Rice Cultivation Project Protocol (RCPP)

CLIMATE ACTION RESERVE

Public Workshop

October 24, 2011

10 AM – 12 PM PDT

Welcome and Introductions

Agenda

- Climate Action Reserve background
- Protocol development process
- Introduction to the Rice Cultivation Project Protocol (RCPP)
- Next steps
- Q&A

What is the
Climate Action Reserve?

CLIMATE
ACTION
RESERVE

- Non-profit GHG offsets registry
- Develop high-quality project standards and register/track offset credits in public online system
- Ensure environmental integrity and quality of offset credits
- Intended to be the premier place to register carbon offset projects for North America
- Reserve stats:
  - 408 account holders
  - 480 projects total with 219 projects listed
  - 117 projects registered with 17.5 million CRTs issued
  - Projects in 46 states

Principles of Reserve Project Accounting

- **Real:** Reductions have actually occurred, and are quantified using complete, accurate, transparent, and conservative methodologies
- **Additional:** Reductions result from activities that would not happen in the absence of a GHG market
- **Permanent:** Reductions verified ex-post, risk of reversals mitigated
- **Verified:** Emission reports must be free of material misstatements, confirmed by an accredited verification body
- **Owned unambiguously:** Ownership of GHG reductions must be clear
- **Not harmful:** Negative externalities must be avoided
- **Practicality:** Project implementation barriers should be minimized

The Standardized Approach

Benefits to a top-down approach:

- Low up-front costs to project developers
- Efficient review and approval of projects
- Transparency and consistency
- Same approach applies across projects
- Prescriptive guidance to eliminate judgment calls

But...high initial resource investment to program

Protocol Development Process

- Internal protocol scoping and public scoping meetings
- Form multi-stakeholder workgroup
- Draft protocol with assistance from Technical Consultant
- Send draft through workgroup process
  - Workgroup provides technical expertise and practitioner experience
  - Periodic meetings and individual consultation when needed
- Revise Draft based on workgroup comments
- Public Draft protocol released for public review
- Public comments incorporated
- Protocol submitted to Reserve board for adoption

Protocol Development Goals

- Develop a standardized approach for quantifying, monitoring and verifying GHG offsets from management practice changes that reduce methane emissions from rice cultivation in the U.S.

- Maintain consistency with or improve upon existing methodologies
  - Seed document: Draft Version – *Emission Reductions in Rice Management Systems* (EDF, CalRice, Terra Global Capital, Applied Geosolutions)

- Ensure Accuracy and Practicality of Projects

Protocol Development Timeline

WG Meeting 1 (conference call)	February 9
WG Meeting 2 (conference call)	May 11
Draft protocol to workgroup	June 02
WG Meeting 3 (Los Angeles)	June 06
WG Written Comments on Draft Protocol Due	June 28
WG Meeting 4 (conference call)	Week of September 12
Start of 4 week public comment period	October 14
Public workshop	October 24
Public Comments Due	November 11
Protocol submitted for adoption to Reserve Board	December 14

Workgroup

California Rice Commission

Carbon Solutions America

Deloitte Consulting

Environmental Defense Fund

ibLaunch Energy, Inc.

National Wildlife Federation

NRG Energy

Terra Global Capital

Trinity Carbon Management, LLC

University of California Cooperative Extension

U.S. Environmental Protection Agency

U.S. Department of Agriculture – Natural Resources Conservation Service

Walk-Through of the Draft RCPP

Project Protocol Components

Define the GHG reduction project	Section 2
Determine eligibility	Section 3
Establish the GHG assessment boundary	Section 4
Calculate GHG reductions – Primary effect emissions – Secondary effect emissions	Section 5
Monitoring requirements	Section 6
Reporting requirements	Section 7
Verification guidance	Section 8

Section 2 – Background and Project Definition

- Background on Rice Cultivation Techniques (Terminology)
  - Flooding Systems
    - Continuous flood: Flooded prior to seeding, through harvest
    - Pinpoint Flood: Fields drained after seeding for 3-5 days
    - Delayed Flood: Dry or irrigated seeding, fields kept dry for first 3-4 weeks until crop canopy is established
  - Seeding
    - Water Seeding: Sowing of dry or soaked seed into a flooded field
    - Dry Seeding: Sowing seed into a dry seedbed by drilling or broadcasting
- Methane Emissions Pathways
  - CH_4 emissions at a given rice field are primarily the result of organic material in the soil breaking down under anaerobic conditions (when the field is flooded)
  - Actual Emissions depend on numerous factors, but can generally be reduced with changes to:
    - Water management
    - Plant residue management

Project Definition (Section 2.2)

- Definition: "the adoption and maintenance of one or more of the approved rice cultivation project activities"
  - At least one approved project activity implemented on each individual field
  - At least five individual fields combined into a single project area ("project aggregate")
    - Project aggregate can be non-contiguous fields
    - Single management or multiple participant

