



## Working Definition of Agriculture Landscape Restoration January 2019

### I. Introduction

The Agriculture Landscape Restoration Initiative is a long-term agricultural development program in western El Salvador, in the Department of Ahuachapan. Locally, the program is called “Raíces Ahuachapan.” Program partners developed a working definition of “agriculture landscape restoration,” which will serve to shape strategy and communications for the program. Since there is not yet a widely-shared definition for “agriculture landscape restoration,” we envision that this working document may contribute to the research community and development practitioners involved in agricultural development and landscape restoration. This current working definition is the result of various consultations with the program team throughout 2018, and will evolve over time, with the collective experience and analysis of the program partners.

### II. Working Definition of Agriculture Landscape Restoration

Raíces defines **Agricultural Landscape Restoration** as:

*The continual improvement of degraded land and water resources at multiple scales by implementing water-smart agriculture and environmental conservation to restore key ecosystem services and foster economic growth in ways that lead to integral human development.*

Below, we introduce and define various terms and concepts in this definition.

- **Agricultural Landscape.** This is an area where nature is significantly influenced by farming activities,<sup>1</sup> such as: planting, tilling, irrigation, fertilization, and changes to topography (e.g., drainage structures and land leveling).<sup>2</sup> Farmers are the primary actors on the agricultural landscape<sup>3</sup> and they constantly interact with nature and people in multiple ways (social, economic, and political) and at multiple scales (farm, watershed, town, and regional).<sup>4</sup> More generally, we see a landscape as a

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<sup>1</sup> Andrés Etter, *Ecología del Paisaje: un marco de integración para los levantamientos Rurales*, (Bogotá: IGAC, 1991), 16,

[https://www.researchgate.net/publication/266391069\\_INTRODUCCION\\_A\\_LA\\_ECOLOGIA\\_DEL\\_PAISAJE\\_Un\\_Marco\\_de\\_Integracion\\_para\\_los\\_Levantamientos\\_Ecologicos](https://www.researchgate.net/publication/266391069_INTRODUCCION_A_LA_ECOLOGIA_DEL_PAISAJE_Un_Marco_de_Integracion_para_los_Levantamientos_Ecologicos).

<sup>2</sup> H. de Bakker, *Major Soils and Soils Regions in the Netherlands*, 1st ed. (The Netherlands: Springer Science + Business Media Dordrecht, 1978), <https://doi.org/10.1007/978-94-009-9984-8>.

<sup>3</sup> Rebecka Malinga, “Ecosystem Services in Agricultural Landscapes: A study on farming and farmers in South Africa and Sweden,” PhD diss., (Stockholm University, 2016), 7, [https://www.researchgate.net/publication/320423877\\_Ecosystem\\_services\\_in\\_agricultural\\_landscapes\\_A\\_study\\_on\\_farming\\_and\\_farmers\\_in\\_South\\_Africa\\_and\\_Sweden](https://www.researchgate.net/publication/320423877_Ecosystem_services_in_agricultural_landscapes_A_study_on_farming_and_farmers_in_South_Africa_and_Sweden).

<sup>4</sup> Anna Lawrence, ed., *Taking Stock of Nature: Participatory Biodiversity Assessment for Policy, Planning, and Practice* (Cambridge: University Press, 2010), DOI: <https://doi.org/10.1017/CBO9780511676482>.

relatively homogeneous and inter-connected geographic space with a mosaic of different types of land use<sup>5</sup> providing diverse ecosystem services for multiple purposes.<sup>6</sup> A landscape is the reflection of the society that inhabits and shapes it.<sup>7</sup>

