



A Blueprint for Landscape Enterprise Networks (LENs)

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Executive Summary

Landscape Enterprise Networks (LENs) create marketplaces that enable large corporations and government agencies (the demand-side¹) to identify and co-fund regenerative activities that address their core needs and shared risks in a landscape. To facilitate trade contracts, LENs break down landscape priorities into bite-sized transactable chunks within these landscapes.

Through LENs, corporations initiate and coordinate contracts, or “trades,” with farmers, supply cooperatives and landscape owners (the supply side²). These contract agreements fund regenerative activities supporting high priority landscape objectives, including protecting corporate supply chains from disruption.

Nature-based incentives drive parties on both the demand and supply side to engage in LENs transactions. These incentives frequently involve water quality management, flood risk management, resilient supply of crops, or biodiversity outcomes. On the demand side, LENs work with businesses and government agencies to thoroughly understand their central (and often overlapping) needs and risks in a landscape. For supply-side stakeholders (e.g. farmers), LENs helps these actors aggregate their efforts in the landscape, and provide them with strategic guidance for entering trades.

Once demand-side actors identify their priority outcomes in a landscape, LENs establish a series of resources that enable a marketplace to host place-based, transparent transactions. Each local LEN has a delivery organization that matches demand and supply actors in a landscape to create trades (contract agreements); these trades generally involve supplier practices that restore natural resources and support ecosystem health.

Aggregating the resources/actors on the demand and supply sides makes it practical to match corporate “bids” on regenerative activities and practices, and the “asks” from farmers and fellow supply actors. Figure 1.0 describes stages of LENs.

LENs was co-developed in 2019 by Andrew Griffiths, then Head of Value Chain Sustainability at Nestlé UK, and Tom Curtis, a partner at 3Keel (a UK-based sustainability consultancy). In early 2022, LENs became a separate entity from 3Keel. Six UK LENs partnerships are active as of mid-2022, and several more partnerships are in development, including projects in Poland, Hungary and Italy. Note that LENs may refer to either the master entity that created the approach and helps create local networks, or the six local networks that practice the approach.

1. Demand-side stakeholders include corporations, water companies, insurance companies, the tourism industry and local authorities; more recent LENs demand-side actors include retailers and real estate companies.

2. Supply-side actors consist of farmers, foresters, government agencies (including national or regional agencies with a local presence), NGOs, land trusts, environmental groups, local businesses and landowners.

Stages	Landscape Enterprise Networks (LENs)	Who Leads Each Stage
First Stage	Conduct network opportunity analysis with corporations/ demand actors to understand common needs and vulnerabilities	LENs parent entity (not local LEN)
Second Stage	Convene with demand stakeholders to prioritize common interests and key objectives	LENs parent, together with a Demand Aggregator ³
Third Stage	Build a technical understanding of key demand stakeholder needs, define KPIs	LENs, often partnering with universities and academics
Fourth Stage	Engage supply side to determine the activities and practices that best support demand-side requirements (as determined in the second stage)	Demand- and Supply-side Aggregators, and Local Delivery Organization ⁴
Fifth Stage	Secure an agreement or “trade” between demand and supply aggregators for nature-positive landscape activities	Local Delivery Organization, sometimes through an online auction platform
Sixth Stage	Demand-side funding delivered to supply-side aggregator, then distributed to individual suppliers	Special Purpose Vehicle

Figure 1.0 The Stages of LENs

3. Aggregators bring together multiple actors on the demand or supply side, and help arrange resources needed to collectively engage in transactions.

4. A local delivery organization is a small board representing buyers, suppliers, and local leaders.

1. The central landscape finance challenge this mechanism is designed to overcome

Investment in sustainable landscapes has been hindered by lack of investable projects. This investment deficit may lead to increasingly dire consequences on a landscape level, and businesses face increasing concern over potential disruptions to supply chains due to degradation in landscape health.

