

Assessment Framework

Version 0.2 | October 2020



LANDSCALE

ASSESSMENT FRAMEWORK

VERSION 0.2 | OCTOBER 2020

About this version

LandScale version 0.2 incorporates feedback received on version 0.1 during the first public consultation period and field-testing from August to October 2019. Responses and key changes to version 0.1 are available in a [summary of the version 0.1 public comments](#).

Version 0.2 will have a piloting phase conducted in more than 10 landscapes around the world and is [open for public comment](#) until December 1, 2020. The pilots' experience and input, as well as feedback from the second public consultation, will be incorporated into version 1.0, available in 2021.

Version 0.2 includes the following resources:

- [LandScale overview](#): a brief description of what LandScale is, how it works, who can use it, and where it is being piloted
- [Summary of the assessment framework](#): a brief description of the assessment framework including pillars, goals, and indicators
- [Assessment Framework](#) (this document): goals, indicators, and performance metrics that constitute the scope of an assessment
- [Assessment Guidelines](#): detailed guidance on the process of conducting a LandScale assessment
- [Verification Mechanism](#): the system for evaluating adherence to the LandScale guidelines and verifying the reliability of assessment results
- [Claims Guidelines](#): information on the type of claims that may be made based on LandScale assessment results and the process for communicating such claims
- Supplementary resources including:
 - [Annex 1. Sustainable Landscape Partnership Module](#)
 - [Annex 2. World Ecosystem Map and IUCN Typography](#)
 - [Annex 3. Human Rights Assessment Guidance](#)
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Introduction

LandScale provides a standardized approach for assessing and communicating the sustainability performance of landscapes. It enables the private sector, governments, and civil society to access reliable information that can guide and incentivize sustainability improvements at scale. Please see the [LandScale overview](#) for more information about LandScale and how it could help you.

This document presents the assessment framework, which is grounded in key international norms and methods for assessing sustainability, including the United Nations Sustainable Development Goals (SDGs). The framework is structured hierarchically to meet the dual needs of global consistency and local adaptability. It covers four pillars of sustainability performance: ecosystems, human well-being, governance, and production. Pillars and goals provide a holistic structure for assessing sustainability, which users can tailor to different landscapes by selecting context-appropriate indicators and performance metrics. For detailed guidance on conducting an assessment, please see the [Assessment Guidelines](#).

Pillars

Pillars define the four broad sustainability themes included in the assessment framework: ecosystems, human well-being, governance, and production. These themes are broadly relevant in rural landscapes where agriculture, forestry, extractives, or other natural resource-based economic sectors are present. While these pillars are described individually, they are all interlinked. For example, inadequate governance and failure to meet human needs can contribute to ecosystem degradation which, in turn, may further impact human well-being and production.

Goals

Goals represent the desired sustainability outcomes within each pillar. They are based on key sustainability concerns as defined and understood by scientific research and elaborated in major international conventions, frameworks, and commitments, such as the SDGs, New York Declaration on Forests, Bonn Challenge, UN Guiding Principles on Business and Human Rights, among others.

Indicators

Indicators represent the conditions and processes within the landscape that are indicative of performance related to the goals. The indicators are defined based on their ability to provide meaningful information about sustainability performance and trends at the landscape scale.

The assessment framework includes three categories of indicators:

1. **Core indicators** are deemed critical to landscape sustainability in all contexts and are therefore required as part of all assessments.
2. **Landscape-dependent indicators** must be included in assessments in contexts where they are deemed applicable according to the criteria provided in the assessment guidelines. For example, water quantity-related indicators should be included in water-stressed landscapes.
3. **Optional indicators** may be included in the assessment at the user's discretion. *LandScale* users may want to assess optional indicators because they provide additional context on landscape sustainability or address priorities of either landscape actors (e.g., governments, producers, or civil society) or external actors (e.g., private companies or investors). Additionally, these indicators should be included when *claims* are anticipated that would require or be enhanced by them.