- **Restoration.** We seek to support social, economic, and government structures and systems that enable people to collaborate, sustain, and restore natural resources, and enhance key landscape functions.<sup>8</sup> In many cases, agriculture landscapes are degraded beyond a point that they can be simply conserved or protected, and therefore require deliberate efforts to restore natural resources and the ecosystem services they provide. Often, this requires us to move beyond trying to recreate a past ecosystem (or landscape) and instead, create a new, resilient ecosystem that responds to current needs and challenges.<sup>9</sup> Our understanding of restoration is informed by the following:
  - **Ecological restoration:** “Assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.”<sup>10</sup>
  - **Landscape restoration:** “The improvement of degraded land on a large scale that rebuilds ecological integrity and enhances people’s lives.”<sup>11</sup>
- **Continual Improvement.** Agricultural landscapes are complex adaptive systems that constantly change,<sup>12</sup> where human beings, natural phenomena, and economic factors constantly affect social and ecological conditions.<sup>13</sup> Agricultural landscapes are impacted by many different groups for many different purposes, and these are also always in flux,<sup>14</sup> so we must be constantly learning and adapting through processes that involve a full range of stakeholders that influence and depend on the landscape.<sup>15</sup> “We should explicitly recognize the dynamic nature of agricultural landscapes, and accept that there is a range of potential short- and long-term outcomes of restoration projects.”<sup>16</sup> This dynamic nature of agricultural landscapes requires management systems that are proactive and consultative in order to monitor, respond, plan, and manage interventions over time.<sup>17</sup> To analyze

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<sup>5</sup> Wade, Gurr, and Wratten (2008), Perfecto and Vandermeer (2008), as cited in Nelson Cuéllar and Susan Kandel, “The Landscape: The right scale for rainfed agriculture. Lessons learned and opportunities in Central America,” trans. Susan C. Greenblatt, (San Salvador: Global Water Initiative—Agua Verde, Catholic Relief Services, 2015), 36.

<sup>6</sup> Etter, *Ecología del Paisaje*, 2.

<sup>7</sup> Pope Francis, *Laudato Si’: On Care for Our Common Home* (Vatican City: Vatican Press, 2015), #139, [http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html)

<sup>8</sup> Elinor Ostrom, “A General Framework for Analyzing Sustainability of Social Ecological Systems,” *Science*, July 24, 2009, 419–422, DOI: 10.1126/science.1172133.

<sup>9</sup> R. J. Hobbs and J. A. Harris, “Restoration Ecology: Repairing the Earth’s Ecosystems in the New Millennium,” *Society for Ecological Restoration*, vol. 9, no. 2 (June 2001), 239–246, <https://pdfs.semanticscholar.org/6981/bf5c4d68ac826792e64dd8f6ea968ba43ddb.pdf>.

<sup>10</sup> “SER Primer on Ecological Restoration,” Society for Ecological Restoration Science and Policy Working Group (2002),

<sup>11</sup> “Definition of Landscape Restoration,” Future Terrains, accessed December 3, 2018, <https://futureterrains.org/what-is-landscape-restoration/>.

<sup>12</sup> Malinga, “Ecosystem Services,” 8.

<sup>13</sup> Walker et al. (2004), Folke (2006) as referenced in Malinga, “Ecosystem Services,” 8.

<sup>14</sup> Jeff Sayer, Louise Buck, and Sara Scherr, “The Lally Principles (no. 17)” in “Learning from the Landscapes.” *Arbor vitae special* (Geneva: International Union for the Conservation of Nature Programme, 2008), 4

<sup>15</sup> Jeff Sayer et al., “Assessing Progress and Landscape Initiatives,” in “Learning from the Landscapes,” *Arbor vitae special* (Geneva: International Union for the Conservation of Nature Programme, 2008), 2–3

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

the dynamic nature of agricultural landscapes and design effective plans for restoration, we apply the social ecological systems (SES) framework.<sup>18</sup>