Approved Project Activities	Description	Geographic Scope
Dry seeding (DS) with delayed flood	Adoption of a dry seeding method that involves sowing of dry seeds into dry or moist, non-puddled soil, with field flooding delayed until rice stand is established (typically 25-30 days after seeding). Dry seeding can be performed by spreading seeds onto the soil surface and transferring soil on top of the seeds or by drilling seeds into a prepared seedbed, a practice known as "drill seeding." Regardless of the dry seeding method utilized, the methane reductions occur due to the subsequent delay in flooding of the dry seeded field.	California
Post-harvest rice straw removal and baling (Baling)	After harvest, rice straw residue is traditionally left on agricultural fields and incorporated into soil, however; rice straw can be removed by baling. Doing so reduces the net soil degradable organic carbon (DOC), and therefore decreases methane production from anaerobic decay over the winter season. Baled straw can be sold even though the market is currently small. In California, rice straw can be used for erosion control, animal bedding or as an alternative feed for cow and calf producers	California

Defining the Field Boundaries (Section 2.2.1)

- An individual rice field must be defined by the following criteria
  - The field must be under the direct management control of a single rice producer
  - The field must be contiguous
  - Water and Fertilizer Management must be ‘relatively homogeneous’
  - The field must have at least 5 years of yield data available for DNDC model calibration

Field Boundary – Homogeneous Management

- <u>Water management</u>
  - Defined as having a flood up duration for all checks in the field of less than 96 hours from start to finish (4 acre-inches per acre or more). This can be documented using field sizes and pumping rates.
- <u>Fertilizer management</u>
  - This criterion is met when application rates across the field do not vary by more than 15% of the average application rate for the entire field. For each application, fertilizer must be applied on the same day with the same type of fertilizer.

Project Aggregates (Section 2.3)

- All fields must participate in aggregate w/ minimum of five fields
  - No upper limit on number of fields
  - There is an upper limit on the *size* of a field in relation to the total acreage of the aggregate
  - Rules for entering and leaving (Section 2.3.2)
    - Rules minimize ability of one field to change aggregates mid-crediting period
    - Provide requirements that must be met for a field to continue in our program if land ownership or tenant occupancy changes at the field

Aggregators and Project Participants

- Aggregator
  - A corporation or other legally constituted entity, city, county, state agency, or individual
  - Must have an account on the Reserve (replaces Project Developer Account)
  - Official agents to the Reserve on behalf of participants in a project aggregate
  - Ultimately responsible for submitting all required forms and complying with the terms of the RCPP
  - Manage the flow of monitoring and verification reports to the Reserve and may engage in other project development activities such as developing monitoring plans, modeling emission reductions, managing data collection and retention etc.
  - Has authority to develop their own internal monitoring, reporting, and other participation requirements for individual fields as they deem necessary
  - Has discretion to exclude individual fields enrolled in their aggregate from participating in verification activities for any given reporting period (can be no CRTs claimed by those fields in the aggregate total)
  - ***Growers can serve as their own aggregator (if have minimum of five fields enrolled) or as the aggregator for a group of fields***

- Project Participants
  - Agricultural producers who elect to enroll fields in a project aggregate
  - Must be responsible for making management decisions for crop production on their fields enrolled in the project
  - Are **not** required to hold an account on the Reserve

Issuing CRTs to the Aggregate

- CRTs ultimately issued by the Reserve to the Aggregator
- The aggregator must attest to the Reserve that they have exclusive claim to the GHG reductions resulting from all fields in the project aggregate
- Protocol does not dictate the terms for how title will be established
  - allows the aggregator, project participant and land owner (if separate from the project participant) maximum flexibility for the terms of contracts between the respective parties
- Aggregator must also inform land owner with a “Letter of Notification of the Intent to Implement a GHG Mitigation Project”
- Verifier will review contracts and notification letters as component of verification

Section 3 – Eligibility Rules

Eligibility Rule I:	Location	→	*California*
Eligibility Rule II:	Project Start Date	→	*Within six months prior to project submission**
Eligibility Rule III:	Anaerobic Baseline Conditions	→	*Demonstrate baseline flooded rice cultivation practice*
Eligibility Rule IV:	Additionality	→	*Meet performance standard*
		→	*Exceed regulatory requirements*
Eligibility Rule V:	Regulatory Compliance	→	*Compliance with all applicable laws*
Crediting Period	5 years from start date, renewable up to 3 times (20 years total)		
* See Section 3.2 for additional information on project start date			

Location (Section 3.1)

- Approved U.S. rice growing regions for which the DNDC model has been validated and a regional Performance Standard has been developed
  - Currently limited to California (Sacramento Valley)
  - Future Versions may include other U.S. regions, likely focusing initially on Arkansas (Mid-South)

- Fields with high carbon content top soils (SOC > 3%) are not eligible due to high variability of nitrous oxide emissions (Sacramento Delta Region)
  - May be included depending on outcome of future model validation results

Start Date (Section 3.2)

- Each field has unique start date
  - The first day of the ‘cultivation cycle’ during which one or more of the approved project activities is adopted
  - Cultivation Cycle: Begins immediately post-harvest, runs through the end of the next year’s harvest

- Fields with start dates back to September 1, 2009 are eligible if submitted within the first year following protocol adoption (i.e., by December 14, 2012)

Anaerobic Baseline Conditions (Section 3.4)