Performance Metrics

Performance metrics are quantitative or qualitative measures of status or trends for each indicator. If LandScale users have chosen to set performance targets, then the metrics can quantify progress toward or fulfillment of these targets. The assessment framework includes three types of performance metrics for core and landscape-dependent indicators (see the [Assessment Guidelines](#) for more information):

- **Required** metrics are required unless the assessor demonstrates that data for the indicator are not available or that an alternate metric will yield more reliable information. In this case, the assessor may define an *alternate metric* to provide information on the same quantity or quality as the corresponding required metric and must justify his or her use of this metric in lieu of the required metric.
- **Recommended** metrics are optional, but their use is encouraged to improve confidence in the assessment findings, provide a stronger basis for the verification of assessment results, and help substantiate claims (see the [Verification Mechanism](#) and [Claims Guidelines](#)).
- **Assessor-defined** metrics are specified for some indicators where greater local customization is necessary to account for landscape context and variability, and therefore greater flexibility for assessors is appropriate to craft meaningful and practical metrics.

For optional indicators, the assessor has broader discretion to select metrics. For some optional indicators, the assessment framework provides recommended metrics while for others it defers to assessor-defined metrics.

The presentation of the metrics in this document has, in some cases, been simplified; the assessment guidelines contain the full, precise descriptions and explanations of the metrics. The assessment guidelines also contain further information on selecting metrics and specification of their measurement.

Pillar 1: Ecosystems

Earth is home to a diverse set of natural ecosystems,¹ including forests, savannas, grasslands, wetlands, mangroves, and others. These ecosystems are repositories of biological diversity and provide critical ecosystem services that benefit humans such as food provision, clean water, clean air, climate regulation, nutrient cycling, and aesthetic and cultural values.

Yet, the world's natural ecosystems are rapidly vanishing and most of what remains is being degraded. As a result, biodiversity loss is occurring at increasing rates, terrestrial greenhouse gas emissions are contributing significantly to the global climate crisis, and the capacity of ecosystems to provide essential services, such as clean water, is diminishing.

This pillar covers elements of sustainability related to healthy ecosystems, such as conserving and restoring natural ecosystems, protecting biodiversity, and maintaining or enhancing key ecosystem services. Ecosystems are inherently complex and assessing their sustainability thoroughly would typically require in-depth characterization of their composition, structure, and function. A complete treatment of these characteristics is beyond the scope of most LandScale assessments. Therefore, for practicality, LandScale focuses on key indicators and proxies of ecosystem extent, health, and change that can usually be assessed using secondary data. Assessors may take advantage of additional data and capacity when available for assessments to go beyond LandScale's minimum requirements through the inclusion of optional indicators and recommended metrics, and by supplementing secondary data with new primary data collection.

¹ LandScale uses the term "natural ecosystems" to include both natural and semi-natural types where the latter has undergone human modification but retains many elements of composition, structure, and function of the original natural ecosystem type.

Table 1. Ecosystems Pillar

Goal 1.1 Protect and restore natural ecosystems Natural ecosystems are critical to maintain biodiversity (see goal 1.2) and the ecosystem services on which humans depend (see goal 1.3). Where ecosystems have been converted or degraded, restoration can revitalize their productive capacity and biodiversity value.				
Indicator	Description	Applicability	Performance metrics	UN SDGs
1.1.1 Natural ecosystem protection	Degree to which natural ecosystems are protected through legal or other effective means	Core	1.1.1.1 Total area (ha) & percentage (%) of the landscape that is designated & managed for long-term protection ² (required) 1.1.1.2 Total area (ha) & percentage (%) of each natural ecosystem type under protection (required) 1.1.1.3 Percentage (%) of area of protected areas with effective management ³ (recommended)	15.1; 15.2 15.3; 15.4 15.5
1.1.2 Natural ecosystem conversion	Conversion of natural ecosystems to other land uses	Core	1.1.2.1 Total area (ha) & percentage (%) of area of natural ecosystems in the landscape that has been recently converted (required) 1.1.2.2 Natural ecosystem conversion rate (average area [ha] & percentage [%] conversion per yr) (required)	15.1;15.2; 15.3;15.4; 15.5
1.1.3 Natural ecosystem degradation	Degradation ⁴ of natural ecosystems	Core	1.1.3.1 Total area (ha) & percentage (%) of natural ecosystems in the landscape that are currently degraded (required) 1.1.3.2 Natural ecosystem degradation rate (required)	15.1;15.2; 15.3;15.4; 15.5