- **Multiple Scales.** Promoting sustainable agriculture and environmental conservation at the landscape scale requires working at multiple scales—from farm, to community, to territorial—through planning and collaboration with the diverse and multiple actors who converge in the landscape. Primarily, this is about building social capital, which we define as the relationships and interactions that enable people to resolve problems related to public goods.<sup>19</sup> This requires (a) cultivating a shared vision for agricultural landscape restoration, where multiple actors invest their resources (time, funding, and political capital) toward the same goal, (b) fostering cooperation among local actors (horizontal relationships), and (c) creating connections between the local actors and municipal and national actors (vertical connections).<sup>20</sup> We work across a landscape whose limits are defined by local stakeholders—large enough to cover a range of ecosystem services but small enough to be manageable.<sup>21</sup> We begin by undertaking restoration projects at the local level with initiatives that are easier to conceive and deliver by local actors, such as farmers and community organizations. We then expand initiatives based on our collective learning and experience.<sup>22</sup>
- **Water-Smart Agriculture:** Conventional agriculture contributes to and suffers from the consequences of degraded soils and depleted water resources.<sup>23</sup> What is required is a shift toward sustainable agriculture practices, which deliberately seeks to enhance soil and water resources.<sup>24</sup> Our response is to promote Water-Smart Agriculture (WSA), which “integrates soil and water management to increase agricultural productivity while restoring soil and water resources.” WSA teaches producers how to manage soil health in order to decrease water and soil erosion, increase production, and improve producer resilience to extended drought... Manage soil to manage water.”<sup>25</sup>
- **Environmental Conservation.** Along with WSA, we also work to protect, conserve, and restore natural resources. Particular focus is on protecting and improving water resources by prioritizing interventions in water recharge areas (e.g. protecting headwaters), protecting riparian areas, reducing water pollution and contamination, and managing water more efficiently for agriculture.

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<sup>18</sup> Ostrom, “A General Framework.”

<sup>19</sup> Peter Rogers and Allan Hall, “Effective Water Governance,” The Background Papers, no. 7, Global Water Partnership Technical Committee, (Stockholm: 2003), 16, <https://www.gwp.org/globalassets/global/toolbox/publications/background-papers/07-effective-water-governance-2003-english.pdf>.

See also: Robert D. Putnam, with Robert Leonardi and Raffaella Y. Nonetti, *Making Democracy Work: Civic Traditions in Modern Italy* (Princeton: Princeton University Press, 1993), <https://press.princeton.edu/titles/5105.html>.

<sup>20</sup> Cuéllar and Kandel, “The Landscape,” 37–38.

<sup>21</sup> Louisa Denier et al., *The Little Sustainable Landscapes Book* (Oxford: Global Canopy Programme, 2015), <https://globalcanopy.org/publications/little-sustainable-landscapes-book>.

<sup>22</sup> Sayer et al., “The Lally Principles (no. 8),” 4.

<sup>23</sup> Kristin Rosenow, “Water-Smart Agriculture: What It Is and Why It Matters” (Baltimore: Catholic Relief Services, 2018).

<sup>24</sup> Regenerative Agriculture Initiative, California State University (Chico) and The Carbon Underground, “What Is Regenerative Agriculture?” February 16, 2017, <https://www.csuchico.edu/regenerativeagriculture/assets/documents/ra101-reg-ag-definition.pdf>.

<sup>25</sup> Author note: Sustainable agriculture practices include conservation agriculture (no-burn, constant soil cover, regular crop rotations, and minimum till), agroforestry systems, integrated soil fertility management, use of cover crops and green manure, and pasture management to reduce overgrazing.

Increasingly, “green infrastructure” plays a key role in effective environmental interventions to protect and improve natural resources.

