ECOSYSTEM SERVICES MARKET RESEARCH CONSORTIUM (ESMRC)

WORKING GROUP SCIENCE ADVISORS:

CALL FOR NOMINATIONS

Monday 19 August 2019

Background

The Ecosystem Services Market Research Consortium (ESMRC) seeks nominations to form an inaugural team of science advisors to participate in ESMRC Working Groups (ESMRC WG) to provide expert insight and advice on the ESMRC research and implementation agenda and activities to advance soil health through a private, voluntary ecosystem services market. The submission deadline for nominations of ESMRC WG science advisors is Friday 13 September 2019.

The Ecosystem Services Market Research Consortium (ESMRC)

Operating under a 3-year grant through a public private partnership, the Ecosystem Services Market Consortium LLC (ESMC) is working with partners and collaborators across the agricultural supply chain to invest in critical research to build a technologically advanced ecosystem services market to reward and incentivize beneficial impacts of sustainable agricultural practices and systems. The member-driven research consortium – known as the ESMRC - will support development of a new cost-effective and scalable approach to farmer and rancher engagement in ecosystem service markets, an approach needed to scale the beneficial impacts of sustainable practice adoption on working agricultural lands. The ESMRC will also meet corporate and societal needs by quantifying, monitoring and verifying the environmental benefits achieved on an annual and ongoing basis.

The ESMC will initially measure and monetize three important soil health attributes: soil carbon and net GHG impacts; water quality; and water quantity. The impact of improvements to ecosystem

services includes increased agricultural sustainability and resilience, enhanced natural resource stewardship, improved food security, water quality and water conservation, and climate change mitigation and adaptation.

Roles and Responsibilities of ESMRC WG Science Advisors

ESMRC WG science advisors will provide scientific expertise relevant to the goals and objectives of ESMRC via participation in 1 of 4 ESMRC WG. It is anticipated that 2 science advisors will be recruited to participate in each of the 4 ESMRC WG. By participating in ESMRC WG, science advisors can inform discussions and decision-making through constructive feedback on achieving WG goals and objectives. Science advisors should consider and advise on ancillary environmental, social and economic benefits and risks associated with specific activities and projects being contemplated; and may provide relevant citations, documentation and background information or identify specific additional expertise to inform work, activities, or projects being considered by ESMRC WG.

Science advisors may be asked to collaborate with other ESMRC WG members in development and review of project RFPs and review and selection of submitted proposals. This will include providing assurance that the proposed activities, budgets & timelines, deliverables, project partners, key performance indicators to monitor project progress, etc., are consistent with the ESMRC goals, objectives and outcomes. Science advisors will be expected to participate actively in WG calls and meetings, read materials in advance, undertake any follow up actions, and sign and honor a nondisclosure agreement prior to beginning their tenure.

Terms of Appointment

Science advisors will be appointed for a one-year term (staggered), with an overall length of service not to exceed three terms.

Areas of Expertise and Qualifications

Nominations for ESMRC WG science advisors are sought from individuals who believe in the mission of advancing private, voluntary ecosystem service markets that incentivize farmers and ranchers to improve soil health systems and that create multiple natural resource and ecosystem service benefits for society. Science advisors with expertise in relevant categories of work include: soil science, agronomy, agricultural and information technology, ecosystem service markets, agricultural and natural resource economists, and producers.

Expectations and Time Commitment

We anticipate that ESMRC WG science advisors will be required to dedicate approximately 2-4 hours per week and up to 20 hours per month to the work of the ESMRC WG, including participating in regular WG calls and occasional in-person meetings, developing and reviewing RFPs and proposals, programs of work, etc.

ESMRC Goals & Objectives

The goals and objectives of the ESMRC as established in the FFAR grant follow:

Goal

The goal of the ESMRC is to assemble a full-service architecture and collaborative network that leverages expertise across the agricultural stakeholder spectrum to advance soil health and implement the ESM program to benefit US farmers and ranchers and to meet societal needs.

Objectives

1. Develop ability to rigorously and cost-effectively quantify science- and outcomes-based impacts of agricultural management practices on ecosystem services from agriculture at multiple scales (2019-2021)
2. Develop rigorous, secure, automated science-based methodologies to monitor, report and verify ecosystem service outcomes from agriculture at scale (2019-2021)
3. Develop a rigorous, secure, automated, technologically advanced science-based platform for a national-scale geospatial framework to track ecosystem service market attributes from agriculture (2019- 2021)
4. Develop a national-scale gridded Land Ledger that tracks and reports ecosystem service attributes from agriculture using static and trend data at multiple geospatial scales, either horizontally (e.g. metrics at field, farm, watershed or other geographic scales) and vertically (e.g. metrics as tied to each land- based grid). (2019-2021)
5. Quantify technical capacity for carbon and water quality outcomes based on soil carbon sequestration potentials by soil types, land management approaches and climate. (2019-2021)

ESMRC Research & Implementation Areas

The areas of research and implementation established in the FFAR grant follow:

Research & Implementation Areas

ESMRC is an outcomes-driven Consortium that will continuously be informed by the needs of US farmers and ranchers, without whose participation scaled outcomes cannot be achieved. It will initially focus on five areas of research and implementation that will continue to lay the foundation and support deployment of a successful ecosystem services market. The designed intent of ESMRC is to exist as long as research, development and implementation are needed in the soil health and ecosystem services arena. The initial focal areas for research and implementation over the 3-year term of the FFAR grant are:

1. Quantification of Ecosystem Impacts;
2. Monitoring, Reporting, and Verification Technologies;
3. Ecosystem Services Market platform;
4. Land Ledger Leveraging Block Chain Technology; and
5. Quantifying and Achieving Ecosystem Service Capacities.