To address underinvestment in landscapes, LENS works with large businesses and other demand-side actors to recognize the full extent to which they share meaningful and often overlapping risk exposures regarding natural assets and ecosystem functions. LENS recognizes that corporations are more incentivized to invest in a landscape when they better understand how their supply chain relies on landscape resilience and, importantly, which landscape assets underpin that resilience.

A key LENS goal is to create more investable projects in a landscape. To catalyze corporate funding for these landscape transactions, LENS conducts an extensive network opportunity analysis with corporations to identify optimal intervention points in a local landscape or water catchment. Funding priorities for landscape “trade” agreements evolve from these demand-driven network opportunity meetings (Note that “demand-led” is the first of six core LENS principles⁵).

The vision is to expand the funded interventions and outcomes as the number of participating stakeholders in a landscape enterprise network expands. As will be explained, funds for trades between demand- and supply-side actors don't flow through LENS, but through a separate vehicle.

2. Contribution of mechanism to landscape partnerships' objectives

LENS enables corporations to directly address environmental, supply chain, and related risk profiles by linking financial resources with shared objectives, including nature-based solutions.

The LENS process starts by conducting network opportunity analyses with demand-side actors to identify and prioritize objectives in a local landscape, and to begin dialogue with supply-side actors on securing and funding these outcomes. Specified outcomes can include improved soil health and crop production, flood risk hazard mitigation, carrying capacity and reduction of phosphate levels in water catchments, and improved health and quality of life for the local workforce.

Consistent with integrated landscape management, objectives and prioritized interventions for an individual LENS may vary depending on the local landscape. However, LENS' information-gathering process encourages trade agreements that address the most investable parts of the landscape. Importantly, LENS' demand-led and organic growth traits can enhance deal flow for a landscape, allowing investment to build out over time and expand impact.

One central objective for large demand-side stakeholders is gaining a deeper understanding of their landscape dependencies, and how these dependencies may overlap those of other stakeholders. Environmental-related disruptions to supply chains represent an increasing concern. In addition, corporations face heightened public pressure to demonstrate their commitment to halting biodiversity loss (as the Taskforce on Nature-related Financial Disclosure seeks to quantify) and alignment with the United Nations Sustainable Development Goals. A draft of the European Sustainability Reporting

5. The six core LENS principles are demand-led, multi-functional, collaborative, business-like, organic growth and place-based.

Standards was under review as of this writing (October 2022), adding to the prolific nature-related standards under consideration.

Turning to objectives on the supply side, farmers and other smallholders lack capital and expertise for developing landscape investment modeling tools to demonstrate improvements, higher impact and reduced risks. These information-generating resources are expensive, yet important to meet the demands from agri-food corporations and others.

LENs establish a supply-side aggregator to coordinate needs of farmers and other suppliers. With these aggregators in place, LENs trade contracts⁶ enable demand-side actors to fund farmers and supplier cooperatives' development of data collection and impact measurement resources. Furthermore, corporations can secure standardized impact assessment methods and metrics from suppliers through trades, solving the problem of inconsistent metrics across suppliers.

3. Mechanism structure

Corporations and others on the demand side seek to fund trade agreements that specify nature-related outcomes or landscape-based restorative practices. LENs creates resources and conditions to enable marketplaces that allow large business and other demand actors in a landscape to fund these trade agreements.

LENs also enable stakeholders on the demand side as well as on the supply side to organize their efforts. In turn, the demand side can fund the transformation of the supply side to achieve the long-term nature-based requirements of business and society. A demand-side aggregator helps secure capital for investment in landscape priorities. By pooling the financial resources of multiple companies and related demand stakeholders, corporations and governments reduce capital risk compared to individual financial outlays.

For example, as global investors demand more transparency on environmental impact related to supply chains, LENs' financial resources can expedite corporate responsiveness. This in turn can help food product companies to enjoy premium pricing for their products.

To develop trades, LENs works with demand-side actors to identify overlapping dependencies and risks in a landscape. LENs conducts a network opportunity analysis with the demand side to reveal investment "hot spots" connected to these dependencies; the analysis results also incentivize regional public, civic and philanthropic capital. As a LENs project matures and more demand- and supply-side actors engage, a wider range of landscape outcomes can be addressed and financed through local trade agreements. Figure 2.0 illustrates the stages that LENs follow.

