

ASSESSMENT FRAMEWORK

ASSESSMENT GUIDELINES | VERSION 1.0

Document Name	Document #
Assessment Framework	LS-06-10
Date of Publication	Version #
Oct. 18, 2021	1.0
Summary of Changes	
<ul style="list-style-type: none"> • Not applicable 	

Translation Disclaimer: For any question related to the precise meaning of the information contained in the translation, please refer to the official English version for clarification. Any discrepancies or differences in meaning due to translation are not binding and have no effect for validation purposes.

Any use of this content including reproduction, modification, distribution or republication, without the prior written consent of LandScale is strictly prohibited.

Table of Contents

Introduction

Pillars

Goals

Indicators

Performance metrics

Pillar 1: Ecosystems

Pillar 2: Human Well-Being

Pillar 3: Governance

Pillar 4: Production

Introduction

LandScale provides a standardized approach, implemented through an online platform, for assessing and communicating the sustainability performance of landscapes. It enables the private sector, governments, and civil society to access reliable information to guide and incentivize sustainability improvements at scale.

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 designed to meet the dual needs of global consistency and local adaptability. Its hierarchical structure covers four pillars of sustainability performance: ecosystems, human well-being, governance, and production. Pillars and their underlying goals provide a holistic approach for assessing sustainability, which users can tailor to different landscapes by selecting context-appropriate indicators and performance metrics. The LandScale platform is also designed to allow users to create custom goals, indicators, and metrics within the LandScale framework to augment those adopted by LandScale. Requirements stated in this document apply to those seeking LandScale validation of their assessment and publication of results.

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 UN Sustainable Development Goals, 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 measurement of indicator performance is provided by the performance metrics described in the following section.

The assessment framework includes four categories of indicators:

1. **Core indicators** are deemed critical to landscape sustainability in all contexts and are therefore required as part of all assessments for landscapes wishing to publish results on the LandScale platform.
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.
4. **Custom indicators** may be created and nested within the LandScale framework or in a user-defined pillar or goal to address issues not covered by the framework at the user's discretion. However, these do not substitute for LandScale indicators.

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, the metrics can quantify progress toward or fulfillment of these targets. The assessment framework includes four types of performance metrics for core and landscape-dependent indicators including the ability to add custom metrics (see the Assessment Guidelines for more information):

- **Required metrics** are required unless the assessment team demonstrates that data for the indicator are not available or that an alternate metric will yield more reliable information. In this case, the assessment team 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 verifying assessment results, and help substantiate claims (see the Verification Mechanism and Claims Guidelines).
- **User-defined metrics** are specified for some indicators where greater local customization is necessary to account for landscape context and variability. In these cases, the assessment team is asked to define metrics that are meaningful and practical in the given context. User-defined metrics can be either required or recommended, as specified below.
- **Custom metrics**, like custom indicators, are created by users to provide measurements not included in the LandScale metrics.

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

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

Cross-cutting themes

There are multiple cross-cutting themes within the assessment framework that are integrated beyond a single pillar or goal. These themes include climate change, gender, marginalized groups, human rights, and economic sustainability. These topics are woven through multiple sections of the assessment framework, given their linkage to multiple social and ecological trends. In addition to integrating these issues in several pillars, LandScale encourages the assessment team to reflect and interpret assessment results through the lenses of these multifaceted themes.

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. The assessment team 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 Conserve 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. This goal considers multiple forms of conservation, from strict protection to multi-use and sustainable management approaches that conserve an area's principal conservation values.				
Indicator	Description	Applicability	Performance metrics	UN SDGs
1.1.1 Effective conservation and protection of natural ecosystems	Degree to which natural ecosystems are conserved and protected on a long-term basis through legal or other effective means	Core	1.1.1.1 Total area (ha) & percentage (%) of the landscape in designated protected areas ² disaggregated by natural ecosystem type (required) 1.1.1.2 Percentage (%) of the total area of designated protected areas with effective management ³ (recommended) 1.1.1.3 Total area (ha) & percentage (%) of the landscape that is effectively conserved in other ways ⁴ disaggregated by natural ecosystem type (recommended)	14.2;14.5; 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) 1.1.2.3 User-defined metric for ecosystem category (e.g., forest ecosystem types) of area (ha) & percentage (%) of	14.2; 14.5; 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 for areas that are protected and managed on a long-term basis to maintain ecosystem composition, structure, and function.