- Project developers must demonstrate that previous rice cultivation practices resulted with anaerobic conditions
  - Each rice field has been under continuous rice cultivation for five years preceding the start date, with no more than one fallow season, and
  - Each rice field is flooded for a period of at least 100 days during each growing season, and
  - Management records for each of the rice fields are available for each of the five years preceding the project start date. At a minimum, management records must include:
    - **Annual rice yields**
    - **Planting and harvest dates**
    - **Flooding and draining dates**
    - **Fertilizer application dates and amounts**

Standardized Additionality

- Projects must satisfy the following tests to be considered additional
  - **The Performance Standard Test**: By meeting the performance threshold for a specific management activity, a rice field demonstrates that cultivation management exceeds the regional common practice standard for methane emissions management
  - **The Legal Requirement Test**: Ensures project activities are not a result of legal obligations

Performance Standard (Section 3.5.1)

Region	Approved RC Management Changes	Performance Standard Test	Justification
CA	**Dry seeding (DS)**	A rice field passes the Performance Standard Test by implementing dry seeding. Individual fields that employed dry seeding with delayed flood for 2 or more cultivation cycles in the past 5 years prior to the project start date are ineligible.	Research indicates that dry-seeding is currently practiced on less than 3% of the CA rice acreage.
	Post-harvest rice straw removal and baling (Baling)	A rice field passes the Performance Standard Test by implementing post-harvest rice straw 'baling.' Individual fields that employed baling following harvest 2 or more times in the past 5 years prior to the project start date are ineligible.	Research indicates that residue removal (baling) is currently practiced on less than 8% of the CA rice acreage.

Performance Standard Research

Dry Seeding

- According to the USDA ERS data analyzed by Livezey et al. in 2001, a dry seeding method is not common practice in California (~5%)
- To confirm that dry seeding is still not a common practice in California, the Reserve relied on a survey of UCCE Extension Specialists, as well as estimates from other rice industry experts
- Based on the evidence presented by California rice industry experts, the Reserve has concluded that dry seeding is not a common practice in California, with a likely adoption rate of less than 3% of the acreage

Rice Straw Baling

- Rice straw represents a significant challenge to rice farmers
- In general, options are burning, incorporation into fields, or removal (baling)
- Following 1991 Rice Straw Burning Reduction Act, burning of rice straw decreased dramatically on an annual basis (current est. ~10-12% of CA acreage)
- However, market for rice straw has not grown as planned (Garnache et al., 2011)
- The current estimate from the California Rice Commission for baling in California is 6-8% of the acreage per year
- This estimate was further corroborated by UCCE Extension Specialists
- Based on the evidence presented by California rice industry experts, the Reserve has concluded that baling of rice straw is not a common practice in California, with a likely adoption rate of between 2-7% of the acreage

PS Research on Potential Practice of Reduced Winter Flooding

- Compiled aggregate data from irrigation districts
  - Glenn-Colusa provided field level data for 2007-2010
- Used remote sensing to map winter flooding: MODIS and Landsat
- Assessed the following:
  - Presence or absence of winter flooding from one year to the next
  - Mapping single versus maintenance flooding

