change mitigation and adaptation. In the United States (US), agriculture contributes approximately 6 percent of national greenhouse gas emissions, and has the potential to mitigate up to 15 percent (Murray et al. 2005; Paustian et al. 2006). US farmers are an important political constituency nationally. While farmers were concerned about the increased costs inherent in climate policy they were engaged in discussion of policies that would compensate them for producing mitigation on their lands with the hope that this might help offset expected costs. However, the potential for agricultural mitigation and thus income from offsets that could be traded was relatively undefined and uncertain. The technical and scientific underpinnings of how carbon offsets would work at a farm or project scale, and the logistical, institutional, educational and technical assistance aspects of such programs were not well developed. Thus the legislative language left many details to future administrative, regulatory, or rulemaking processes. Experience with developing agricultural mitigation programs did exist in the Canadian province of Alberta, and starting about 2008, sharing of information across the border led to many of the principles and concepts tested in Alberta to be borrowed for policy and program development in the US. Unfortunately, the collapse of US legislative action in late 2010 has slowed further policy development. The three X-AGG networks have worked together to build support and a knowledge base for agricultural GHG mitigation. We provide more detail on each network and the lessons learned about supporting the development of agricultural mitigation below.

¹ Initiated with the support of the David and Lucile Packard Foundation, under the leadership of Walter Reid, Director of the Foundation’s Conservation and Science Program.

C-AGG

The Coalition on Agricultural Greenhouse Gases (C-AGG) is a multi-stakeholder consortium formed in early 2009 to provide guidance on how agricultural GHG mitigation opportunities can become an effective component of US climate change mitigation actions. C-AGG is intended as a policy discussion forum to assess existing policy opportunities and identify new opportunities and drivers for agricultural sector engagement in climate mitigation. C-AGG also aims to identify technical, logistical and infrastructure needs to support these policies and programs. C-AGG is an open forum and includes federal agency representatives, agricultural, non-governmental organizations, and climate registry representatives, as well as members of academia, think tanks, and consultants. A steering committee made up of representatives of these groups provided initial leadership.

C-AGG held several meetings during 2009 to assess the status of agricultural GHG mitigation policies, programs, and tools, looking at sub-national, national and international arenas broadly before starting to work on a set of principles to guide its efforts. From these meetings participants produced a 2010 report for policy makers on “Carbon and Agriculture: Getting Measurable Results” (C-AGG 2010).² Producing the report made it clear that C-AGG participants needed additional technical capacity to address all the desired elements of the report. Further, much of the technical and scientific underpinnings needed to incorporate agricultural mitigation opportunities into climate change policies and programs would need to be assessed, compiled, and summarized before critical gaps in knowledge could be identified and addressed. C-AGG participants also realized there was a need for a similar assessment of market-based tools and measures for agricultural participation in GHG offset markets. These needs led to the formation of two related groups: the T-AGG on technical issues and the M-AGG for market development.

² See www.c-agg.org/reports.html

During 2010, C-AGG hired an Executive Director, who expanded the Steering Committee to include roughly equal representation by agricultural, nongovernmental (NGO), market and investment-based and academic participants. The ED has also increased engagement with policymakers in the federal government including the US Department of Agriculture, the US Environmental Protection Agency, and staff and committees in the US Congress.

Participants and leaders consider C-AGG successful. The network has kept a dedicated core group of participants engaged, and the consortium has successfully broken new ground on relevant policy and market-based issues. Participants have had limited capacity to dedicate time and resources to products and efforts outside of dialogues and meetings without additional funding, but C-AGG's regular meetings are constructive, engaging, and well-attended. Considerable effort is needed to keep work products moving and on schedule, and to keep participants engaged between meetings. Additionally, as a multi-stakeholder forum with diverse membership, we have observed that this diversity is both a strength and a weakness. Diverse participation has provided for robust and wide-ranging discussions; however, environmental NGO and agricultural sector participation has at times been limited, perhaps in part due to the wide-ranging nature of some of the discussions, and a potential for those discussions to move beyond the scope and interests of some participants. All C-AGG meetings and outputs are accessible at the C-AGG website (www.c-agg.org).