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 This is defined as the area under Other Effective Conservation Measures in the WDPA.. See <https://www.iucn.org/commissions/world-commission-protected-areas/our-work/oecms> for additional information.

			area in the landscape that has been recently converted (recommended) 1.1.2.4 User-defined metric for ecosystem category (e.g., forest ecosystem types) of conversion rate (average area [ha] & percentage [%] conversion per yr) (recommended)	
1.1.3 Natural ecosystem degradation	Degradation ⁵ 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) 1.1.3.3 User-defined metric for ecosystem category (e.g., forest ecosystem types) of area (ha) & percentage (%) of area in the landscape that is currently degraded (recommended) 1.1.3.4 User-defined metric for ecosystem category (e.g., forest ecosystem types) of degradation rate (recommended)	14.2;14.5 ;15.1; 15.2;15.3; 15.4;15.5
1.1.4 Ecosystem restoration	Restoration of converted and degraded ecosystems	Landscape-dependent	1.1.4.1 Total area (ha) under restoration ⁶ (required) 1.1.4.2 Rate of increase (ha/yr) in total area under restoration (recommended)	6.6;14.2; 14.5;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 User-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

⁵ "Degraded" means ecosystems that have significantly diminished ecosystem composition, structure and/or function compared to the ecosystem that previously existed or currently could be sustained on any given site. This threshold of degradation may be detected or analyzed according to any available credible method or dataset (see assessment guidelines for suggested methods, data, and tools).

⁶ "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. Restoration is not limited to approaches that focus primarily on ecosystem restoration but is broadly inclusive of land-use trajectories that improve sustainability such as conversion of crop or pasture lands to agroforestry.

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 focus 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 ⁷ (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 ⁸)	14.2; 14.5; 15.1; 15.4; 15.5; 15.7; 15.8
1.2.2 Biodiversity habitat conversion	Conversion of natural ecosystems in areas identified as important for biodiversity ⁹	Landscape-dependent	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)	14.2; 14.5; 15.1; 15.2; 15.4; 15.5
1.2.3 Biodiversity	Degradation of areas identified as important for	Optional	1.2.3.1 Area (ha) & percentage (%) of lands identified as important for biodiversity that are degraded	14.2; 14.5; 15.1;

⁷ 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>).

⁸ 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.

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

habitat degradation	biodiversity ¹⁰		(recommended)	15.2; 15.3; 15.4; 15.5; 15.8
1.2.4 Biodiversity habitat restoration	Restoration of ecosystems in areas identified as important for biodiversity ¹¹	Optional	1.2.4.1 Area (ha) & percentage (%) of land under restoration ¹² within areas identified as important for biodiversity (recommended)	14.2; 14.5; 15.1; 15.2, 15.4; 15.5; 15.8
1.2.5 Biodiversity habitat protection	Protection of areas identified as important for biodiversity ¹³	Landscape-dependent	1.2.5.1 Area (ha) & percentage (%) of the area of important biodiversity areas that are designated and managed for long-term protection ¹⁴ (required) 1.2.5.2 Area (ha) & percentage (%) of the area of important biodiversity areas that are under conservation through OECMs ⁴ (required)	14.2; 14.5; 15.1; 15.2; 15.4; 15.5; 15.7

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

¹¹ Protected Areas (PAs), Key Biodiversity Areas (KBAs), and other areas identified as important by national or local designations, maps, or studies.

¹² See footnote 5 for a definition of areas under restoration.