² Protected areas include those listed in the World Database on Protected Areas and their corresponding IUCN management categories as well as other areas that are protected and managed on a long-term basis to maintain ecosystem composition, structure, and function. The latter may include lands managed by indigenous peoples with long-term protection objectives, privately-owned conservation areas, and natural ecosystems within certified production or forest management units, among others.

³ Effective management should be assessed on the basis of clear criteria for protected area management effectiveness, such as those in the IUCN Green List Standard <https://www.iucn.org/theme/protected-areas/our-work/iucn-green-list-protected-and-conserved-areas>.

⁴ "Degraded" means ecosystems that have reached a threshold of degradation or detection of degradation according to a credible method or dataset (see assessment guidelines for suggested methods, data, and tools).

1.1.4 Ecosystem restoration	Restoration of converted and degraded ecosystems	Landscape- dependent	1.1.4.1 Total area (ha) under restoration ⁵ (required) 1.1.4.2 Rate of increase (ha/yr) in total area under restoration (recommended)	6.6; 15.1; 15.2;15.3; 15.5
1.1.5 Natural ecosystem connectivity	Connectivity and fragmentation of natural ecosystems	Optional	1.1.5.1 Assessor-defined metrics of connectivity and/or fragmentation appropriate to the types and patterns of natural ecosystems (recommended)	15.1;15.2; 15.3;15.4; 15.5

Goal 1.2 Protect and restore biodiversity

Biodiversity is central to ecosystem functioning and provides humans with myriad economic and social benefits such as food, nutrient cycling, soil fertility, pollination, and pest protection. Yet, biodiversity is rapidly diminishing across the earth's ecosystems, in large part due to habitat loss. Biodiversity includes diversity of ecosystems (covered in goal 1.1), diversity of species (the focus of this goal), and genetic diversity (which is not included in LandScale as it is difficult to measure at landscape scale). Reducing threats to species and protecting and restoring natural habitats are key to conserving biodiversity and are therefore the main foci of the indicators for this goal.

Indicator	Description	Applicability	Performance metrics	UN SDGs
1.2.1 Threats to species	Changes in threats to species	Core	1.2.1.1 Changes in threats to threatened species ⁶ (required) 1.2.1.2 Changes in threats to populations of indicator species or other species identified as important in the landscape (required, alternate, or recommended, depending on context ⁷)	15.4; 15.5; 15.7; 15.8

⁵ "Area under restoration" is defined as either: a) land where restoration has been successfully completed in general accordance with a restoration plan; or b) restoration is currently being implemented through specific on-the-ground actions and/or passive restoration management in accordance with a restoration plan.

⁶ Threatened species refers to species at global risk of extinction, including those classified as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Near Threatened (NT) in the IUCN Red List of Threatened Species (www.iucnredlist.org). Changes in threats to threatened species should be assessed using the 6 standardized approach provided by STAR (Species Threat Abatement and Recovery metric <https://www.iucn.org/regions/washington-dc-office/our-work/species-threat-abatement-and-recovery-star-metric>).

⁷ In landscapes where there are no known or probable IUCN Red List threatened species occurring (i.e., when 1.2.1.1 is not required), this metric will be required. In landscapes where 1.2.1.1 is required, this metric is recommended.