T-AGG

The Technical Working Group on Agricultural Greenhouse Gases (T-AGG) brings together technical expertise to assemble the scientific and analytical foundation for high-quality standards, protocols, programs, and policies for GHG mitigation related to agricultural land management. T-AGG brought together academic experts in agriculture and related fields to synthesize science and assess the opportunities for GHG mitigation to inform the development of standards and policy for government agencies, carbon registries, agricultural producers, project developers, and corporate supply chain initiatives. T-AGG developed a transparent and open process that anyone can join, with a website, email list, an advisory board with representatives from key audiences and a group of science advisors, each with decades of expertise. All work is circulated in draft form and distributed for comment and peer review to participants and the larger community before final publication.

T-AGG developed while climate legislation was still active in the US and agricultural carbon offsets were seen as critical to lowering program costs. Despite this, protocols for agriculture in the voluntary and government programs were slow to develop, and new science was raising questions about the benefits of important management options like no-till. Together these sparked concerns about whether agricultural mitigation would provide the significant income opportunities that models and studies suggested existed. T-AGG was developed to provide scientific clarity on these questions by providing fundamental information on GHG management opportunities and basic information on the measurement and accounting that is necessary to develop protocols, standards, and metrics for agriculture. The objective was to expand the understanding of the range of opportunities available for agricultural management to help mitigate climate change and benefit farmers. The work focused on widespread and large scale cropping systems, where small changes across very large areas can add up to be quite significant, rather than forests or point sources like manure management, for which numerous efforts were already underway.

T-AGG hosted a meeting of agricultural protocol developers, as one of our primary audiences, in November 2009 to inform the development of our work and to encourage communication among developers. In early 2010 we brought together 30 academic experts with our advisory groups to discuss technical questions that had generated confusion and were creating barriers to progress. For example, whether reduced tillage really sequestered carbon when soils were measured at depth; whether field measurement or modelling would be better for quantifying net GHGs for agricultural management, and whether science on various nitrous oxide management practices was sufficiently robust for implementation. These discussions informed a series of technical reports. These reports included a literature survey and side by side comparison of agricultural land management activities to provide a road map for future protocol and policy development, an assessment of quantification tools and accounting issues for these wide ranging activities (Eagle et al. 2010; Olander et al. in press a). Through this process T-AGG is helping to catalogue the critical gaps for the scientific and technical community as well as those government or private groups developing mitigation programs.

Looking forward, T-AGG will extend this work by assessing measurement and modelling options for agricultural GHG mitigation in developing countries.³ A T-AGG research database on mitigation potentials for the US is available on our website and much of this work will be published in peer reviewed scientific journals to create a scientifically-credible and robust basis upon which policy makers and practitioners can draw.

T-AGG has been successful in engaging both the expertise of the science community and our audience (policy and program developers), as both communities have benefited from sharing information. With a shifting backdrop of potential policy or market drivers for GHG mitigation, our scope of work needed to be flexible and inclusive of various options. For example, under proposed US cap-and-trade climate bills, energy, fuel and other upstream reductions in GHGs would not count for the farmers, instead counting for the energy producer. Without such policy these reductions should count for farmers. The reports encompass information relevant for these changing opportunities. T-AGG reports have been requested by federal and state agencies, registries and a wide range of organizations to help provide fundamental information for their work.

³ Together with the CGIAR Research Program on Climate Change, Agriculture and Food Security and United Nations Food and Agriculture Organization.

The lessons learned through the T-AGG project are:

1. Involving the audience and experts from the outset and having a transparent process helps build confidence and support for the outcome;
2. Adapting the process and outcome of a project to address shifting needs and perspectives of your audience can be critical in maintaining relevance; and
3. Building databases and libraries that can be used by other researchers can add significant value.