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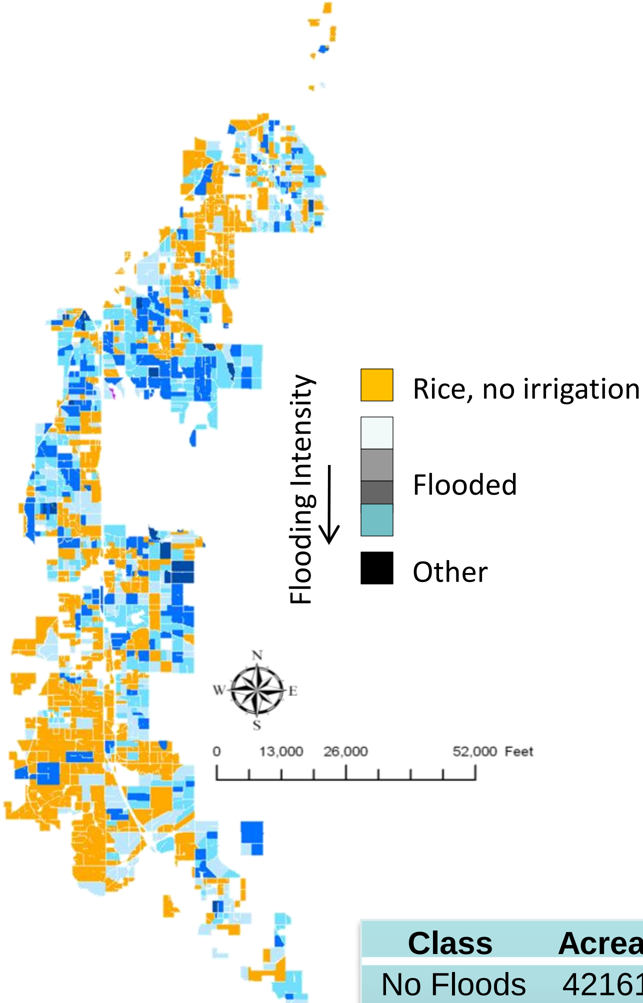
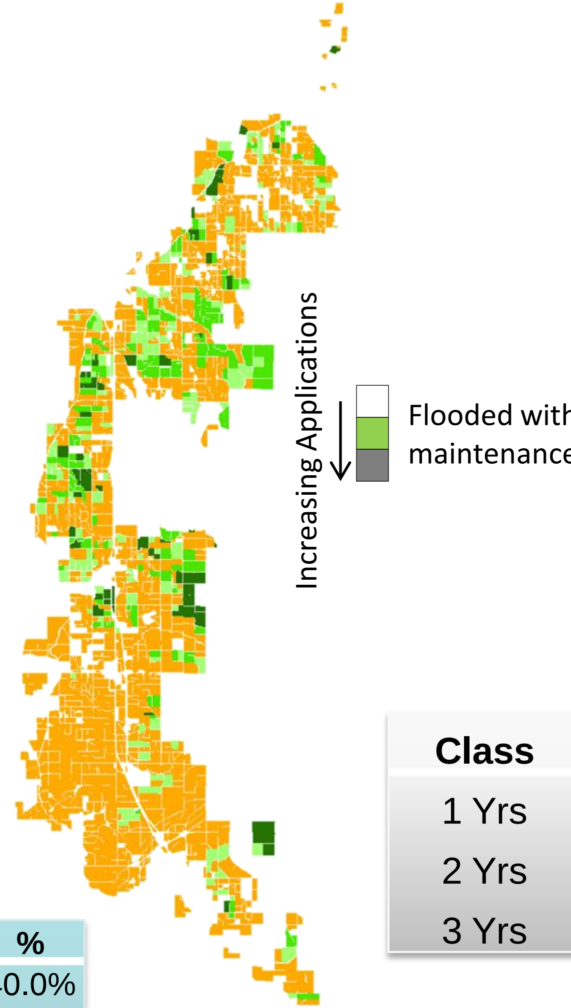
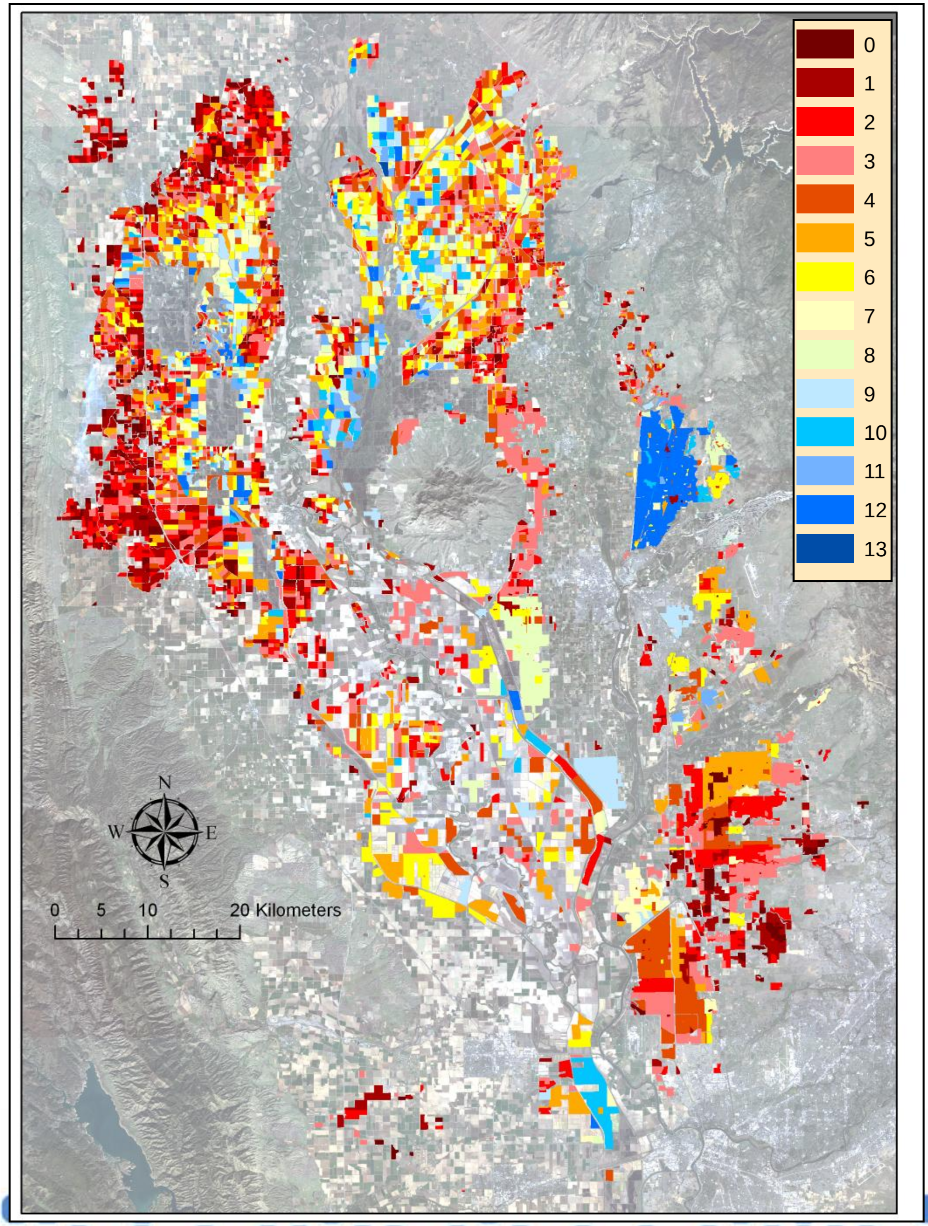


