Healthy Soils, Healthy Communities:
Opportunities to Bridge Environmental Justice and Soil Carbon Sequestration
Executive Summary

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In 2016, global atmospheric CO2 concentrations passed 400 ppm. To get back to the safe zone, generally recognized as below 350 ppm, we have to pull carbon out of the atmosphere. Safely in the soil, carbon is beneficial – it helps soils hold water and nutrients, resist drought and prevent erosion. By one estimate, the world's agricultural soils have lost over half their original carbon. If those soil carbon stocks were regenerated, by one account they could offset up to 15% of global greenhouse gas emissions.[1] The French Ministry of Agriculture has suggested an annual increase in the organic matter of the world's soils of just 4 percent would offset all global GHG emissions.[2] We need to begin managing soils for the carbon cycle – putting soil carbon to work in our cities, ranches and farms.

Soil carbon work is also an opportunity to address long standing environmental justice issues – including water and air pollution, access to food and urban green space, job creation and support for small scale farmers. Strategies to both further environmental justice and capture carbon will depend in large part on how, to what purpose, and for whom we manage our soil.

We have to connect the dots between the carbon cycle and the work to build healthy, just communities. Soil carbon work is a part of a broader just transition to a carbon-free economy. That transition starts with organizing in frontline communities, and making sure that environmental justice has a place at the table at the very beginning of any policy or program development process. Policymakers need to see the economic and social benefits of healthy soils. California's new Healthy Soils Initiative is an opportunity to bridge environmental justice and soil carbon work, to try new approaches and create a holistic approach.

This report aims to expand a conversation between environmental justice, climate and sustainable agriculture communities. The report describes interviews and initial conversations with organizations around the state working at the intersection of soil health and environmental justice, from California's San Joaquin Valley to Los Angeles and the greater Bay Area.

Soil Health as Environmental Justice in the San Joaquin Valley

Managing for the carbon cycle would have enormous implications for how we grow food and the health impacts of our food system. Some soil carbon work on California farms and ranches is also environmental justice work. Our interviewees spoke about seven areas of overlap between soil health and environmental justice in the San Joaquin Valley, though there are certainly more:

- Soil organic matter can reduce soil fumigant emissions – Pesticides applied directly to soils form short-lived climate pollutants, and contribute to air and water pollution. Increased soil organic matter can reduce fumigant emissions and, reduce the need for fumigants in the first place.

- Soil organic matter slows water contamination – Synthetic fertilizer and pesticides have contaminated drinking water in the Central Valley over the last 70 years. Soils higher in organic matter leach fewer pollutants, including nitrates and pesticides. Soils high in organic matter also require less synthetic fertilizer to produce a crop. Using compost instead of synthetic fertilizer can reduce nitrogen loads in the Valley. Over time, increased soil organic matter and riparian restoration could help reduce groundwater contamination.

- Composted manure from dairies could be a source of soil organic matter – Concentrated manure from industrial dairies is a major local air quality and water quality issue. If that manure were composted, it could become a source of valuable nutrients and soil organic matter instead of a pollutant, and help displace the use and manufacture of synthetic fertilizers.

- Composting farm waste could prevent black carbon emissions – Instead of burning orchard waste, another local air pollutant, mulches and composted farm waste could be a source of soil organic matter for farms and rangelands.

- Rural workforce development and wildfire management – From the Conservation Corps, to ecological restoration, nursery stock production, wetland management and fire prevention, there is a lot of work to do to conserve and increase terrestrial carbon on public and private lands. This is an opportunity to both train and employ young people with low-to-moderate incomes and in communities of color in natural resource and agricultural management.

- Carbon-friendly practices can support small scale and immigrant farmers – Public support for carbon-friendly practices could help make small to mid-scale and immigrant farmers more resilient and boost their bottom line through a combination of financial support for carbon-friendly practices and more stable land access. These programs will have to be accessible to small scale farmers and take into account chronic issues around access to land, credit and technical assistance.