- **Ecosystem Services.** Ecosystem services are the benefits that humans obtain directly or indirectly through their interaction with nature.<sup>26</sup> We are concerned with preserving and restoring agricultural ecosystem services—clean water, top soil, and carbon sequestration—that are threatened because current agricultural production systems are inefficient, extractive, and exploitative. When we say “key” ecosystem services, we emphasize those services that are sustainable and productive versus extractive activities, such as mining or unsustainable forestry. We explicitly aim to increase the dry season flow of streams and rivers so that water users to have sustainable access to water for multiple uses.
- **Economic Growth.** We aim to foster inclusive and sustainable economic development, specifically to generate employment opportunities for people living within the landscape, especially young people. Our goal is for farmers to improve and increase agriculture income and to stimulate jobs in environmental restoration. We seek to stimulate an economy where people provide and trade goods and services locally, building on the principles of social economy.<sup>27</sup>
- **Integral Human Development.** We seek a dynamic, inclusive, and equitable society that values the contributions of all individuals. We generate social capital and social cohesion so that local people and their leaders are empowered to effectively manage public goods.<sup>28</sup> We are motivated to combat poverty, restore dignity to the excluded, and foment a sustainable relationship between society and nature.<sup>29</sup>

### III. Principles and Approaches of Agriculture Landscape Restoration

Building from Raíces working definition for Agriculture Landscape Restoration, the program team developed a set of principles and approaches that guide the way the program works in the field. Below is a summary of these Approaches and Principles, followed by an explanation of each.

#### Raíces Ahuachapan Approaches and Principles

Four Approaches	Six Principles
<ol style="list-style-type: none"> <li>1. Prioritize cover crops and soil fertility management through Water-Smart Agriculture</li> <li>2. Restore water resources through sustainable agriculture and environmental conservation practices</li> <li>3. Rejuvenate the landscape, and engage youth at every stage and level of the effort</li> <li>4. Build a dynamic agriculture economy, based on principles of a social economy</li> </ol>	<ol style="list-style-type: none"> <li>1. Keep it simple</li> <li>2. Farmer-first—human dignity and empowerment</li> <li>3. Cultivate a shared vision for agricultural landscape restoration</li> <li>4. Work at scale, in multiple dimensions</li> <li>5. Co-investment and co-responsibility with multiple actors</li> <li>6. Continuous learning and agility</li> </ol>

<sup>26</sup> Millennium Ecosystem Assessment (Program), ed., *Ecosystems and Human Well-Being: Synthesis* (Washington, DC: Island Press, 2005), <http://millenniumassessment.org/documents/document.356.aspx.pdf>.

<sup>27</sup> Ian Vickers et al., “Cities, the Social Economy, and Inclusive Growth” (s.l., Joseph Rowntree Foundation, 2017), <https://www.jrf.org.uk/report/cities-social-economy-and-inclusive-growth>.

<sup>28</sup> Francis, *Laudato Si'*, sec. 56.

<sup>29</sup> Pope Francis, *Laudato Si'*, sec. 139, “We are faced not with two separate crises, one environmental and the other social, but rather one complex crisis which is both social and environmental. Strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature.”

## 3.1 Four Approaches

### 1. Prioritize cover crops and soil fertility management through Water-Smart Agriculture

In the face of global warming, increased climate volatility, and limited water resources, we seek to revitalize rainfed agriculture by investing in building the skills, competency, and confidence of farmers to experiment with and adopt sustainable agriculture practices. Our **focus** is WSA, which integrates soil and water management to increase agricultural productivity while restoring soil and water resources. Healthy soil is central to WSA management practice. WSA prioritizes increased smallholder productivity and resilience while simultaneously promoting environmental stewardship that safeguards endangered water resources and combats climate change by sequestering carbon.<sup>30</sup> Our **mantra** is “manage soil to manage water.”<sup>31</sup>