1.2.2 Biodiversity habitat conversion	Conversion of natural ecosystems in areas identified as important for biodiversity ⁸	Core	1.2.2.1 Area (ha) of natural ecosystem conversion within areas identified as important for biodiversity & percentage (%) of such areas that this represents (required)	15.1; 15.4; 15.5
1.2.3 Biodiversity habitat degradation	Degradation of ecosystems in areas identified as important for biodiversity ⁹	Optional	1.2.3.1 Area (ha) & percentage (%) of natural ecosystems that are degraded within areas identified as important for biodiversity (recommended)	15.1; 15.4; 15.5; 15.8
1.2.4 Biodiversity habitat restoration	Restoration of ecosystems in areas identified as important for biodiversity ¹⁰	Optional	1.2.4.1 Area (ha) & percentage (%) of land under restoration ¹¹ within areas identified as important for biodiversity (recommended)	15.1; 15.4; 15.5; 15.8
1.2.5 Biodiversity habitat protection	Protection of areas identified as important for biodiversity ¹²	Optional	1.2.5.1 Area (ha) & percentage (%) of areas identified as important for biodiversity that are designated and managed for long-term protection ¹³ (recommended)	15.1; 15.2; 15.4; 15.5; 15.7

⁸ This includes Protected Areas (PAs), Key Biodiversity Areas (KBAs), and other areas identified as important by national or local designations, maps, or studies.

⁹ Protected Areas (PAs), Key Biodiversity Areas (KBAs), and other areas identified as important by national or local designations, maps, or studies.

¹⁰ Protected Areas (PAs), Key Biodiversity Areas (KBAs), and other areas identified as important by national or local designations, maps, or studies.

¹¹ See footnote 5 for a definition of areas under restoration.

¹² Protected Areas (PAs), Key Biodiversity Areas (KBAs), and other areas identified as important by national or local designations, maps, or studies.

¹³ See footnote 2 for a definition of areas designated and managed for long-term protection.

Goal 1.3 Maintain and enhance ecosystem services

Ecosystem services are the goods and services that are furnished by ecosystems and that sustain human well-being. Maintenance and enhancement of these services is thus key to supporting commodity production, livelihoods, and resilience in rural landscapes.

Indicator	Description	Applicability	Performance metrics	UN SDGs
1.3.1 Water quantity	The landscape's capacity to provide water resources for human use & ecosystem function	Landscape-dependent	1.3.1.1 Seasonal water quantity or flow rate of key water bodies (e.g., total volume, depth, or volume flow /time) (required) 1.3.1.2 Water withdrawals from surface or groundwater versus recharge (ratio) (required) 1.3.1.3 Frequency of interruption or shortage in water supply for agriculture, domestic & industrial sectors (average number of days per year with interruption or shortage of water availability) (recommended)	6.3; 6.6; 15.1
1.3.2 Water quality	Quality of water resources for human use & ecosystem function	Landscape-dependent	1.3.2.1 Total suspended solids in key water bodies (average mg/l) (required) 1.3.2.2 Biochemical oxygen demand & chemical oxygen demand (mg/l) or nutrients (nitrogen and phosphorus) (load/volume) in key water bodies (required) 1.3.2.3 Diversity of aquatic macroinvertebrates in key water bodies (Biological Monitoring Working Party or another index when appropriate) (recommended) 1.3.2.4 Concentration of metals or other toxins (load/volume) in key water bodies (recommended)	3.9; 14.1; 15.1

1.3.3 Agriculture, forestry & other land use (AFOLU) sector GHG sources and sinks	Greenhouse gas (GHG) emissions (sources) & sequestration (sinks) associated with AFOLU	Optional	1.3.3.1 Rate of net GHG emissions from land use change (tCO ₂ e ¹⁴ /yr) in recent years (recommended) 1.3.3.2 Rate terrestrial (above- and below-ground) C sequestration in plants & soil within agricultural, forestry & other production land uses & lands under restoration (tCO ₂ e/yr) (recommended) 1.3.3.3 GHG emissions rate from agricultural production & primary processing ¹⁵ (tCO ₂ e/yr) (recommended)	13.2
1.3.4 Soil health	Status of soil health including fertility, erosion & soil organic carbon (SOC)	Optional	1.3.4.1 Average soil erosion rate ¹⁶ (t/ha/yr) (recommended) 1.3.4.2. Average % SOC at a representative sample of production sites across the landscape (recommended)	12.4; 15.3
1.3.5 Other ecosystem services	Status of other ecosystem services of interest to the LandScale user or to other landscape actors	Optional	1.3.5.1 Metric(s) determined by LandScale assessors (recommended)	6.5; 11.4; 11.5;13.1; 15.8; others

Pillar 2: Human Well-Being

Human well-being is defined as a state of health, happiness, and prosperity. Sustainable landscape management is critical for achieving human well-being broadly across an area's human population. Yet, in many landscapes, high rates of poverty, food insecurity, poor health, and other social ills are common. These conditions may be caused or exacerbated by the unequal distribution of economic benefits derived from land use activities. For example, workers and local communities often realize little value from their contributions (e.g., labor and land), especially in developing countries.

