ECOSYSTEM SERVICES MARKETS CONSORTIUM

Growing resilience in our nation’s soil

April 9, 2019
Bruce Knight and Debbie Reed
Ecosystem Services Markets for Agriculture

- The Ecosystem Services Market (ESM) Program: a Brief History
- Overview of ESM Program Protocols
- Transition to ESM Consortium (ESMC)
- ESMC Plans for Scaling
- Discussion
ESM Program Overview: A Brief History

Debbie Reed
To advance ecosystem service markets that incentivize farmers and ranchers to improve soil health systems that benefit society
ECOSYSTEM SERVICES MARKET CONSORTIUM

TIMELINE

2018
- ESM program launch
- Develop draft ESM protocol
- Conduct economic analysis review
- Contract with communications agency

2019
- Pilot testing of draft protocol in OK/TX
- Refine protocol based on pilot findings
- Expand protocol and pilot test in additional systems, geographies
- Develop go to market business plan
- Enroll buyers club members

2020
- Continued expansion of protocol and pilots to additional production systems, geographies
- Scientific peer review & public comment period for protocol
- Publication of ESM protocol for use in agricultural working lands

2021
- Achieve scale in priority regions and production systems

2022
- ESM program national launch
- Include additional ecosystem service impacts

FOR MORE INFORMATION:
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ESM Steering Committee

Debbie Reed, ESMC Executive Director
Bill Buckner, Ex-CEO of Noble Research Institute
Alex Echols, Campbell Foundation
Chad Ellis, Noble Research Institute
Jimmy Emmons, OK Producer
Wayne Honeycutt, Soil Health Institute
Kris Johnson, The Nature Conservancy
Bruce Knight, Strategic Conservation Solutions
Jerry Lynch / Mary Jane Melendez, General Mills
Tim Palmer, National Association of Conservation Districts
Sean Penrith, Gordian Knot Strategies
Gary Price, TX Producer
Steve Rowe, Newtrient
Ecosystem Service Markets: Economic Assessment

Total Volume and Value of Carbon and Water Quality Market

• A combined market does exist
• A stacked system will work
• Benefits to agriculture and society are evident

<table>
<thead>
<tr>
<th>Credit Type</th>
<th>Demand</th>
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<tbody>
<tr>
<td></td>
<td>Volume</td>
<td>Value ($bil)</td>
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<tr>
<td>Carbon (vol in MMt CO2e)</td>
<td>190</td>
<td>5.2</td>
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<tr>
<td>Water Quality (vol in bil pounds)</td>
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<tr>
<td>Nitrogen</td>
<td>1.58</td>
<td>4.8</td>
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<tr>
<td>Phosphorous</td>
<td>0.8</td>
<td>3.9</td>
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<tr>
<td>Total</td>
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<td>13.9</td>
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Overview of ESM Program Protocols

Debbie Reed
Develop protocols that specify the requirements to quantify, monitor, report, verify & register for sale farm- & ranch-based ecosystem service credits (soil C, water quality, water quantity) based on soil health improvements on working agricultural lands.
Protocol Development Principles

• Farmer-based, farmer-facing
• Science-based, outcomes-based, standards driven
• Transparent & open
• Recycle & upcycle by assessing, innovating
  • Recycle:
    • No reinventing wheels: learn from the past
  • Upcycle:
    • Innovate, meet needs of credit suppliers, buyers
    • Acknowledge, embrace biological agroecosystems
    • Technology a key part of our upcycling strategy
ESM Protocol Development Timeline

- **2017** – NRI convening assessed carbon markets; decision to launch NRI ESM Program
- **January 2018** – Protocol RFP developed, draft shared with 4 carbon market registries
- **February 2018** – Protocol RFP released
- **June 25, 2018** – Protocol development contract awarded
- **December 2018** – First Order protocol completed for use in Southern Great Plains rangeland & pastureland systems
- **January – December 2019** – Phase I protocol field-tested on NRI Land Stewardship Program ranches spanning 50,000 acres in Oklahoma & Texas
- **January 2019** – Protocol expansion & piloting in additional US geographies & agricultural production system begins & continues through 2022 National Program Launch
- **January-June 2020** – Scientific peer review & public comment period for protocol, followed by publication of final version
ESM ‘Base’ Protocol Development Process