WSA is more than a set of agricultural practices. We seek to empower producers with the knowledge to innovate on their land. This means that Raíces’ extension approach is participatory, evidence-informed, and scalable. Our **goal** is for producers to readily associate specific interventions with the changes they see in their fields (e.g., changing fertilizer application leads to a rapid increase in yield). We will know that extension is successful when producers begin to influence their neighbors in adopting specific practices. The program seeks to imbed this approach within reactivated agricultural extension networks. We will work with multiple actors at multiple levels<sup>32</sup> to revitalize the capacity of agriculture trainers throughout the existing extension networks. Revitalizing agricultural extension depends on demonstrating that extension is a cost-effective investment in future production and restored ecosystem services. This requires program staff to (a) constantly innovate new ways of reaching producers, and (b) use appropriate methods to track return on investment in extension. WSA’s Training of Trainers (TOT) model provides a framework for this model. It will be tailored to the network of actors (municipal, non-governmental organizations, cooperatives, municipal governments, and national agencies) within the program’s landscape.<sup>33</sup> The goal of this extension network is to build the skills, competencies, and confidence of farmers to experiment with and adopt sustainable agricultural practices.

### 2. Restore water resources through sustainable agriculture and environmental conservation practices

In El Salvador, the region more broadly, drought and water scarcity are recurring threats to farmers and to society. For this reason, protecting and restoring water resources is a powerful entry point to collective action on landscape restoration.<sup>34</sup> Safeguarding water resources also allows us to put urban and rural water users in conversation with each other, since agriculture both contributes to

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<sup>30</sup> Kristin Rosenow, “Water-Smart Agriculture.”

<sup>31</sup> Jennie Barron, “Soil as a Water Resource: Some Thoughts on Managing Soils for Productive Landscapes Meeting Development Challenges,” *Agro Environment* (Stockholm: Stockholm Environment Institute, 2012), 2.

<sup>32</sup> Author note: Technical assistance comes from multiple sources, including NGOs, input providers, state agencies, producer organizations, and private institutions. We work across multiple levels to leverage different skill sets and avoid depending on any single leader or institution.

<sup>33</sup> Author note: CRS’ multi-country WSA program (implemented in parallel to Raíces) has designed a TOT model designed to strengthen the extension strategies and skills of collaborators, including government agencies, NGOs, and agricultural schools and universities.

<sup>34</sup> Jeffrey Sayer et al., “Ten Principles for a Landscape Approach to Reconciling Agriculture, Conservation, and Other Competing Land Uses,” *Proceedings of the National Academy of Sciences of the USA*, May 21, 2013, 8349–8356, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3666687/>.

and is affected by consequences of water resources degradation.<sup>35</sup> Our premise is that good agriculture management is good watershed management, which allows us to show that the combination of WSA and conservation practices generate improvements in ecosystem services for all users. As part of this effort, we will (a) promote and support efficient irrigation practices that reduce the negative impacts on water resources, and (b) catalyze investments in water supply services that contribute to universal access to safe water for the population in the program landscape.

### **3. Rejuvenate the landscape, and engage youth at every stage and level of the effort**

A primary goal of this program is to foster youth inclusion and leadership in landscape restoration and economic development. Youth are systematically excluded from job and leadership opportunities throughout El Salvador. This exclusion is especially stark in agriculture where youth have few opportunities to earn a livelihood. Without viable and meaningful work, youth become disengaged and disenfranchised. Since the landscape is a reflection of the society that shapes it, the exclusion of young people contributes to landscape degradation. Sustainable landscapes must therefore provide young people with the opportunities, technical skills, and social capital to contribute directly to their restoration. We need to imagine new ways to engage future generations in the landscape. Our goal is a landscape where young people take the lead in planning and implementing interventions, and where a dynamic rural economy generates plentiful opportunities for meaningful employment. The program will invest in formal education/vocational training and in young entrepreneurs to create social enterprises that contribute to a sustainable rural economy.

### **4. Build a dynamic agriculture economy, based on principles of a social economy**

Historically, El Salvador has relied on exploiting cheap labor and the unsustainable extraction of natural resources. This produced social exclusion and environmental degradation.<sup>36</sup> We seek a different model for economic development that improves livelihoods, rebuilds social fabric, and safeguards ecosystem services for future generations.<sup>37</sup>

We see tremendous opportunities in strengthening the rural economy in Ahuachapan by stimulating a local market for agriculture goods and services.<sup>38</sup> The program will help facilitate trade and cooperation between local producers and consumers, based on a social economy approach.<sup>39</sup> The program will advise producers on how to provide the quality and type of products demanded by local and export markets. We also seek to dynamize the market for agricultural services by positioning qualified youth as agriculture restoration specialists who can be hired by the program, farmers, companies, local governments, and others.