¹⁴ tCO₂e stands for: tonnes (t) of carbon dioxide (CO₂) equivalent (e).

¹⁵ Includes emissions from agricultural operations in the landscape (e.g., fertilizer use, energy consumption, and livestock methane emissions) but not from agricultural land-use change or from the emissions "footprint" of livestock feed produced outside of the landscape.

¹⁶ This may be calculated for the landscape overall or for specific land-use types of interest, such as agriculture.

Improved distribution of benefits and sustainable landscape management can increase human well-being. This broadly encompasses the elements of a decent standard of living as well as basic human rights inalienable to all people. This pillar covers elements of sustainability related to advancing human well-being by increasing the standard of living and respecting, protecting, and fulfilling basic human rights, especially for vulnerable and marginalized groups.

Table 2. Human Well-Being Pillar

Goal 2.1 Improve standard of living, especially for vulnerable and/or marginalized groups

All people have essential needs including food, water, housing, and basic services (e.g., sanitation, education, and health care). Having these needs met helps ensure that individuals and households can maintain a decent standard of living. Yet, in many regions widespread poverty and a lack of social services and infrastructure limits fulfilment of even the most basic needs, resulting in high rates of malnutrition, disease, and other negative outcomes. These ills are often most severe for vulnerable and marginalized groups. Reducing poverty is one of the most critical elements for ensuring that landscape residents advance toward a decent standard of living.

Poverty has multiple dimensions including not only cash income but also access to essential services and other fundamental elements of a decent standard of living. For this reason, LandScale uses a holistic approach to assess poverty and standard of living, grounded in existing recognized multidimensional poverty measures, including those of the Oxford Poverty and Human Development Initiative (OPHI), United Nations Development Programme (UNDP), World Bank, and most National Multidimensional Poverty Indices (MPIs). These measures address the multiple aspects of households' essential needs, including health, nutrition, education, basic infrastructure, water, sanitation, and hygiene.

Indicator	Description	Applicability	Performance metrics	UN SDGs
2.1.1 Household income & assets	Rate of monetary poverty (relative to national poverty line) and household assets	Core	2.1.1.1 Percentage (%) of population living below the local poverty line (or, if this is not specified, earning <\$1.90/day) (required) 2.1.1.2 Percentage (%) of households owning or lacking context-appropriate asset(s). Examples include radio, TV, telephone, computer, animal cart, bicycle, motorbike, refrigerator, car, or truck (recommended)	1.1; 1.2; 1.4; 2.3

2.1.2 Health & nutrition	Proportion of the population lacking access to adequate health and nutrition	Core	2.1.2.1 Percentage (%) of children that are undernourished (required) 2.1.2.2 Percentage (%) of population without access to health services (required) 2.1.2.3 Mortality rate of children under 18 years (averaged over the past five years) (required)	2.1; 2.2; 3.2; 3.8
2.1.3 Education	Educational status of the population	Core	2.1.3.1 Percentage (%) of school-aged children that are not attending school (required) 2.1.3.2 Percentage (%) of adults that have not completed primary education (required)	4.1; 4.6
2.1.4 Water, sanitation & hygiene	Proportion of the population lacking safe drinking water and sanitation	Core	2.1.4.1 Percentage (%) of households without access to safe drinking water within a 15-minute walk from home (required) 2.1.4.2 Percentage (%) of households without a safely managed sanitation facility exclusive to the household (required)	6.1; 6.2
2.1.5 Basic infrastructure	Proportion of the population lacking electricity, adequate housing, or adequate cooking fuel	Core	2.1.5.1 Percentage (%) of households without electricity (required) 2.1.5.2 Percentage (%) of households where the roof, walls and/or floor are composed predominantly of rudimentary materials (required) 2.1.5.3 Percentage (%) of households that use dung, wood, charcoal or coal as fuel for cooking or heating (required)	7.1; 11.1
2.1.6 Vulnerability	Proportion of the population that has recently experienced a severe shock or crime	Optional	2.1.6.1 Percentage (%) of households that have experienced a severe shock (i.e., a significant loss of income or property) in the past 12 months due to a natural disaster or human-caused events (recommended) 2.1.6.2 Percentage (%) of households that have been subject to crime in the previous 12 months (recommended)	1.5