¹³ Protected Areas (PAs), Key Biodiversity Areas (KBAs), and other areas identified as important by national or local designations, maps, or studies.

¹⁴ See footnote 4 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 Trend of seasonal water quantity or flow rate of key water bodies that serve human uses (e.g., total volume, depth, or volume flow /time) ¹⁵ (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)	6.1, 6.2, 6.3; 6.6; 12.2; 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; 6.1; 6.2; 6.3; 12.4; 14.1; 15.1

¹⁵ Average seasonal measurements over past 5 years or extent of reliable data.

<p>1.3.3 Agriculture, forestry & other land use (AFOLU) sector GHG sources and sinks</p>	<p>Greenhouse gas (GHG) emissions (sources) & sequestration (sinks) associated with AFOLU</p>	<p>Landscape-dependent</p>	<p>Forests & other natural ecosystems 1.3.3.1 (Sinks) Rate of terrestrial carbon sequestration (tCO₂e¹⁶/ha/yr) in aboveground and belowground biomass (litter, dead wood, harvested wood products and soil are optional) (required) 1.3.3.2 (Sources) Rate of GHG emissions (tCO₂e/yr) from deforestation and (optionally) forest degradation (required)</p> <p>Production areas 1.3.3.3 (Sinks) Rate of C sequestration in above and below ground biomass in woody perennials in forest plantations, agroforestry & lands under restoration (tCO₂e/yr) (recommended) 1.3.3.4 (Sinks) Rate of C sequestration in soil organic carbon pool within agriculture, forest plantations, and other production land uses (such as agroforestry) & lands under restoration (tCO₂e/yr) (recommended) 1.3.3.5 (Sources) Rate of GHG emissions (tCO₂e/yr) from agricultural production & primary processing per unit of production¹⁷ (including crops and livestock) (recommended)</p>	<p>12.2; 12.4; 13.2</p>
<p>1.3.4 Other ecosystem services</p>	<p>Status of other ecosystem services of interest to the LandScale user or to other landscape actors</p>	<p>Optional</p>	<p>1.3.4.1 User-defined metric(s) (recommended)</p>	<p>6.5; 6.6; 11.4; 11.5; 13.1; 15.8; others</p>

¹⁶ tCO₂e stands for: tonnes (t) of carbon dioxide (CO₂) equivalent (e).

¹⁷ 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.

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 and becoming a greater risk due to climate change, volatile and/or depressed markets, and political instability. 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.

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 the right to have their basic needs met, including the right to 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 rights, resulting in high rates of malnutrition, disease, and other negative outcomes. These ills are often most severe for vulnerable and marginalized groups, and can be worsened by the effects of climate change. Reducing poverty is one of the most critical elements for ensuring that landscape residents advance toward a decent standard of living and become more resilient to climate change.

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 female and male 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 girls and boys that are undernourished (required) 2.1.2.2 Percentage (%) of female and male population without access to health services (required) 2.1.2.3 Mortality rate of girls and boys under 18 years (averaged over the past five years) (required)	2.1; 2.2; 3.2; 3.7; 3.8; 5.6
2.1.3 Education	Educational status of the population	Core	2.1.3.1 Percentage (%) of school-aged girls and boys that are not attending school (required) 2.1.3.2 Percentage (%) of female and male adults that have not completed primary education (required)	4.1; 4.5; 4.6; 4.7
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	3.9; 7.1; 11.1

			(required)	
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) 2.1.6.3 User-defined metric(s) to assess the impact of severe shocks and/or crimes on women and youth (recommended)	1.5; 13.1; 13.b; 16.4; 16.a

