Verification for Agricultural GHG Protocols

C-AGG Meeting
Washington, DC
November 7, 2012
Definition of verification

- Systematic, independent, and documented process for the evaluation of a GHG assertion against specific criteria.
- Material compliance with applicable standard, methodology and tools.
- Has project correctly quantified net GHG reductions or removals?
  - Reasonable assurance of no material misstatements (>5% overstatement compared to verifier’s calculation).
- Risk-based, with exercise of professional judgment.
How unique is verification of ag GHG projects?

1. Verifying something that didn’t happen
2. Verifying something not (or no longer) directly observable or reproducible by the verifier
3. Verifying application of an empirical or process-based model
   a) Used within the geographic, soil etc. conditions for which developed?
   b) Correctly calibrated and validated, correct input parameters, uncertainty correctly calculated and discounted, etc.?
4. Verifying application of common practice baseline
5. Comparing actual yields to proposed baseline yield (for leakage)
6. Heavy reliance on farmer records, with recourse to various independent data sources
7. Verifying large aggregated projects, where only a small % of fields may be visited
New techniques and data sources

• Remote sensing – eligibility of field; implementation of dry seeding; approximate flood-up date (but not drain date); harvest date; winter flood or no…
  – Possible to verify 100% of participating fields
  – Not only verify project activity, but historical data for baseline (e.g. winter flooding or wet/dry seeding 5 years pre-project)

• In-field sensors/probes for water and soil moisture, temperature, etc.
  – Rugged, battery operated, becoming less expensive
  – Tamper resistant
  – Used as a management tool and as a data logger for verification

• Precision ag, variable rate technology – management choices logged and GPS’d
New techniques and data sources

- Date-stamped photos taken by farmer (e.g. of first day intermittently drained field has mud exposed)
- Monitoring equipment installed at pumping station (water use, date start/stop pumping, diesel use, dated photos...)
- Fertilizer purchase records
- Water bills or records from irrigation district
- Independent publicly accessible data (e.g. climate, precipitation, county-level crop yield statistics...)
- Assertions from independent credentialed experts (e.g. on common practices, adoption rates...)
- All data collected in “front-end tool” is a primary data source for verifier
Themes

• Heavy reliance on farmer records is inevitable for ag projects, but there are multiple possible data sources for “triangulation”

• All verification checkpoints and documentation should feed into the user interface tool, making it a single clearinghouse of data for farmers and verifiers

• Farmers will do these projects mainly for reasons other than GHG credits, so technology should mainly deliver precision management information -- incidentally log data for verification

• Aggregation will be key to financial viability and, considering ARB’s misgivings, remote sensing may be critical as a substitute for visiting every field

• CIG projects and EQIP funds could be used for piloting “experimental” verification techniques