6. For a closer look at the duration and nature of these contracts, please see Section 4 (Scale of finance and long-term sustainability) on page 6.

Flow of Funds Through LENS

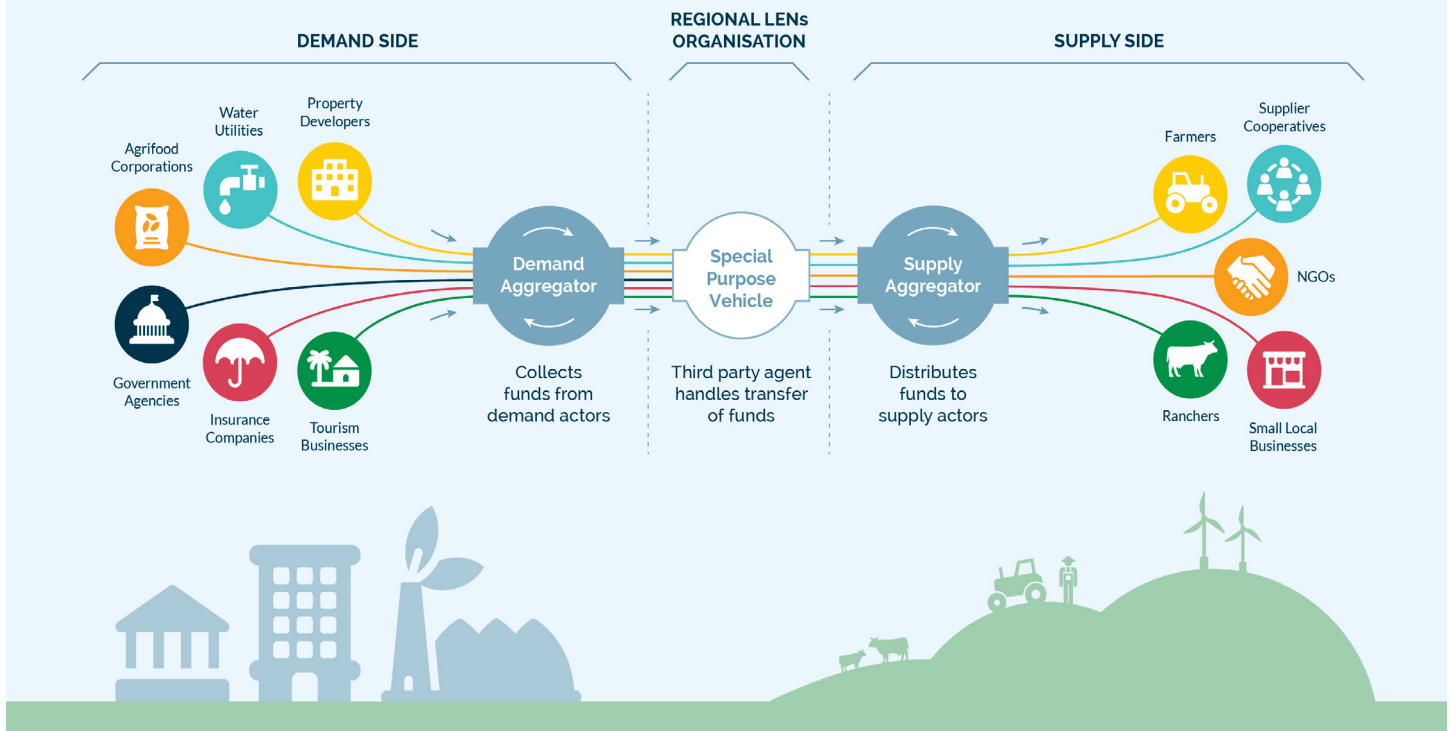


Figure 2.0: How LENS Works

Two key components in delivering capital are a separate special purpose vehicle and a local delivery organization.

