Submission by Solutions from the Land

In Response to

Sharm el-Sheikh Joint Work on Agriculture

Call for Recommendations: Actionable Solutions

April 8, 2024

Solutions from the Land (SfL), a farmer-scientist led non-governmental organization that advances agricultural solutions to global challenges, appreciates the respectful and welcoming environment that the Co-Chairs have maintained for observer entities and welcomes the opportunity to submit our recommendations for actionable solutions under the Sharm el-Sheikh Dialogue.

SCALING AGRICULTURAL CIRCULAR BIOLOGICAL SOLUTIONS TO CLIMATE CHANGE

Those who manage living systems and natural resources to produce food, feed and fiber must understand and acknowledge the past to embrace the present and prepare for a challenging, less-predictable future. The United Nation's Sustainable Development Goals for 2030 conjure a bold vision for humanity that is possible but has yet to exist. They lay out an ambitious framework for how humankind might come together in collaboration to build a better world, with systematic international cooperation and strategic design to bring our human systems into alignment and harmony with natural systems. *This vision requires participation and leadership from farmers, ranchers, foresters, and all their partners in agriculture to establish the social and environmental foundation for the successful achievement of the SDGs. For without successful agriculture, humankind cannot thrive* (SfL 2021).

The SDGs offer critical opportunities for farmers and their supply and value chain partners to communicate a range of local and global realities and to emphasize circular biological systems (CBS) and the variety of innovations, approaches, and policies that can accelerate and scale agricultural solutions to the numerous concurrent challenges the world faces today and into the future.

Linear agricultural and forestry production systems focused on productivity gains alone can create unsustainable resource utilization and trap farmers into a theoretical treadmill of increased productivity and decreasing profitability (Morton & Shea 2022). The construct of circularity in agriculture and food systems holds promise for addressing lost waste resources and unintended consequences of the treadmill. The opportunity for agriculture is to move the concepts of circularity observed in complex natural ecosystems into practical applications of value to farmers and their value chains to shift intensive systems away from the single goal of optimizing monoculture productivity into circles-of-life capable of producing multiple benefits concurrently. Mixed multi-plant, forestry and animal agricultural systems that leverage integrated land management and biodiversity have potential to deliver multi-benefit goals of increased productivity, improved pest and disease control, water quality, soil health, and economic profitability. Replacing "take resources, make, and dispose" with circular "make, use, and recycle" processes offer solutions for managing input costs and gaining income and ecosystem benefits from wastes that otherwise might be lost income or harm the system. Technologies, innovations and practices that reinforce whole system management and build on local conditions and knowledge; and are designed to deliver multi-benefits beyond optimum production will be necessary for circular systems to emerge over time.

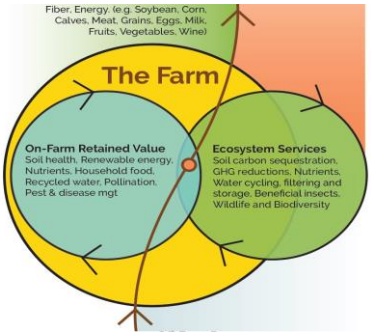
So how can main-stream agriculture move more quickly toward systems approaches and the co-production of food and agricultural products and ecosystem services of value to the earth and society? Solutions from the Land has identified a variety of strategies that can be utilized to accelerate innovations and farmer solution pathways to concurrently deliver SDG solutions under increasing uncertainty and a changing climate. For the past decade, SfL farmer leaders have been reaching out to their farmer peers, talking about the challenges agriculture faces and how increased diversity and whole farm systems offer effective solutions. Scientists and a number of farmers are already experimenting with mixed multi-plant, forestry and animal systems that leverage biodiversity to increase productivity, better control pests and disease, enhance ecological services, and ensure economic profitability (Malezieus et al. 2009; Tittonell 2014; Tamburini et al. 2020).