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<sup>35</sup> Cuéllar et al., “The Landscape.”

<sup>36</sup> Nelson Cuéllar et al., *Dinámicas de exclusión y degradación ambiental en El Salvador* (San Salvador: Fundación PRISMA, 2017), <https://prisma.org.sv/dinamicas-de-exclusion-y-degradacion-ambiental-en-el-salvador>.

<sup>37</sup> Francis, *Laudato Si'*, sec. 157.

<sup>38</sup> Francis, *Laudato Si'*, sec. 129.

<sup>39</sup> “Social enterprises trade to tackle social problems, improve communities, people’s life chances, or the environment. They make their money from selling goods and services in the open market, but they reinvest their profits back into the business or the local community,” taken from Community Southwark, “An Introduction to Social Enterprise,” accessed February 27, 2019, <https://communitysouthwark.org/sites/default/files/images/An%20Introduction%20to%20Social%20Enterprise.pdf>.



## 3.2 Six Principles

### 1. Keep it simple

Landscapes are complex, but our interventions can be simple. We begin by promoting specific and simple projects and practices in ways that give stakeholders problem-solving experience and foster support and interest of the wider community.<sup>40</sup> Over time, progress builds credibility, enthusiasm, and confidence among local stakeholders.<sup>41</sup> This then becomes the foundation for incorporating increasingly complex and contentious interventions.<sup>42</sup> To identify and prioritize interventions, we look for the few practices that have the greatest impact, being both practical and agile.

### 2. Farmer-first—human dignity and empowerment

Foremost, we are working with people—individuals, families, and communities. In most cases these people are poor and socially marginalized, chronic violence and conflict have frayed their social fabric, and trust has deteriorated. As a principle, “farmer-first” means that we start with people, rather than “projects.” We work in ways to create opportunities where people are empowered to become the agents of change in their own development. Our role is to support people in planning and implementing their own solutions, rather than having people implement activities defined by others.<sup>43</sup> The role of the program is to help build social capital, which we define as: the relationships and interactions that enable people to resolve problems related to public goods.<sup>44</sup>

### 3. Cultivate a shared vision for agricultural landscape restoration

The scale and timeframe of this program requires cultivating a shared vision for agricultural landscape restoration, with multiple actors investing their resources (time, funding, and political capital) toward the same goal.<sup>45</sup> To develop a shared vision, we will work with stakeholders to identify their motivations for restoration and to understand the problems they want to solve. This will provide clarity on how to work toward solutions.<sup>46</sup> As we help stakeholders grapple with the scale of problems facing their landscape, we challenge them to articulate a consensus vision of the landscape functions they seek to preserve or redevelop.<sup>47</sup> We identify leaders—or local champions—interested in landscape restoration and provide them with tools and resources to identify and solve problems.<sup>48</sup> To foster a shared vision and collaboration, we apply a model based on collective impact.<sup>49</sup> Our strategy commits stakeholders to a process of jointly designing solutions

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<sup>40</sup> Author note: Early interventions may include establishing agroforestry systems with fruit trees, restoring/replanting coffee plantations, and establishing no-burn agreements.

<sup>41</sup> Roberto Rodríguez García and Mónica Hesse Rodríguez, *Al andar se hace camino: guía metodológica para desencadenar procesos autogestionarios alrededor de experiencias agroecológica* (s.l.: Fundación Sembradores de Esperanza, 2000), 71, <https://books.google.com/sv/books?id=OAAgAAAAIAAJ>.