Goal 2.2 Respect, protect, and fulfill human rights

While human rights are considered inalienable to all people, human rights abuses are widespread and include modern slave labor, child labor, discrimination, persecution, and other unfair labor practices. Working towards elimination of child labor and forced labor, and reducing adverse impacts on other core human rights, is thus essential to advancing universal human rights.

Indicator	Description	Applicability	Performance metrics	UN SDGs
2.2.1 Child labor	Incidence of child labor relevant to the economic activities of interest	Landscape-dependent	2.2.1.1 Assessor-defined metrics based on identified enabling conditions - see Annexes 3 & 4 (required) 2.2.1.2 Estimated number of child laborers in economic activities of interest (recommended)	8.7; 8.8
2.2.2 Forced labor	Incidence of forced labor relevant to the economic activities of interest	Landscape-dependent	2.2.2.1 Assessor-defined metrics based on identified enabling conditions - see Annexes 3 & 4 (required) 2.2.2.2 Estimated number of forced laborers in economic activities of interest (recommended)	8.7; 8.8
2.2.3 Workers' rights	Respect for other workers' rights including freedom of association, working hour restrictions, protection from discrimination, and provision of safe working environments in economic activities of interest	Landscape-dependent	2.2.3.1 Assessor-defined metrics based on identified enabling conditions - see Annexes 3 & 4 (required)	8.5; 8.6
2.2.4 Other human rights	Status of other human rights potentially impacted by economic activities	Landscape-dependent	2.2.4.1 Assessor-defined metrics based on identified enabling conditions of other human rights – see Annexes 3 & 4 (required)	10.3; others

Pillar 3: Governance

Societies organize to make and implement decisions through the process of governance. Good governance in the context of sustainable landscape management refers to the decision-making and institutional processes required to achieve social, environmental, and economic development goals at a landscape level. It entails minimizing corruption, including participation of all stakeholders (including vulnerable and marginalized groups) and being responsive to the current and future needs of society.

Of importance to commodity-producing landscapes are the elements of governance that relate to land and resource use. In many regions, land and resource rights and tenure lack clarity, resulting in rights abuses, particularly of vulnerable and marginalized groups. Further, land use decisions and activities are often uncoordinated among and between relevant government authorities and affected stakeholders, leading to poor resource use and management as well as resource depletion, degradation, and conflicts.

This pillar covers elements of sustainability related to good governance. It includes an assessment of land and resource tenure and of processes for developing and implementing land use policies and management practices.

Table 3. Governance Pillar

Goal 3.1 Recognize and protect rights to land and resources, and reduce related conflicts				
Rights to access, use, and manage land and resources are critical to people that depend on land-use activities for their livelihoods. In many regions, however, land and resource tenure lack clarity, contributing to resource depletion and degradation, and, in some instances, expropriation of indigenous peoples' and local communities' lands and resources, sometimes through violence.				
Indicator	Description	Applicability	Performance metrics	UN SDGs
3.1.1 Land tenure	Extent to which rights to access & use land are clear and secure	Core	3.1.1.1 Percentage (%) of the landscape with formalized land tenure rights (required) 3.1.1.2 Assessor-defined metric(s) for gender dimension of land tenure rights (recommended)	1.4