Class	Acreage	%
No Floods	42161.9	40.0%
1 Yrs	20314.3	19.3%
2 Yrs	22346.9	21.2%
3 Yrs	17566.9	16.7%
4 Yrs	1912.6	1.8%
Other	977.4	0.9%



Class	Acreage
1 Yrs	11786.5
2 Yrs	11504.7
3 Yrs	5233



Years	Sum of ACRES	# of paddies
1	19342.133	444
2	52336.416	997
3	71599.151	1178
4	87865.274	1029
5	66429.303	769
6	59523.203	621
7	50419.065	500
8	33064.498	354
9	29708.742	243
10	26047.608	205
11	17880.331	138
12	11741.541	130
13	23551.332	78
14	364.179	3

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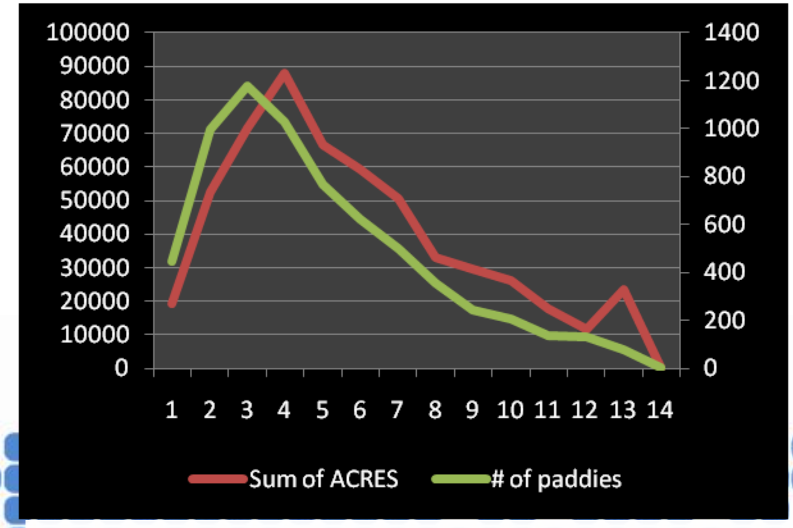


(table and chart are not chronological)

Results and Conclusions of PS Analysis for Reduced Winter Flooding

- Results:
  - Rare to use winter flooding continuously over 5 yr period
  - On ~40% of the area studied, winter flooding was never used during the five years
  - Predominant trend appears to be use of winter flooding for 1 to 3 years over a 5 year period

- Conclusions: intermittent trends in the use/non-use of winter flooding make it difficult to reliably determine expected business as usual levels of reduced winter flooding on any given field

Wildlife Habitat and Winter Flooding

- Flooded riceland habitats serve as:
  - Primarily, foraging and resting grounds during fall and winter (i.e. coinciding with bird migration)
  - Also, breeding grounds for certain species during the growing season (e.g. mallards)

- Residual rice, weed seeds, and invertebrates provide an excellent food source, particularly for avian species

- In California, rice lands are used by 230 species of wildlife, including:
  - 187 species of birds, 27 of mammals, 16 of reptiles and amphibians
  - ~7 million waterfowl (~10% of North American waterfowl)
  - Several hundred thousand shorebirds and wading birds
  - At least one endangered species (e.g., Giant Garter Snakes)
  - California is located in the Pacific Flyway

Performance Standard Decisions

- For Version 1.0:
  - Will *not* include winter flooding due to difficulty establishing common practice, and considering potential wildlife habitat issues
    - Will continue to explore for future versions
- Next version will seek to add other regions (Mid-South) and other California practices (early pre-season drain)

Legal Requirement Test (Section 3.5.2)

- A project passes the Legal Requirement Test when there are no laws, statutes, regulations, etc. that require the project activity
  - Project Aggregator must sign an Attestation of Voluntary Implementation
- Reserve has found no federal, state or local laws found that <u>explicitly</u> require the project activity
- If a field initially passes the LRT, the field will remain eligible for the entire 5 year crediting period irrespective of changes to legal requirements

Regulatory Compliance (Section 3.6)

- Project must be in compliance with **all** Federal, state, and local laws and mandates
- Generally includes: air, water quality, water discharge, nutrient management, safety, labor, endangered species protection
- In California, will include compliance with the Conditional Rice Straw Burning Regulation
- Endangered Species Act and other special status species regulations *may* be relevant

Ecosystem Services Payment Stacking (Section 3.5.3)