Special purpose vehicle

The Landscape Enterprise Networks parent organization, as a separate entity, does not finance the trade agreements between demand and supply-side actors. The capital in these trades flows through an intermediary organization, a special purpose vehicle (SPV), that LENS helps set up. Working with a local bank, a SPV serves as the mechanism through the collection and delivery of capital, and provides transparency on funded activities. Demand-side actors send capital to a SPV; the SPV then directs flows to supply-side aggregators, who then distribute funds to landscape supply-side actors.

Local delivery organization

Designed to facilitate trades between actors, local delivery organizations are composed of representatives from buyers, suppliers and local government bodies. Community interest organizations (CIOs), as these delivery organizations are often called, manage any tensions between negotiating parties. CIOs also help supply side actors recruit a supply aggregator to provide financial expertise and help coordinate farmers and ranchers.

How a LENS marketplace operates in its early stages may look different as the network matures and expands. Local delivery organizations in LENS generally rely on direct negotiation between parties to create trades when a network is in its infancy.

As the local network becomes more established, the local delivery organization can increase efficiency by leveraging a digital platform for matchmaking projects for landscape investment. Online auction

platforms ([Nature Bid](#), [Entrade](#)) have been used to establish market prices for specific interventions. LENS reports that it takes approximately six months to set up these online auctions. Note that these online trading platforms have no direct access to funds.

Transactions between actors become larger, lengthen in duration, and accomplish more comprehensive objectives for partners as a LEN matures. Similarly, transaction costs should decrease over time as trades follow these trends. Therefore, the sequence for intervention activities in LENS partnerships evolves and builds out over time.

Among the existing investment “trades” in current LENS:

1. **Funded Activity:** Regenerative agriculture, water quality and biodiversity were the top three funded outcomes by investment amount. More than £2 million has been committed to each of these objectives as of 2022.
 - Investors (Demand side): Global agri-food companies, local county council, private water company
 - Suppliers: More than 60 Farmers
 - Location: Eastern England, United Kingdom
 - Project specifics: Funded measures include planting cover crops over more than 2500 hectares; a year long fallow over more than 200 hectares; and inclusion of grain legumes for 1500 hectares.
2. **Funded Activity:** Responsible soil and nutrient management practices, including reduced phosphorus application
 - Investor (Demand side): Water Utilities Company
 - Suppliers: Farmers and landholders
 - Location: Cumbria, United Kingdom
3. **Funded Activity:** Regenerative agricultural practices that promote effluent capacity; soil health; and support terrestrial habitats. These practices subsequently helped secure permission for commercial and residential developments.
 - Investors: Local county council, private water company, real estate developers, several environmental groups (as part of catchment partnership)
 - Suppliers: Farmers collective
 - Location: Hampshire Avon Catchment, United Kingdom

LENS expect to build out as a network as it matures over time, bringing additional stakeholders into the fold to achieve more extensive ecological, social, and governance benefits. For example, corporations may begin by funding regenerative agricultural practices to ensure supply chain stability; as global standards take hold regarding biodiversity, the demand side may engage with farmers and other suppliers to fund a broader range of nature-positive practices.

4. Scale of finance and long-term sustainability

On a landscape level, the LENS approach seeks to build financial impact over time. Trade agreements between demand and supply actors typically start with 12-month terms. Agreements have already extended to 5-year terms, and are expected to then evolve into 10- or 20-year trade agreements. LENS expect to grow trade durations may reach 50 years. Longer term agreements can help secure additional financial commitments from landscape actors, and reduce transaction costs.

The degree and pace of scaling to new landscapes will likely be influenced by the key demand actors in landscapes, and different governance and regulatory structures across countries and regions.

For example, project maintenance payments are needed in Scotland, as the government doesn't yet fund project development, or the maintenance of outcomes. These maintenance payments are provided in many other nations. This example is not intended to single out Scotland's government, only to highlight that financial resources and needs vary regionally.