3.1.2 Land conflicts	Incidence of unresolved conflicts related to land & resource rights	Core	3.1.2.1 Number of unresolved land and resource conflicts or grievances, and the area of land (ha) subject to such conflicts (required) 3.1.2.2 Number of people (e.g., environmental and human rights defenders) subject to violence or receiving threats of violence as a result of conflicts over land & resources (required)	16.3
3.1.3 Resource tenure	Extent to which rights to access & use natural resources are clear & secure	Optional	3.1.3.1 Assessor-defined metric(s) on access & use rights for key natural resources in the landscape (recommended)	1.4

Goal 3.2 Promote transparency, participation, inclusion, and coordination in land-use policy, planning, and management

Unplanned or illegal land use can result in detrimental environmental and social outcomes arising from conflicting policies, governmental action or inaction, and land and resource disputes. When it is done well, land-use planning can help ensure that affected stakeholders agree on management activities and governments adopt supporting plans, policies, and regulations. Effective land-use planning is more likely when there is strong coordination among government agencies and a participatory land-use planning process that includes all stakeholders and is informed by traditional knowledge.

Indicator	Description	Applicability	Performance metrics	UN SDGs
3.2.1 Land-use plan adoption & enforcement	Status of land-use or zoning plan, with respect to agreement by stakeholders, formal adoption & enforcement	Core	3.2.1.1 Quality and status of land-use and/or zoning plans (based on Sustainable Landscapes Rating Tool [SLRT] indicators 1.1.1, 1.1.2 and 1.1.3) ¹⁷ (required) 3.2.1.2 Percentage (%) of landscape covered by land-use or zoning plans that are formally adopted and enforceable (required) 3.2.1.3 Amount (ha) & percentage (%) of the landscape that is subject to overlapping and competing land-use plans (recommended) 3.2.1.4 Amount (ha) & percentage (%) of the landscape with recent land-use change that is inconsistent with land-use plan(s) (recommended)	11.b; 15.9
3.2.2 Coordination of government agencies in land-use policy, planning & management	Degree of coordination of government agencies in land-use policy, planning and management across relevant government sectors	Core	3.2.2.1 Quality and status of government coordination on land-use policy, planning, and management across sectors (based on SLRT indicators 4.1.1, 4.1.2 and 4.1.3) (required)	15.9

¹⁷ The Sustainable Landscapes Rating Tool (SLRT) is available [here](#).

3.2.3 Stakeholder participation and inclusion in land-use policy, planning, and management	Status of participation and inclusion in landscape-level land-use planning and management for those stakeholders involved in or affected by production activities	Core	3.2.3.1 Quality and status of stakeholder participation and inclusion in land-use policy, planning, and management (based on SLRT indicators 4.3.1, 4.3.2, 4.3.3, 4.3.4 and 4.3.5) (required)	15.6
3.2.4 Illegality and corruption related to land and resources	Levels of illegality and corruption in the allocation of rights, management and use of land and natural resources	Landscape-dependent	3.2.4.1 Perceived level of corruption ¹⁸ related to land and resource allocation and use (required) 3.2.4.2 Incidence of illegality related to land and resource use and management (required)	16.5

Pillar 4: Production

To meet growing demand for cultivated commodities (including food crops, livestock, and fiber) with limited supplies of productive land, water, and other inputs, landscapes and the producers within them must increase the productivity and resource use efficiency of these production systems. Doing so is essential for reducing the need to bring new land under cultivation (which contributes to deforestation and conversion), for maintaining ecosystem services, and for enhancing the economic sustainability of production systems.

This pillar covers elements of sustainability that are related to promoting sustainable and regenerative production systems for cultivated commodities, specifically in agriculture, agroforestry, and plantation forestry. This pillar does not address the production of non-renewable resources (e.g., minerals), nor does it address production systems that involve extraction from natural ecosystems, such as management and harvesting of natural forests for timber or water bodies for fish. For such production systems, the measures of productivity and input use efficiency relevant to cultivated systems generally do not apply and different sets of sustainability indicators would be required. If there is user demand to include production measures for such sectors in the future,

¹⁸ Using a credible methodology, as specified further in the assessment guidelines.

LandScale will work to incorporate appropriate production indicators for such sectors into the assessment framework over time, in consultation with recognized organizations focused on the sustainability of such sectors.