- When multiple ecosystem services credits or payments are sought for a single activity on a single piece of land, it is referred to as credit stacking or payment stacking, respectively
  - No *credit* stacking opportunities exist
  - However, small potential for *payment* stacking with NRCS EQIP funds for straw baling, therefore:
    - The use of EQIP payments to finance baling projects is allowable if the project proponent simultaneously pursues EQIP funding and project registration on the same fields
    - EQIP 344A payments for any activity *other than* baling are not considered “stacked” for the purposes of this protocol

GHG Assessment Boundary (Section 4)

- Defines Source Sinks and Reservoirs (SSRs) that must be assessed to accurately quantify GHG reductions
  - Primary Effect Sources:
    - SSR 1 - Soil 'Dynamics' - Modeled with DNDC (CH_4, N_2O, Soil C impacts included)
  - Secondary Effect Sources:
    - SSR 2 -Water Pumps (excluded)
    - SSR 3 -Cultivation Equipment (Included if increase in emissions)
    - SSR 4 – Emissions from 'Baling' Equipment (Included if 'baling')
    - SSR 5 –Rice Straw Management/End Use (Included if 'baling')
    - SSR 6 – Emissions from Shifted Production Outside Project Boundary (Leakage)
      - Leakage is assumed to occur if there is a decrease in yield as a 'direct' result of project activity. Must be quantified.

Quantifying GHG Reduction (Section 5)

$$ER = SDER - SE$$

- SDER: Soil Dynamics Emission Reductions (SSR1)
  - DNDC Modeled Emission reductions resulting from project management changes
  - Each ‘field’ must have independent model run

- SE: Secondary Emissions
  - Increased CO_2 from additional use of cultivation equipment (SSR 3)
  - Increased CO_2 from baling (SSR 4)
  - CH_4 from residue management/end use (SSR 5)
  - Increased GHG Emissions from Production Shifting (Leakage) (SSR 6)