LENs' expansion from the United Kingdom (including Ireland) to European neighbors suggests the mechanism has enjoyed some momentum. Furthermore, while regenerative agricultural practices remain a common element, LENs have adapted to different agricultural sectors across landscapes. In Italy, an established LENs network promotes viticulture techniques to reverse soil and aquifer degradation. LENs began organizing a network in Poland in mid-2022 that introduced not only a new country, but a new focus: wheat cultivation. In Hungary, the rollout of a network to secure regenerative agriculture practices was underway but delayed due to complications from the war in the Ukraine.

Several elements may ensure the sustainability of these networks. First, local LENs partnerships are expected to graduate to established funding and arrangements that allow them to eventually operate independently. In addition, management and transaction costs should diminish over time. Finally, as landscape interventions grow over time so will impact.

5. Environmental and socio-economic impact

Investors and the general public are placing increasing pressure on corporations to demonstrate sustainable practices, including those supporting biodiversity and socio-economic benefits.

LENs partnerships with NGOs and agencies focused on environmental and ecological outcomes, and with UK academics and private sector research companies to assess environmental impact of LENs interventions. One academic study confirmed LENs' local efforts delivered benefits for animal health and soil carbon storage (Reed et al, 2022). In addition, research seeks to identify knowledge gaps, and where interventions could deliver the strongest environmental benefit.

In contrast, socio-economic benefits generally represented more peripheral benefits in early LENs partnerships. Prioritization of socio-economic impact may be more variable across different landscapes, depending on priorities and partners. For example, a Scotland LENs program will include full mental health delivery and employment programs. Conversely, other LENs programs may not have expanded to meaningfully address socio-economic impact.

Mature LENs are likely to bring in additional stakeholders, broadening environmental and increasing socio-economic impact.

6. Approach to holistic risk management and safeguards

LENs begin by focusing on the most promising places in the landscape to develop trades, based on a thorough opportunity analysis with businesses and other demand-side actors. In contrast, Integrated landscape management (ILM) begins by exploring a broader set of priorities and interventions through a more holistic perspective.

With that said, understanding and managing interconnected risks relies on transparency between stakeholders. LENs prioritize transparency, beginning with the network opportunity analysis designed to identify shared risks and vulnerabilities among demand-side actors (please see Figure 3.0). The financial and related resources that flow to supply-side actors then address challenges from that side of the equation.

Opportunity	Private-Sector Stakeholders	Evidence gaps and Other Issues
Improvement in water quality	<p>The primary beneficiaries are</p> <ul style="list-style-type: none"> • water utility companies experiencing lower treatment costs; • fresh water and marine fisheries from improved catch; • the agricultural sector; • tourism sector e.g. from cleaner beaches; • local communities. 	<p>There is currently little research in the impact of restoring wetland habitats (e.g. peatlands, fens, etc.) on the water quality. LENS offers the opportunity to collect stronger evidence of possible improvements through econometrical analysis, consequently making this type of project mainstream.</p>
Protection against flooding	<p>Diminution in the flooding risk represent a cost-saving opportunity for all stakeholders in vulnerable areas:</p> <ul style="list-style-type: none"> • local communities and businesses which would otherwise flood; • the food and drink supply chain, from the farmers, who will limit damage to their production, to the manufacturers; • insurers that will have to repay less for damages. <p>Local businesses not directly flooded can still be affected by transport disruption caused by the flood. Flood mitigation would allow workers and deliveries to access the premises and maintain continuous operations.</p>	<p>Large-scale implementation of nature-based solutions (NBS) across multiple sites could help to better understand the impact of green infrastructure and to draw comparisons against traditional 'grey' anti-flooding infrastructure. It is an opportunity to use innovative natural flooding management measure, such as the Viridian Logic's tool for clearer and sounder monetary evaluations.</p>
Resilience of water sources during droughts	<p>The main beneficiaries from continuous water access in periods of drought are:</p> <ul style="list-style-type: none"> • farmers, the drink industry and the agricultural sector which are able to sustain production; • water utility companies that would have fewer costs in water abstraction. 	<p>Better evidence of the capacity of various natural habitats (e.g. peatlands, fens, wetlands, etc.) to retain water during periods of drought or water scarcity can attract further interest from affected industries.</p>