<sup>42</sup> *Ibid.*, 39.

<sup>43</sup> Catholic Relief Services El Salvador, “Memoria y reflexiones sobre gira de aprendizaje Honduras” (Documento de trabajo del equipo Raíces, 2018), 11.

<sup>44</sup> Rogers and Hall, “Effective Water Governance.”

<sup>45</sup> Cuéllar et al., “The Landscape,” 37.

<sup>46</sup> Catholic Relief Services El Salvador, “Somos agua ou nao somos nada (We are Water or Nothing at All),” from the Raíces Brazil discussion (Gira de Aprendizaje, Documento de trabajo, March 2018).

<sup>47</sup> Sayer et al., “The Lally Principles (no. 5).”

<sup>48</sup> Daniel Torres, “Tenemos que trabajar con líderes cachimbones,” from the Raíces Brazil discussion, Catholic Relief Services, March 2018.

<sup>49</sup> “Collective Impact Forum/What Is Collective Impact?” accessed November 28, 2018, <https://collectiveimpactforum.org/what-collective-impact>.

to shared problems in the landscape.<sup>50</sup> We will carry out scenario planning to help stakeholders understand the tradeoffs of different interventions, given the various types of threats and shocks inherent to the variability in each landscape.

We anticipate that establishing a vision and discussing potential solutions will be complicated by highly unequal power dynamics and fierce competition for scarce land and water resources. “In reality, not all stakeholders will ever share the same vision of a desirable future. So in real life it is a question of constantly ‘muddling through’ and trying to get the best deal that we can.”<sup>51</sup> These longstanding conflicts require program staff to develop conflict sensitivity and peacebuilding approaches.<sup>52</sup> This also implies efforts toward changing systems and structures that create an environment which enables sustainable development.<sup>53</sup>

#### 4. Work at scale, in multiple dimensions

This work requires simultaneous effort at multiple scales. “We should be constantly shifting our gaze from the farm to the landscape and back again” to ensure we are generating results for individual producers and producing measurable impact on the restoration and preservation of ecosystem services, which requires us to work in three conceptual scales: temporal, horizontal, and vertical.<sup>54</sup>

- **Temporal:** Landscape restoration involves broader time scales than typical development projects, as social and political complexity increases with greater geographic area.<sup>55</sup> This must begin by addressing the immediate needs of farmers in ways that demonstrate early, recognizable results, such as improving production and raising incomes for both farmers and farmworkers.
- **Horizontal:** The program will get to scale geographically (horizontal scaling) across the landscape by expanding the group of actors engaged in restoration activities. We seek to go beyond our traditional focus on smallholder producers and also influence the practices of large producers who hold the greatest sway over the agricultural landscape.<sup>56</sup> Horizontal scaling will be promoted through a farmer extension model. This is specifically designed to reach scale by strategically engaging other development actors in the landscape.
- **Vertical:** Vertical scaling links local-level activities (e.g., farm and community) to intermediate (e.g., municipal) and national scales. One way to achieve this is through building a landscape management committee (or committees) empowered to jointly plan and execute restoration using local resources. This includes partnering with municipal governments and other development actors—including non-governmental organizations and national agencies.<sup>57</sup>

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<sup>50</sup> Jeff Sayer and Stewart Maginnis, “The Challenge of Assessing Progress of Landscape Initiatives” in “Learning from the Landscapes,” *Arbor vitae special* (Geneva: International Union for the Conservation of Nature Programme, 2008), 2, [https://cmsdata.iucn.org/downloads/a\\_avspecial\\_learning\\_from\\_landscapes\\_1.pdf](https://cmsdata.iucn.org/downloads/a_avspecial_learning_from_landscapes_1.pdf).

<sup>51</sup> From Jeffrey Sayer and Stewart Maginnis, “The Challenge of Assessing Progress.”