Note that this pillar addresses only the production practices, productivity, and input use efficiency of cultivated commodities. The environmental and social impacts of such cultivation – together with the environmental and social impacts of other production sectors – are addressed in pillars 1 and 2, respectively. For example, the effects of crop production, mineral extraction, and logging activities on water quality would be captured by the landscape-dependent indicator 1.3.2 water quality.

Table 4. Production Pillar

Goal 4.1 Promote regenerative agricultural, agroforestry, and tree production systems				
In many landscapes, existing production systems result in the degradation of natural resources such as arable land, soil, and water. Yields are often below achievable optima for the respective region, resulting in low farmer incomes, particularly for smallholders lacking access to proper inputs, tools, and technologies. At a broader scale, yield gaps can also increase pressure to convert additional land to meet consumer demand. Increasing productivity and resource use efficiency in tandem, while avoiding unsustainable use of external inputs, is thus key to meeting global demand for goods from existing production lands.				
Indicator	Description	Applicability	Performance metrics	UN SDGs
4.1.1 Agricultural, agroforestry & tree plantation productivity	Productivity of agricultural (crop & livestock), agroforestry & tree production systems for major production systems in the landscape	Landscape-dependent	4.1.1.1 Average crop productivity (yield/ha) disaggregated by crop (required) 4.1.1.2 Average productivity of pasture-raised animals (livestock units/ha or meat or dairy production/ha) disaggregated by animal type (required) 4.1.1.3 Average forest plantation productivity (timber volume/ha) disaggregated by plantation type (required)	2.3
4.1.2 Input use efficiency in agricultural, agroforestry & tree production systems	Efficiency of input use in agricultural, agroforestry & tree production systems for major production systems in the landscape	Landscape-dependent	4.1.2.1 Fertilizer use efficiency (quantity of product produced per unit of nitrogen, phosphorus, and/or potassium [NPK] use) (required) 4.1.2.2 Water use efficiency (quantity of product produced per unit of water use) (required)	2.4; 6.4; 12.3; 12.4

4.1.3 Adoption of sustainable land management practices	Adoption of sustainable land management (SLM) practices in agricultural & forest plantation operations for major production systems in the landscape	Optional	<p>4.1.3.1 Land area (ha) under major crop, livestock and/or plantation forestry production that utilize Integrated Pest Management and percentage (%) of total production area that this represents (recommended)</p> <p>4.1.3.2 Land area (ha) under other specific SLM practices appropriate to the crop, livestock, and/or plantation forestry systems¹⁹ in the landscape & percentage (%) of total production area that this represents (disaggregated by SLM practice and production system) (recommended)</p> <p>4.1.3.3 Assessor-defined metric on environmental and health risk from pesticide use (recommended)</p> <p>4.1.3.4 Extent and percentage of fire in natural ecosystems resulting from agricultural land management (ha and % of the landscape burned/yr) (recommended)</p>	2.4
4.1.4 Adoption of sustainable waste management practices	Adoption of sustainable waste management practices for agricultural solid waste & wastewater	Optional	4.1.4.1 Assessor-defined metrics on adoption of sustainable waste management practices for agricultural solid waste and wastewater (recommended)	6.3; 12.4; 12.5

¹⁹ Examples include conservation agriculture, diversified agroforestry systems, holistic grazing management, and others.

About LandScale

The Rainforest Alliance, Verra, and Conservation International are developing LandScale with support from a growing coalition of partners. To date, partners include the Climate, Community & Biodiversity Alliance, EcoAgriculture Partners, the International Union for Conservation of Nature (IUCN), the Nature Conservation Research Centre (NCRC), Proforest, and Solidaridad.

An advisory group, representing both subject matter experts and potential LandScale users, provides strategic input and guidance on developing the LandScale initiative to help ensure it makes a significant contribution to driving improvements in landscape sustainability. The global initiative is supported by the International Climate Initiative (IKI) of the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU) and the BHP Foundation's Environmental Resilience Global Signature Program. Visit www.landscape.org to learn more.