The DNDC Model

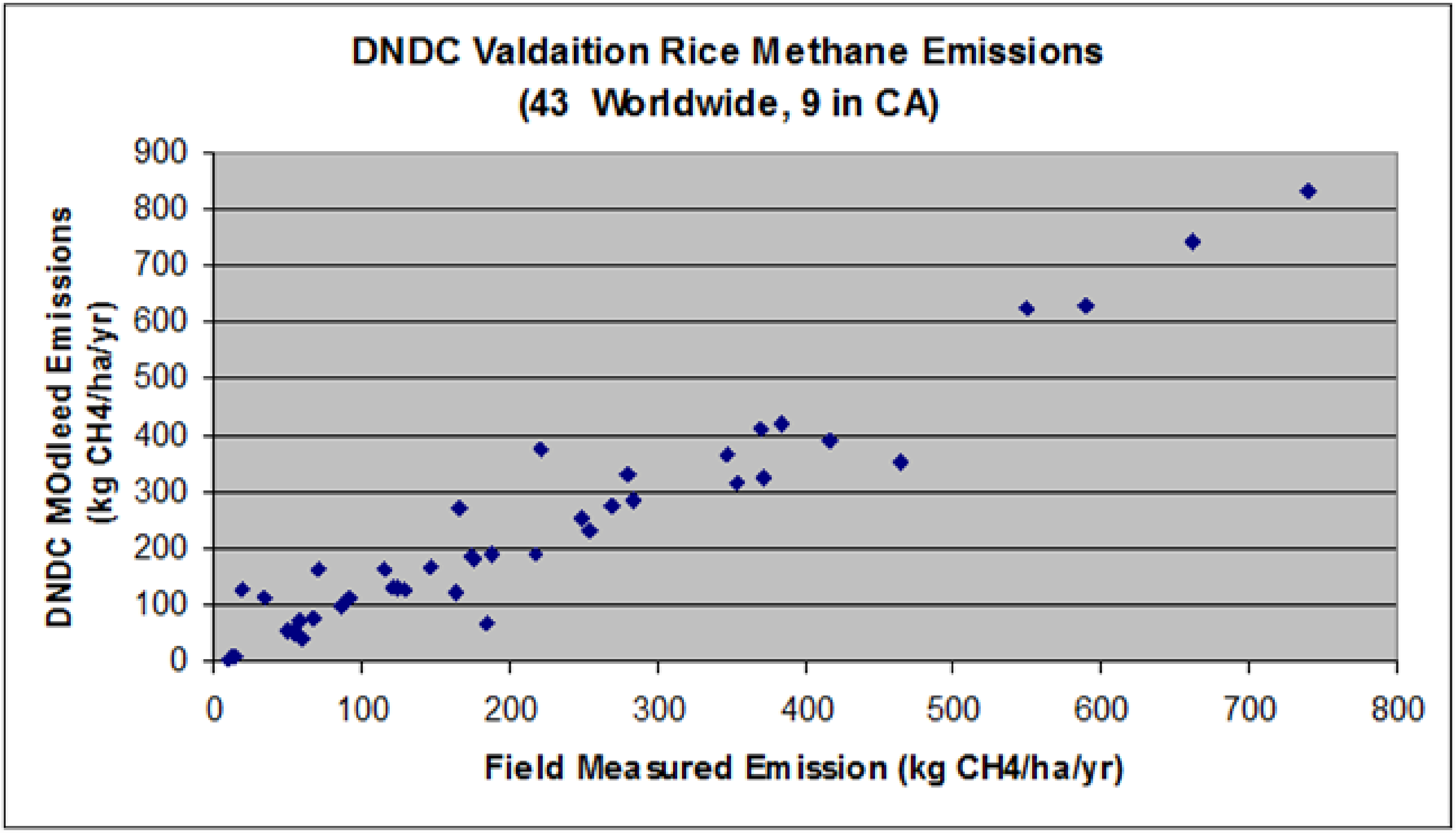
Background

- **DNDC** stands for **D**e**N**itrification-**D**e**C**omposition
- DNDC is a soil biogeochemical model that has been used for quantifying GHG emissions from agricultural soils for over 20 years
- DNDC is a process (as know as mechanistic) model that simulates the biogeochemical processes to drive C and N cycling in agricultural soils
- Long history of peer-reviewed publications (well over 100 publications)

Use for Rice Emissions Modeling:

- DNDC can simultaneously simulate anaerobic (flooded) and aerobic (non-flooded) conditions in soils
- DNDC can model both Methane and Nitrous Oxide emissions: critical for rice agro-ecosystems
- DNDC has been extensively validated for rice globally

Justification for using DNDC



DNDC Validation Results

- The California data show similar statistics with an average of the nine points = 186 kg CH4/ha for modeled and192 for field measured
- The median residual is -1 and the standard deviation of the residuals is 65.0
- A statistical test (Student's t test) on the California data shows there is no evidence that these data are significantly different from the model results for other regions
- Residuals do not show significant heteroskedasticity. This is in part because there are only four observations above 500 kg CH4/ha/day

Basics of DNDC Methodology (Section 5.1)

- Use historical records to determine baseline parameters for:
  - Project Inputs (project activity parameters)
    - Seeding, residue management, fertilizer use
  - Static Inputs (parameters not related to project activity)
    - Climate, soil characteristics, other management practices

- Run historical model run for 20 years to attain equilibrium of certain variables
  - Use last 5 years of model run to calibrate DNDC crop growth model to actual crop yields

- Using actual climate, management data:
  - Model Baseline Emissions (assuming continuation of current practices)
  - Model Project Emissions (change only those parameters related to project activity that occurred onsite)

- Run Monte Carlo Simulations for BE and PE models (to account for input uncertainty)

- Adjust modeled reduction based on input uncertainty adjustment *for each field*

- Adjust modeled reductions *for entire aggregate* based on DNDC structural uncertainty adjustments

Accounting for Input Uncertainty using Monte Carlo Simulations (Section 5.1.6)

- Uncertainties in values for input parameters (e.g. soil texture) will be accounted for by using a Monte Carlo sensitivity analyses by running the DNDC model across the range of input parameters for both the baseline and project scenarios

- The deduction for input uncertainties shall be calculated as the half-width of 90% CI of distribution of difference between modeled baseline and project emissions: $GHG_{BS} - GHG_{P}$

DNDC Model Structural Uncertainty(Section 5.1.7.1)

- Model structural uncertainty is an estimate of model uncertainty when all the inputs are known

- Structural uncertainty is estimated by comparing field measurements with model estimates of GHG emissions

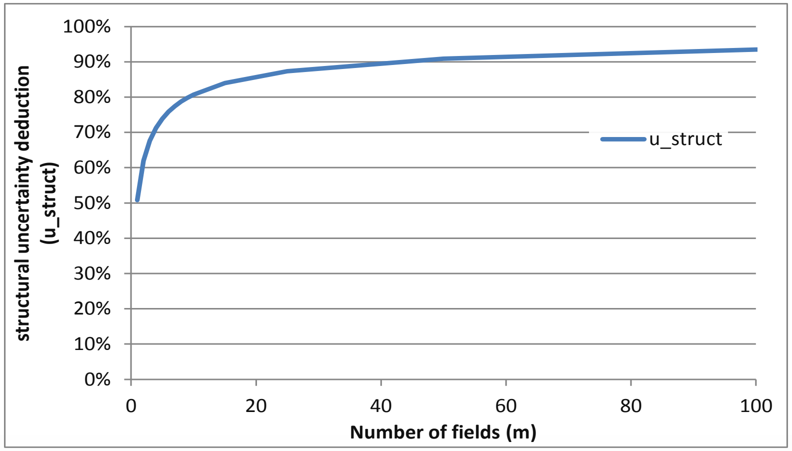
- Model performance improves as you aggregate to multiple fields (reduces combined uncertainty because over estimates are compensated by under estimates)

DNDC Model Structural Uncertainty

- Model structural uncertainty was calculated to be:

$$u_{struct}(m) = e^{\frac{-0.346}{\sqrt{m}} \cdot 1.96}$$

where *m* is the number of fields.