<sup>52</sup> Jacob Hileman, Paul Hicks, and Richard Jones, “An alternative framework for analyzing and managing conflicts in integrated water resources management: Linking theory and practice,” *International Journal of Water Resources Development*, 32, no. 5 (2016), 675–691, <https://doi.org/10.1080/07900627.2015.1076719>.

<sup>53</sup> Francis, *Laudato Si'*, sec. 183.

<sup>54</sup> Cuéllar, et al., “The Landscape,” 64.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid., 55.



## 5. Co-investment and co-responsibility with multiple actors

Development efforts depend primarily on the people who live and work in the landscape. When local actors jointly define the problems and identify solutions, they are more likely to invest their time and resources in restoration efforts, thereby creating a more sustainable process.<sup>58</sup>

We expect local stakeholders to begin investing resources from the start of the field interventions. We use a broad definition of co-investment which includes in-kind labor, political capital, technical advice, and financial resources. It recognizes that some stakeholders—especially smallholder farmers—have less capacity to contribute in-kind and are extremely limited in their ability to pay for technical assistance. In the medium- to long-term, an indicator of success is that public institutions (including municipal and national governments), large landowners, and private firms co-invest in landscape restoration. Ultimately, our goal is to formalize cross-sector participation in landscape management committees, which are empowered to monitor landscape conditions and execute interventions using local resources. Validating the approach for landscape restoration is the responsibility of landscape stakeholders, not the project.”<sup>59</sup>

## 6. Continuous learning and agility

There is no blueprint to follow since the program is working at a scale and time-frame that is significantly larger than typical development projects. While learning from best practices, we must also be willing to innovate and take risks. We do not prescribe solutions: these will evolve over time according to the priorities defined by local stakeholders.<sup>60</sup> “The road is made by walking.”<sup>61</sup> New ideas will emerge as we (a) explore solutions, (b) make decisions based on experimentation and learning, and (c) empower people closest to the work to decide how best to achieve desired outcomes.<sup>62</sup> The program will involve many dozens of projects. Each project will have its own problems, potential solutions, and mix of resources and stakeholders. This diversity will require agility in the way we design, implement, and finance interventions. Lally Principle #17 says: “Embrace change. Outcomes of negotiation processes will be temporary and must be revisited on an ongoing basis.”<sup>63</sup>

Program interventions must be “evidence-based” and maintain scientific rigor in data collection and analysis. This is essential for program credibility and effectiveness. We draw on studies and research to assess the economic, political, social, and ecological context of our agricultural landscape. We use these to propose feasible solutions that have been previously validated with scientific methods. In a spirit of continuous learning, we are proactive in sharing our lessons publicly and seeking advice, feedback, and critique from people inside and outside the program landscape.

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<sup>58</sup> Jacqueline A. Ashby, “What Do We Mean by Participatory Research in Agriculture,” *New Frontiers in Participatory Research and Gender Analysis*, vol. 294 (Cali: CIAT, 1996), <https://newbooksinpolitics.com/political/new-frontiers-in-participatory-research-and-gender-analysis/>.

<sup>59</sup> Sayer et al., “The Lally Principles (no. 1).”

<sup>60</sup> Ostrom, “A General Framework,” 420.

<sup>61</sup> Rodríguez and Rodríguez, *Al andar se hace camino*. Also Myles Horton and Paulo Freire, *We Make the Road by Walking: Conversation on Education and Social Change*, eds. Brenda Bell, John Gaventa, and John Peter (Philadelphia: Temple University Press, 1990), <https://codkashacabka.files.wordpress.com/2013/07/we-make-the-road-by-walking-myles-and-paolo-freire-book.pdf>.

<sup>62</sup> “Understanding How Design Thinking, Lean, and Agile Work Together—Mind the Product,” accessed March 28, 2018, <https://www.mindtheproduct.com/2017/09/understanding-design-thinking-lean-agile-work-together/>.

<sup>63</sup> From Sayer et al., “The Lally Principles (no. 17).”

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