M-AGG

The Market Mechanisms for Agricultural Greenhouse Gases (M-AGG) focus has been to capitalize on what has been developed in the carbon market, including quantification tools (which tool for which job), methods and carbon market access protocols. The M-AGG staff catalogued, categorized, classified and benchmarked what is known about agricultural protocol development (e.g., new GHG quantification protocols, verification, validation, policy development around issues of permanence, additionality, monitoring and reporting) in order to make this existing body of work accessible to future carbon market infrastructure development efforts. The project involved both report writing and stakeholder engagement workshops.

Two reports (“Phase 1” and “Phase 2”) summarize the work on quantification tools and protocols (Driver et al. 2010a,b). The reports establish a common nomenclature by defining the elements of carbon offset systems - protocol, quantification methodology, standards, verification, validation and certification. One theme that emerged is that offset criteria and protocol standards are converging around the ISO 14064:2 standard, which requires peer-reviewed science, transparency, strong documentation, third party technical input and stakeholder review. The Phase 2 report provides a primer on protocols, covering their basic characteristics and purpose, (what they are and what they are for) their fit relative to other policy and guidance documents, and a general overview of the different ways they can be designed and developed. The report also summarizes and compares the existing registries and protocol development and review structures in North America so that protocol developers or other stakeholders can know what to expect from the different entities [e.g., Alberta Offset System (AOS), American Carbon Registry (ACR), Climate Action Reserve CAR), Chicago Climate Exchange (CCX), Clean Development Mechanism (CDM), and the Verified Carbon Standard (VCS)].

In June 2010 the M-AGG team presented the results of the draft Phase 1 and Phase 2 reports at two stakeholder workshops and a “virtual” stakeholder workshop over the web. Comments by members of the agricultural sector in these meetings highlighted the depth of opposition to climate legislation that exists within the agriculture community. Also vegetable, tree and fruit growers brought forward the difficulty for their sector of accessing carbon markets. This is due to a lack of data for their crops, their smaller acreage relative to commodity growers and higher input costs per acre, making carbon payments on a per acre basis likely negligible relative to production costs, while carbon project costs would be high. These challenges are shared by small farmers all over the world and the workshops served to bring the issues more to the attention of carbon market developers. New nitrogen reduction based protocols can start to address some of the issues as the GHG reduction opportunities for these crops lie more in optimizations of fertilizer use than in soil carbon sequestration, but the barrier to entry for these crops and scales remains high.

In addition to the activities described above, M-AGG coordinated a practitioner’s workshop via webinar and a panel discussion during a joint event comparing the three N₂O reduction protocols⁴ that were under simultaneous development in different carbon market registry approval processes. These events enabled practitioners to discuss the differences among these protocols, and developers to hear their views. Other participants benefited from seeing the real decision points and strengths and weaknesses of different approaches. One of the outputs of this exercise was a summary table⁵ showing a side-by-side comparison of the three protocols using a consistent set of comparison criteria.

⁴ The three protocols are: a) Electric Power Research Institute-Michigan State University - N₂O Reduction Methodology and Annexes - submitted/planned to be submitted to the Voluntary Carbon Standard process; b) Winrock International - Methodology for Emission Reductions through Changes in Fertilizer Management - under review in the American Carbon Registry’s process; c) Canadian Fertilizer Institute-The Fertilizer Institute - Nitrous Oxide Emissions Reduction Protocol - final stages of approval in the regulatory-based Alberta Offset

⁵ See http://sustainablefoodlab.org/index.php?option=com_content&view=article&id=104:ag-carbon-markets&catid=9&Itemid=27

The M-AGG activities and processes highlighted the difficulties engaging the primary agricultural sector in these discussions. Farmers and ranchers were hard to reach and involve. This was in part due to the fact that climate change legislation became increasingly less likely in the course of the M-AGG process. The timing of M-AGG's reports and events vis-à-vis potential climate legislation was critical to their appeal and application. Without this legislation, the benefits to farmers were not clear or sufficiently imminent. Effort will have to be made to 'frame' the issue in a way that brings farmers to the table, by dealing with relevant issues affecting them directly, and by making the business case for producers to pay attention.