Circular economy system models are alternative transitional paths within food and agriculture value chains that:

1. design out waste and pollution (recover/reintroduce discarded wastes for productive uses);
2. protect and renew natural systems;
3. establish processes that systematically reuse products and materials; and
4. offer economic benefits from reduced inputs and value-added byproducts (Jones et al. 2021).

Agricultural solutions must be pragmatic and provide pathways that farmers of all sizes can follow to achieve climate and other SDG outcomes. If they are not practical and profitable to a farmer, they will not be successful. Capacity building, in all its dimensions, (e.g. access to adequate finance, technical assistance and infrastructure throughout the food and nutrition supply chain) should be another priority area of focus.

What is the value of circular systems to farmers



Retained value …

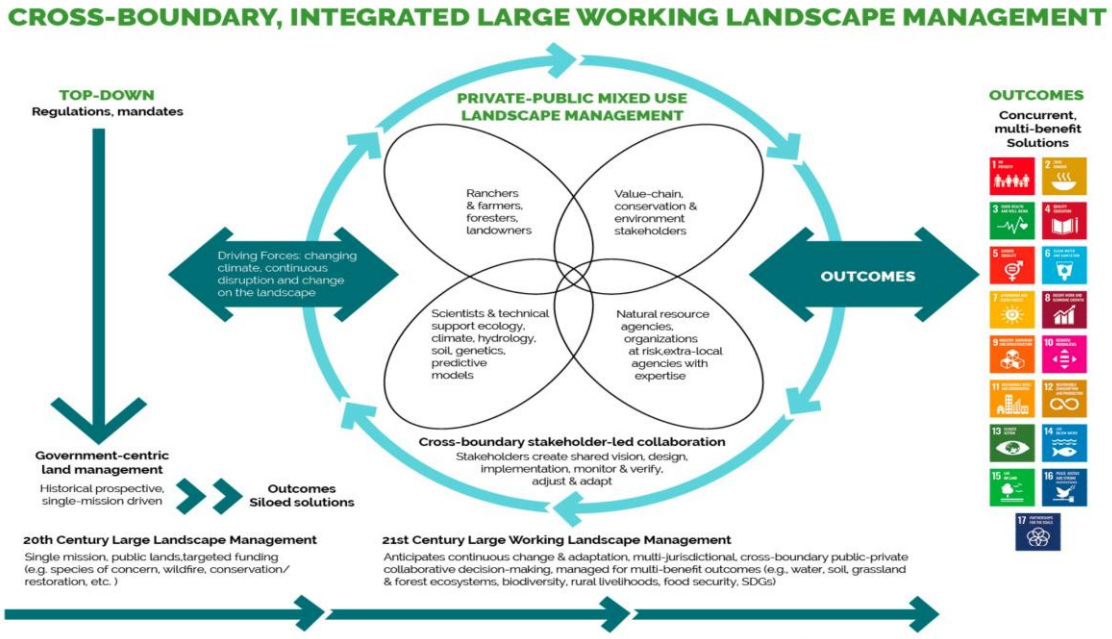
Farm products are re-circulated through farm and ecological systems and offer retained value (e.g. manure, straw, cover crops, recycled water, biogas, seed production, etc) as co-products that can substitute for production inputs and be marketed off-farm as outputs

[UN Environment Program draft Global Strategy for Sustainable Consumption and Production SDG #12 (2023 -2030)]

What does "retained value" look like? $$$$$

Co-products that are intentional, planned processes and products that add value by contributing to farm profitability and quality ecosystem services (compared to by-products which are not intentional)

Citation: L.W. Morton, E. Shea, 2022. Iowa Smart Agriculture: Circles of Life_ A Vision for the Future Solutions from the Land.



Solutions from the Land's cross-boundary, integrated large-scale working landscape collaborative management model encompasses the ecological and human complexities of large-scale working landscapes.

Citation: L. W. Morton, C. Girgis, E. Shea. 2024. Cross-Boundary Collaboration in Large Working Landscape Management: Anticipating and Planning for Climate Disruption and Continuous Change in US West Grassland-Forest Working Landscapes. Solutions from the Land, Lutherville MD USA

Thank you for considering our recommendations.