Figure 3.0 LENS Opportunity Analysis Table for a Landscape (partial)

In essence, the most feasible way for all demand and supply side actors to collectively address holistic risks in a landscape is through collaborative efforts; LENS provide the opportunity to do so. For example, UK businesses often identify mitigating flood risk in water catchments as a priority. LENS trades that fund farmer and other supplier activities to reduce flood risk 1) ease constraints from reliance on grants and philanthropy, 2) strengthen flood risk mitigation efforts, and 3) may address interrelated environmental threats.

7. Innovation

Transparency, particularly in early discussions to determine common interests and risk exposures in a landscape helps to drive investment.. Greater understanding of landscape dependencies and opportunities has been found by LENS organizers to increase private sector motivation. For example, LENS invites potential demand-side clients to attend network meetings and observe exploratory dialogue. LENS leaders believe enhanced understanding of shared risk and synergistic benefits drives home the value of the networks.

Another innovation lies in providing technical resources to smallholders and fellow supply-side actors. For supply-side actors in the landscape (such as farmers and commodity small cooperatives), there's a need for financial advice, and to secure funding for the monitoring and verifying landscape nature-related benefits. LENS recruit supply-side aggregators to fill this role, solving an often unaddressed challenge.

LENs may not only increase corporate investment in a landscape, but also distribute capital more efficiently by:

- mapping out relevant actors, what they are financing, and finding more synergistic financing arrangements, as well as the impacts of these flows
- operating in the context of a defined set of objectives, so that a landscape partnership can be seen as more legitimate by collaborators
- characterizing the most important financial flows within a landscape.

Recognizing the need for landscape stakeholders to measure and demonstrate benefits from interventions, LENs often engage universities and academics to conduct assessments.

LENs is working with academic and verification service partners to develop and refine metrics to assess activities and outcomes⁷. For example, LENs has turned to AgriCarbon to measure carbon sequestered in soil. LENs reports that the firm provides robust soil management feedback and data, and this data is delivered at a fraction of the cost of previous efforts.

8. Scalability (Pathways towards growth and replication)

LENs have been implemented in six UK landscapes, and preparations are underway for another seven partnerships. In addition, most LENs programs to-date have included a watershed or water-related component. Demand has grown for LENs projects over the past few years, both in terms of new partnerships and the size of agreements. For example, an East Anglia (UK) LENs agreement/trade has grown to 2.5 times larger than originally anticipated (due to appetite from demand actors). As a local LENs expands the breadth of funded activities and outcomes over time, smaller demand-side stakeholders may find increased incentive to join the local network.

Given the LENs framework's engagement with multiple demand-side actors and traction in the UK, other developed markets appear best suited to scale this strategy at this time. North America and developed Asian nations were suggested as perhaps the most compatible, due in part to the prolific number of demand actors generally found in local landscapes. However, LENs is also exploring how to best facilitate agreements in places limited to one primary demand-size actor.

Looking further ahead, particularly as global standards for biodiversity and climate alignment practices increasingly are in play, LENs has the potential to serve as a model for integrating the metrics and frameworks associated with these goals and related complex projects.

National and local factors are always in play and may affect scalability and viability. For example, maintenance payments for landscape projects are needed in Scotland; the government doesn't yet fund project development, or the maintenance of outcomes. As for local conditions that are fertile for LENs networks, the presence of prominent local businesses and services with landscape dependencies is a key ingredient, such as agri-food business and water companies. The cash flows from these stakeholders allows for more robust engagement with investors.

"A real mediating factor in the success of a LENs network was the difference between the initial [demand side] players involved – the type of organization that initiated the project and the existing level of private sector interest in landscape intervention – rather than any inherent difference in the demographic characteristics or natural capital landscape of...two counties."

7. Academic partners include Liverpool University, and Dr. Mark Reed at Scotland Rural College. Verification partners include AgriCarbon for soil testing, and NatureMetrics for biodiversity analysis.