The M-AGG process and outputs have also led policy makers and carbon market developers to brainstorm alternative approaches to agricultural carbon market access mechanisms that may get at the issues of cost, risk and scale more directly and quickly. Looking forward the, M-AGG will be tracking pilot projects under a national grants program that are testing the new and emerging agricultural carbon market access protocols and exploring the potential of non-carbon market oriented incentive payment mechanisms such as supply-chain sustainability and carbon accounting initiatives.

X-AGG: C-AGG, T-AGG, and M-AGG working together

The C-AGG is intentionally the umbrella, policy-focused coalition that holds the initiatives together and helps to connect them to stakeholders beyond those targeted by each group separately. The collaboration and coordination among initiatives has encouraged a more robust dialog individually and collectively, as well as helped each initiative to refine its objectives and renew its perspective with frequent interaction with stakeholders, which has proved to be particularly necessary in the fast-changing political climate. X-AGG denotes the three related efforts of C-AGG, T-AGG, and M-AGG. In 2010 C-AGG hosted a joint meeting of the three initiatives, bringing in relevant sub-national US initiatives, as well as international and corporate supply chain initiatives. The latter were identified as critical drivers that may create progress in engaging US agriculture in climate change mitigation in the future.

The combined initiatives of C-AGG, T-AGG and M-AGG are building a more cohesive and informed community. Having a shared discussion has enabled the development of a more informed and shared agenda for future research, projects, and policy development. Moving forward, leaders and participants in X-AGG have articulated a desire to continue holding meetings to capture the richness of thought and expertise represented across the efforts. The initiatives aim to remain flexible and responsive to the changing political, market, and scientific climate to maintain momentum, and enable new developments and opportunities to be incorporated into the efforts, the dialogues and the resulting work products.

X-AGG: a model for international agriculture?

The community of international organizations, governments, businesses and NGOs that are interested in progress on agricultural GHG mitigation and adaptation internationally, including in developing nations, is diverse and has expressed a need for opportunities to communicate and collaborate with each other and with the expanding initiatives in the US and Canada, in particular. The new Global Research Alliance on Agricultural Greenhouse Gases, formed on the sidelines of the COP15 UNFCCC negotiations in Copenhagen, will provide a forum to connect scientists and the agricultural GHG research community in a common purpose, but it is not connected to practitioners. A number of the agricultural protocols, standards and programs under development are targeted at specific crops or regions of the world that could have implications for the broader community. Biogeochemical models have been and are being calibrated for various conditions and cropping systems worldwide (see Olander et al. in press b). Greater synthesis of the technical information and viable tools for quantification, lessons learned from projects in the voluntary market and standards based approaches, and information about human infrastructure for implementation are all important dimensions of agricultural mitigation which could evolve from an international X-AGG with a series of focused working groups working together.

Limited data, technology, and capacity for working with farmers on the ground are critical issues that need to be explored in developing countries which were not a focus in the US. While international efforts may help share strategies and support for data and technology development, each country and region will likely need its own approach for using existing government, community or business infrastructure and capacity or developing new sustainable infrastructure where needed. Developing countries may develop innovative ideas that work better with technologies they can access (e.g., cell phones) rather than those more typical used in the US (Ramanathan et al. 2007).

In the US, the potential for climate legislation that would impact agriculture brought disparate communities together. A similar clarity in future opportunities or risks to developing country agriculture would help motivate shared learning across all the government and non-governmental actors that need to be involved. Such opportunities and risks could come from the impacts of climate change, new international policies or funds, or new market drivers. Dedicated staff and support staff would be critical to provide continuity and consistency of effort and to drive work products to completion. Developing country versus developed country perspectives will be important to build commonality of approaches that will allow both to feel adequately represented and heard. X-AGG itself has not necessarily grappled with these issues, but has identified, for instance, that some aspects of GHG accounting might favour developed over developing country agricultural systems, for example, so attention to these different systems and approaches to represent and articulate the needs of each will be important. Finally, global, multi-stakeholder representation at meetings will require advance planning and considerable financial support. With sufficient resources an international X-AGG can help to build a cohesive and informed community to advance progress on agricultural opportunities to adapt to and mitigate climate change globally.

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