ESMRC Outcomes to be Achieved

The outcomes to be achieved, as established in the FFAR grant, follow:

Outcomes

1. Functioning ESM protocols for the three ecosystem service attributes of greenhouse gases (GHG)(to include soil carbon sequestration and net GHG), water quality, and water quantity
2. Accurate quantification of agricultural management system impacts on ecosystem services
3. Innovative and advanced analytical techniques for more sophisticated quantification, monitoring and verification (MRV) technologies to better quantify and assess systems-based impacts of farmers and ranchers and reduce market-based program costs
4. An online platform that prepares and feeds collected data inputs into the appropriate biogeochemical and process models to track and quantify changes in outcomes for ecosystem service attributes
5. A Land Ledger that tracks ecosystem services in a geospatial manner and will harmonize and standardize the data collection
6. Quantification of the carbon sequestration capacity of prioritized significant agricultural soils through a combination of modeling and field validation.

ESMRC Working Groups

ESMRC WG are tasked with developing and implementing specific research and development initiatives under the five ESMRC research themes. All WG activities will focus on the research and development of cost-effective, scalable technologies and approaches to achieving desired outcomes, as follows:

1. ***Working Group 1: Quantification of Soil C and net GHG in Protocols, Pilots and Certification*** – will work to develop accurate, cost-effective and scalable quantification of agricultural management system impacts on soil C and net GHG (carbon, methane and nitrous oxide), including economic impacts. Areas of focus will include development, pilot testing and refinement of market protocols, including through pilot projects.
2. ***Working Group 2***: ***Quantification of Water Quality and Water Quantity in Protocols, Pilots and Certification*** -- will work to pursue the development of accurate, cost-effective and scalable quantification of agricultural management system impacts on water quality and water quantity, including economic impacts. Areas of focus will include development, pilot testing and refinement of market protocols, including through pilot projects.
3. ***Working Group 3: Monitoring, Reporting and Verification (MRV) Technologies; MRV Platform; and Gridded Land Ledger*** – will work to:
    - develop innovative and advanced analytical tools and technologies to cost-effectively quantify, assess, monitor, and verify systems-based impacts of the operations of farmers and ranchers at scale while providing robust and transparent documentation of outcomes. This includes the utilization, testing and refinement of direct, modeled, and remote quantification tools and technologies with a goal to reduce burden on program participants, including agricultural sector participants, program operators, and verifiers.
    - develop a secure platform enabled by blockchain or similar technologies to cost-effectively collect, store and manage data inputs and outputs in order to support the market place. The platform will include user-friendly interfaces that meet the needs of various users, including producers (for enrollment and data input and to track outcomes); technical assistance providers; program operators, including modelers;

verifiers; project supporters, such as corporate partners and NGOs; and credit generation platform(s); and will provide an API to other data platforms.
    - develop a land ledger that tracks ecosystem service outcomes in a geospatial manner based on gridded blocks of land. The land ledger will allow the reporting and tracking of ecosystem service outcomes at any geospatial scale desired, including at watershed, supply shed, farm or field scales, while protecting personal, sensitive or confidential information. The land ledger will store and report data vertically (e.g., stacked ecosystem service metrics tied to land grids) and/or horizontally (e.g. by watershed or farm) to allow tracking over time.
4. ***Working Group 4: Soil Carbon Research to Quantify and Achieve Ecosystem Service Capacities of Soils*** – will work to credibly assess the technical capacity for different soils to absorb and retain carbon and contribute to improved water quality and water use conservation as metrics of soil health.

ESMRC WG Science Advisor Nominations

To nominate an individual to participate as an ESMRC WG science advisor please complete and submit the attached nomination form. Nominations must be received no later than midnight ET on Friday 13 September 2019. Upon selection of nominees to participate as an ESMRC WG science advisor, a member of our team will reach out to discuss the invitation to participate and to answer any additional questions regarding participation.

Nomination Selection Timeline:

- Friday 13 September 2019: nomination deadline
- Monday 16 September 2019-Friday 27 September 2019: ESMRC nomination review process
- Monday 30 September 2019: notification of selected ESMRC WG science advisors, leading to on-boarding process

Further information about the ESM program and activities can be found on our website at www.ecosystemservicesmarket.org. If you have any questions, please don't hesitate to contact us at info@ecosystemservicesmarket.org

Sincerely,

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