- Healthy food systems in the San Joaquin Valley – Soil carbon is part of a much larger project to re-design food systems that better support people and the environment in the San Joaquin Valley.

Greening Urban Landscapes

Urban ecology also has a significant impact on the carbon cycle – and on how the carbon cycle is managed and understood. Cities are where the vast majority of people interact with the environment, learn about natural resources and engage in the democratic process that governs natural resource use. We wanted to explore the urban connections to healthy soils and how healthy soils fit into broader efforts to create a healthy built environment and regenerative urban landscapes?

A justice approach to healthy soils in urban communities might yield important gains in five areas:

- Just transitions and job creation - Many urban organizations view their food systems work through the lens of a transition to a more green and just economy and a healthy urban environment, in general. There is tremendous potential for job creation and local economic development through creating a more carbon-friendly food system.

- Urban waste recycling and composting – Food and other organic wastes from cities can be an excellent source of compost for farms and

Los Angeles County residents in support of California's AB 551, legislation supporting urban agriculture incentive zones

ranches. Composting diverts waste, prevents methane emissions from landfills and recycles carbon. Both large scale and decentralized composting operations need support for new infrastructure to scale up.

- Urban agriculture and forestry – Urban farms grow healthy soil, healthy food and educated, engaged citizens with a stake in sustainable resource management. Efforts at restoring urban forests and streams help create the natural mosaic required for resilient urban communities.

- Creating more informed citizens engaged in natural resource management – With so many California residents in cities, parks, urban farms, green belts and other open space is where the majority of residents interact with nature. Maintaining these spaces is one way of building the political will and democratic engagement with natural resources necessary for a more just transition to healthy regional economies.

- Brownfields and green space – Community organizations in cities are working hard to restore toxic brownfield sites, increase access to green space, and create a healthier built environment. These spaces are a significant platform for restoring soil and engaging urban community organizations in both near and long-term change.

Conclusions

This report points to a vision to integrate healthy soils into a new model for community investment and development – a model that connects rural and urban development, includes youth empowerment, green jobs and environmental health, and regenerates natural resources. It is a vision that includes a plurality of viewpoints on natural resources and sees urban areas as important ecologies as well. Going beyond specific projects for Greenhouse Gas reduction, a justice approach to healthy soils is part of a broader push to regenerate natural resources and build healthy communities.

Connecting the dots between pollution, healthy soils, healthy communities and their impact on the carbon cycle can help set priorities for climate work. The question then, is 'Which opportunities can create an effective, inclusive and equitable impact?' Answering this question will require further dialogue, research, and pilot projects to test some of the promising ideas identified in this report. The importance of taking a broad-based approach and working with key partners in a participatory way cannot be overemphasized. Within this framework, we consider several next steps:

Community organizations and environmental justice advocates:

- Convening impacted communities and environmental justice groups to set priorities, goals and objectives

- Convening with government officials to explore short term policy priorities and potential synergies

Government and private funders:

- Growing youth empowerment through education, workforce training, and employment in fire prevention and land restoration programs
- Designing funding programs tailored for Environmental Justice and healthy soils, and considering which funds already achieve these goals that could be re-purposed;
- Streamlining funds for urban greening and green agriculture;
- Funding research on specific contributions of agricultural practices to carbon storage, reducing environmental health related pollution and creating measurable local health benefits
- Identifying the areas with highest groundwater pollution and other pollutants for soil carbon work

Collective efforts:

- Further research and analysis into the specific strategies effectively integrate soil carbon sequestration and environmental justice, with an eye for how to quantify impact
- Ensuring the public is educated on the carbon cycle and its impact on water, soil, and air quality, and farming, ranching and urban communities

Endnotes:

1. Lal, R. 2004. Soil Carbon Sequestration Impacts on Global Climate Change and Food Security. Science. 304 (5677): 1623-1627.
2. See http://4p1000.org/understand

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