**NRI Multi-stakeholder Convenings throughout 2017**
- 55 organizations/individuals involved
- Policy Committee documents challenges, successes of Ecosystem markets for Ag

**ESM Steering Committee formed (2-21-18) & ESMP Launched**
- DRD Associates designated as Lead on Protocol Development

**Protocol RFP Process**
- Draft RFP shared with 4 major Market Registries for input;
- RFP publicly released (2-21-18)
- Public Webinar on RFP (3-7-2018)
- 6 Proposals received, assessed
- Protocol contract award (June 2018)

**Protocol Drafting Phase (Nov-Dec 2018)**
- Draft tiered credits approach & modular C/W/W modules
- Test approach with CPG Companies

**Integrated Protocol Drafting Phase (Nov-Dec 2018)**
- Draft integrated protocol per ISO & all relevant standards & certification requirements for both tiers

**Protocol Design Phase (Sept-Oct 2018)**
- Design 2-tiered credits approach
- Design C/W/W modules

**Protocol Assessment Phase (July-Aug 2018)**
- Assess C/W/W market protocols
- Assess C/W/W quantification tools
- Produce matrices, Technical Briefs

**Pilot Test Protocol in Southern Great Plains w/NRI Enrollees (Jan-Dec 2019)**
- Test all aspects of protocol

**Every step = SC review & input**
- Every step documented & followed science-based, standards-based processes for market protocol development and certification requirements

**KEY**
- C/W/W = Carbon, water quality, water quantity assets to be quantified & monetized.
- CPGs = consumer product good companies
- ISO = International Standards Organization
ESM ‘Base’ Protocol Development Process: Documents Developed by Protocol Team

ASSESSMENT PHASE PRODUCTS
- Water Quality Models Comparison
- Water Quantity Market Comparison
- Inventory of State Conserved Water Protections for the Transfer Market
- Overview of Credits for Water Quantity Restoration
- Integrated Model Matrix Assessment

DESIGN PHASE PRODUCTS
- Step 2 Technical Brief: Assessment of Existing Protocols
- Step 2 Master Protocol Assessment Crosscut Table

DRAFTING PHASE PRODUCTS
- Step 3 Draft Modular Carbon, Water Quality and Water Quantity Protocols
- Step 4 Draft Integrated ESM Protocol

ADDITIONAL ANALYSES
- Conformance of Soil C Tiers w/Guidelines & Standards
- ESM Protocols & UN Sustainable Development Goals 2030
- Compatibility of Tier 1 Water Quality Certification with UNSDG2030, CDP Water Disclosure, & Ceres/WWF AgWater Challenge
- Preliminary Recommendations for Geographic Expansion of ESM Water Quality Protocols
- Research Needs for Advancing Flood Reduction Crediting Options under ESM

This is not an exhaustive list of documents developed, but is intended to illustrate due diligence & science-based, standards-based process of development.
Priority Elements of Protocols

- Additionality
- Permanence
- Legal Considerations
- Transparency
- Scalability
- Scientific Rigor
- Standards Based
- Farmer Facing
Context

TIERED ENVIRONMENTAL ECOSYSTEM SERVICES IMPACTS

Allows buyers to invest in verified ecosystem impacts for use in achieving internal footprint targets

OFFSETTING $$

ECOSYSTEM SERVICES

Increasing MRV rigor & Cost

INSERTING ECOSYSTEM SERVICES

Allows buyers to invest in highly charismatic ecosystem impacts in their supply chains

Insetting: Ecosystem impact outcomes are 2nd party verified
Offsetting: Ecosystem impact outcomes are 3rd party verified
Tiered, Modular Protocol Design

C/W/W Modules

- Modular protocol components quantify 3 soil health attributes over 2 tiers
- Meeting corporate Scope 3 GHG accounting and reporting needs (certified)
- Further scope corporate W/W needs for Tier 1 during piloting, beyond
- Additional attributes, production systems, geographies easily adapted

<table>
<thead>
<tr>
<th>Tier</th>
<th>Carbon Environmental Assets (Credits) Generated by Protocol</th>
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<tbody>
<tr>
<td></td>
<td>Carbon</td>
</tr>
<tr>
<td>1</td>
<td>Carbon Insets</td>
</tr>
<tr>
<td>2</td>
<td>Carbon Offsets Credits</td>
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ESM MRV Platform

• A technically advanced platform to enable cost-effective, scalable MRV of outcomes-based attributes will be developed