Number of fields	u_{struct}
1	51%
2	62%
3	68%
4	71%
5	74%
6	76%
7	77%
8	79%
9	80%
10	81%
15	84%
25	87%
50	91%
100	93%
1000	98%

Primary Emission Reductions from Soil Dynamics

- Equation 5.2 determines modeled emission reductions from 'soil dynamics' for entire aggregate:

$$SDER = \mu_{struct} * \sum_{i=1}^{m} \mu_{inputs\_i} * (GHG_{BSL,i} - GHG_{P,i})$$

Where,

μ_{struct}	=	Accuracy deduction from model structural uncertainty (% reduction), must use the appropriate value *(most up-to-date values will be provided on Reserve website)*
m	=	Number of individual rice fields included in the project area
$\mu_{inputs,i}$	=	Accuracy deduction factor for individual rice field *i* due to input uncertainties (% reduction for each field)
GHG_{P_i}	=	Project emissions in year *y* for individual rice field *i*
GHG_{BSL_i}	=	Baseline emissions in year *y* for individual rice field *i*

Quantifying Secondary Impacts (Section 5.2)

- Must quantify *increased* CO_2 emissions from cultivation equipment
- Must quantify CH_4 from rice straw end use / management
  - Could be significant emissions depending on end use
  - Reserve provides emission factors for common end-uses, as well as a conservative default to be used for other or ‘unknown’ end-uses (Appendix , Table A.1)

Quantifying Emissions from Production Shifting (Leakage) (Section 5.2.3)

- Approved project activities are not expected to dramatically effect crop yields
  - However, should rice yields decrease as a direct result of project activity, it is assumed that the decrease in rice production causes a net increase in production elsewhere outside the project boundary

- To determine if rice yields have decreased across the project area as a result of project activity, the annual aggregate yield must be compared to historical yields from the same project area
  - Because yields fluctuate annually depending on numerous climatic drivers, all yields are normalized to average annual county yields using USDA NASS statistics

- Any decrease beyond the significance threshold must be accounted for by assuming increased emissions outside the project boundary (See Equation 5.6)

Project Monitoring (Section 6)

- Reserve requires an Aggregate Monitoring Plan and Field Monitoring Plans
  - Aggregate Monitoring (field tracking)
    - Location, serial number, legal status, start date, verification schedule, emission reduction result, for all fields
  - Field-Level Monitoring (data and management tracking)
    - Management Parameters, Soil Inputs. Climate Data, historical yields
    - Project Activities (See Section 6.2.3)
      - Includes receipts/ service agreements, time-stamped photographs
- Table 6.1 provides detailed list of all inputs for DNDC model

Reporting Requirements (Section 7)

- A Field Monitoring Report (FMR) must be updated and kept on file by Aggregator for each cultivation cycle
  - FMR serves as the basis for verification
  - Includes: Shape files, serial number, start date, regulatory information, DNDC input files, model results, copy of all sampled parameters, receipts, etc.

- An Aggregate Monitoring Report (AMR) must be updated, verified, and submitted to the Reserve along with verification reports and statements
  - Includes: All fields, serial numbers, DNDC model results, information on which fields are new, verified w. site visit or desk audit etc.

Reporting Guidelines – Reporting Period and Verification Cycle (Section 7.4)

- Annual verification required for aggregate
- Reporting period is defined for the Aggregate as October 1st through September 31st of the following year
  - Aggregate will include numerous fields, all of which have a cultivation cycle (starting post harvest running through next season's harvest) that will be slightly more or less than 365 days in any given year.
- CRT vintage is defined as the year that the rice was harvested
- Example:
  - Cultivation Cycle: Post Harvest 2012 – Harvest 2013
  - Aggregate Reporting Period: October 1, 2012 – September 31, 2013
  - CRT Vintage for Reporting Period: 2013

Verification Guidance (Section 8)

- Verification activities occur on a random sample of fields from the aggregate and include site visits (SV) and desk audits (DA) of Field Monitoring Reports
- A field is considered verified if it is in the pool of fields in the aggregate from which site visits or desk audits are randomly drawn, even if not selected for either a site visit or desk audit
- Methodology provided for verifier to select which fields receive site visit (SV) or desk audit (DA)
- Detailed requirements for substantiating field eligibility, emission reduction modeling, data accuracy, reporting, and conducting risk assessment are provided
- Defines ‘successful verification’ and procedures for handling errors
  - Determining if an error is at field level or aggregate level (systemic)
- Provides incentive for ‘self enforcement’ by defining penalties for whole aggregate based on errors found in SV and DA fields

Verification Schedule for Aggregate (Section 8.2)

- Three categories of aggregates with different verification sampling requirements based on number of fields and project participants (PP) in the aggregate
  - Small aggregate — $\leq$10 fields
  - Large single-participant aggregate — > 10 fields, Single PP
  - Large multi-participant aggregate — > 10 fields, Multiple PP

- Rationale for tiered approach:
  - Same approach for large and small aggregates would be overly burdensome on small or single participant aggregates

Next Steps

- Please submit written public comments by **November 11, 2011**
- Protocol Revised based on public comments
- Addition of DNDC User's Guide to Appendix B
- Submitted for Adoption to the Reserve Board, **December 14, 2011**
  - Board meeting will be open to public participation
- For more information, visit: http://www.climateactionreserve.org/how/protocols/agriculture/rice-cultivation/

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