

DEMONSTRATING GHG EMISSION REDUCTIONS IN CALIFORNIA AND MIDSOUTH RICE PRODUCTION

Environmental Defense Fund

July, 2011

U.S. farmers produced \$3.5 billion (farm gate value) from the 3.33 million planted rice acres in 2008. According to US EPA's national greenhouse gas (GHG) inventory (2010), rice production is responsible for emissions of 7.2 million metric tons (MMT) CO₂ equivalent (CO₂e) annually (including 0.9 MMT CO₂e per year in California and 2.5 MMT CO₂e per year in Arkansas) from anaerobic conditions, although there is a relatively high level of uncertainty in total methane emissions from rice in the U.S. While data is limited at this stage, we believe that there may be potential to reduce GHG emissions from rice production through a limited set of voluntary practices. Much work is needed to understand the agronomic impacts of such concepts. If proven to be feasible, it is possible that voluntary implementation of certain practices may contribute to producers' competitiveness. In California, average GHG mitigation opportunities relative to baseline emissions were modeled and results ranged from 0.3 to 3.6 tCO₂e/ha (0.1 to 1.5 tCO₂e/acre).

The purpose of this CIG project is to 1) implement a first-of-its-kind greenhouse gas (GHG) emission reduction demonstration project with rice producers in California and Arkansas, two of the country's leading rice-producing states; and 2) analyze the project's replication potential in other rice producing states including Louisiana, Mississippi, Missouri, and Texas. This innovative project will create a new incentive for US rice producers to reduce GHG emissions by participating in voluntary and compliance carbon offset markets. The project will field-test a subset of GHG-reducing practices and produce user-friendly technology that combines performance- and practice-based approaches to help producers access carbon markets. These pilots, along with assessments of economic and environmental impacts, will provide a more cohesive understanding of replication potential across the nation's rice-producing regions. Lessons learned with rice producers and the creation of a methodology will support the eventual transfer of conservation technologies and innovative market-based approaches into NRCS policy and programs.

This initiative builds on recent work by Environmental Defense Fund (EDF) in California and Winrock International in Arkansas, carried out in collaboration with leading rice industry associations and rice producers in each region. EDF and CRC along with partners Applied Geosolutions, LLC, and Terra Global Capital, LLC, have submitted a rice methodology to two voluntary carbon registries for rice sector GHG emissions reductions and we expect at least one of these registries to approve the methodology this year. We will use this methodology and adapt it as needed for appropriate practices in California and Arkansas. We will implement one pilot project with EQIP eligible producers in each state; assess environmental impacts of tested practices; introduce a new middle layer technology that will allow farmers to efficiently access offset credit information; facilitate the monitoring, verification, and registration of the resulting GHG emission reductions on a commonly recognized carbon registry; work to secure regulatory approvals so that the GHG emission reductions achieved will have compliance value under California's cap-and-trade program; disseminate lessons learned to other interested producers

and NRCS; and evaluate scale-up potential in California, Arkansas and other rice-producing states.

Background Information for the C-AGG Chicago Meeting July 20-21, 2011

Project: Demonstrating GHG Emission Reductions in California and Midsouth Rice Production

1. What are the major goals of the project?

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2. What is the project timeline?

August 1, 2011 – July 31, 2014

3. Which GHG are targeted by the project, and/or which activities?

Methane emissions reductions

4. Can you provide an estimate of tons of CO₂equivalents (per year, and/or over the course of the project) that the project might mitigate/abate?

5. What methods or protocols will the project use to measure or estimate GHG emissions and emissions reductions (e.g. direct measurement, sampling, models, etc)

Modeling emissions with DNDC model, using Methodology submitted to VCS and ACR by EDF/Terra Global Capital/California Rice Commission/Applied Geosolutions

6. Do you anticipate or envision any obstacles or barriers to achieving your project goals and outcomes as currently set out, or activities that you believe will be challenging

7. Have you identified any data or knowledge gaps associated with the project?

Data for validation of DNDC model in the mid-south. We hope to be able to fill this gap.

8. Please list the project partners affiliated with the project.

Winrock International
California Rice Commission
White River Irrigation District, Arkansas
DNDC-Applications, Research, and Training
University of California at Davis
Randall (Cass) Mutters University of California Cooperative Extension
PRBO Conservation Science
Terra Global Capital LLC
USA Rice Federation