• MRV platform will store, manage data

• User-friendly interfaces, with appropriate views/data access, for all appropriate ESM team users: producers, technical service providers, ESM team, verifiers, buyers

• Advanced analytical capabilities, satellite imagery, remote sensing, gridded land ledger
Transition to ESM Consortium (ESMC)

Bruce Knight
## ESMC Launch: February 2019

### ESMC Founding Members
- ADM
- Bunge
- Cargill
- Danone NA
- General Mills
- Indigo Agriculture
- McDonald’s USA
- National Fish & Wildlife Foundation

### ESMC Legacy Partners
- American Farmland Trust
- Mars Incorporated
- National Association of Conservation Districts
- National Farmers Union
ESM Membership Levels

FOUNDING CIRCLE MEMBERS

Founding circle members will be in a position to leverage the Consortium to help build climate-resilient supply chains, advance research in the field of sustainable agriculture, and improve soil health while preserving direct contact with the farmers and ranchers in their sourcing regions. Membership signals a commitment to environmental stewardship and natural resource conservation, rural economic vitality and attainment of sustainable development and ecosystem service outcomes for society. Partners will be offered two committee seats, one on the Founding Member Committee and another on a Working Group undertaking the Consortium’s work in one of the established Research & Implementation areas.

LEGACY CIRCLE MEMBERS

Membership in the Legacy Committee is by invitation only and allows NGO and farm commodity group participants who do not choose to be Founding members to support the Research Consortium initiative. Legacy members can join Working Groups to help guide or support research and pilot projects and will provide input on the Consortium’s annual technology development plan.

PRODUCER CIRCLE MEMBERS

Farmers and ranchers are the focus of this program and their role is to ground check the initiative by providing frank and honest feedback. It is expected that farmers and ranchers will attend and actively participate in as many Working Committee meetings as possible and act as spokespeople for the initiative.
ESMC Framework

- ESMC will support the research needed to launch the ESM program nationally in 2022 and:
  - Prioritize and establish the scientific agenda
  - Develop, guide and manage anticipated grant funds from FFAR, USDA NRCS and others
  - Host and manage the ESM Consortium and members
  - Adapt protocols for new regions and production systems and pilot test, refine through a continuous feedback loop with members
  - Pursue certification of Scope 1, 2 and 3 credits via a global certification body
To advance ecosystem service markets that incentivize farmers and ranchers to improve soil health systems that benefit society.
To advance ecosystem service markets that incentivize farmers and ranchers to improve soil health systems that benefit society:

**1. Quantification** – develop accurate quantification of economic & agricultural management system impacts on soil health and ecosystem services:

**2. Monitoring, Reporting and Verification (MRV)** – develop technologies to cost-effectively quantify, assess, monitor, & verify systems-based impacts of the operations of farmers and ranchers;

**3. ESM Platform** – develop a user friendly & secure platform enabled by block chain technology to collect, store and manage data inputs & outputs for various users in the market place;

**4. Land Ledger** – develop a distributed technology to confidentially track ecosystem service outcomes in a geospatial manner tied to gridded ledger of land plots; and

**5. Quantifying & Achieving Ecosystem Service Capacities** – assess the technical capacity for different soils to absorb and retain carbon & contribute to improved water quality and water use conservation.
ESMC Plans for Scaling

Debbie Reed
Scaling ESMC: Pilot Project Planning

Goals

✓ Scale soil health outcomes & ESM program
✓ Expand & adapt protocols for additional production systems & geographies

Timeline

✓ Noble Land Stewardship Program (OK/TX) pilot 2019
✓ Protocol adaptations for expansion into new production systems & geographies beginning 2019, w/partners
✓ Pilots can begin when protocol adaptations completed
Pilot Project Planning

Criteria for Pilot Planning Process:

- Scale
- Collaborators
- Partners / Buyers
- Multiple Ecosystem Service Attributes Addressed
- Funds availability
- Geographic areas with relevance
- Existing protocols / market experience
- Baseline data, data to populate models
- Technical assistance
Pilot Planning 2019 - 2021

ESM Pilot Priority Regions

- Pacific
- Mountain
- Northern Plains
- Lake
- Corn Belt
- Appalachia
- Southeast
- Delta

- Crop
- Pasture/Range
- Texoma LSP Pilot Projects
Thank you!

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