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 forced 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 User-defined metrics based on identified enabling conditions following LandScale's human rights assessment guidelines available on the platform (required) 2.2.1.2 Estimated number of girls and boys laborers in economic activities of interest (recommended)	4.1; 4.2; 4.6; 8.7; 8.8
2.2.2 Women's rights	Respect for women's rights including decent working conditions, equal pay, maternal health rights, effective participation and equal opportunities	Landscape-dependent	2.2.2.1 User-defined metrics based on identified enabling conditions following LandScale's human rights assessment guidelines available on the platform (required)	3.1; 3.7; 4.3; 4.5; 5.1; 5.2; 5.3; 5.4; 5.5; 5.6; 8.8; 10.2;

				10.3
2.2.3 Indigenous peoples' and other marginalized groups' rights	Respect for indigenous peoples and other marginalized groups' rights including self-determination, freedom from discrimination, preservation of cultural heritage and others	Landscape-dependent	2.2.3.1 User-defined metrics based on identified enabling conditions following LandScale's human rights assessment guidelines available on the platform (required)	2.3, 4.5; 10.2; 10.3; 16.7
2.2.4 Forced labor	Incidence of forced labor relevant to the economic activities of interest	Landscape-dependent	2.2.4.1 User-defined metrics following LandScale's human rights assessment guidelines available on the platform (required) 2.2.4.2 Estimated number of forced laborers in economic activities of interest (recommended)	8.7; 8.8
2.2.5 Workers' rights	Respect for 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	2.2.5.1 User-defined metrics following LandScale's human rights assessment guidelines available on the platform (required)	4,4; 8.5; 8.6; 8.8
2.2.6 Other human rights	Status of other human rights potentially impacted by economic activities	Landscape-dependent	2.2.6.1 User-defined metrics following LandScale's human rights assessment guidelines available on the platform (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 threats including climate change, depressed or unstable markets, political instability and organized crime.

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. These issues are further exacerbated by the effects of climate change, unstable markets or organized crime.

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 User-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 women and men, young and adult (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 User-defined metric(s) on access & use rights for key natural resources in the landscape (recommended) 3.1.3.2 User-defined metric(s) for gender dimension of resource tenure (recommended)	1.4; 5a

Goal 3.2 Promote transparency, participation, inclusion, and coordination in landscape policy, planning, and management

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

Indicator	Description	Applicability	Performance metrics	UN SDGs
-----------	-------------	---------------	---------------------	---------

<p>3.2.1 Land-use plan adoption & enforcement</p>	<p>Status of land-use or zoning plan, with respect to agreement by stakeholders, formal adoption & enforcement</p>	<p>Core</p>	<p>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)¹⁸ (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)</p>	<p>11.b; 15.9</p>
<p>3.2.2 Coordination of government agencies in land-use policy, planning & management</p>	<p>Degree of coordination of government agencies in land-use policy, planning and management across relevant government sectors</p>	<p>Core</p>	<p>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)</p>	<p>15.9</p>
<p>3.2.3 Stakeholder participation and inclusion in land-use policy, planning, and management</p>	<p>Status of participation and inclusion in landscape-level land-use planning and management for those stakeholders involved in, or affected by, production activities</p>	<p>Core</p>	<p>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)</p>	<p>15.6; 16.6; 16.7</p>

¹⁸ The Sustainable Landscapes Rating Tool (SLRT) is available [here](#).

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 ¹⁹ 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
3.2.5 Climate change vulnerability and adaptation	Degree and status of planning to mitigate risk and improve adaptation to the effects of climate change	Core	3.2.5.1 The degree that climate change a vulnerability assessment has been conducted that encompasses the key anticipated effects of climate change on the key components of human populations and associated infrastructure, natural ecosystems and services, and production sectors (required) 3.2.5.2 The degree that adaptation plans have been developed and adopted that address the key climate change effects and components in a vulnerability assessment (required)	1.5; 13.1; 13.2; 13.3

Pillar 4: Production

This pillar addresses the need to provide for natural-resource based commodities (including food crops, livestock, fiber, and minerals) and other economic activities (such as tourism) along with economic benefits for local populations but in ways that do not reduce the ecological values and services or cause harm to human well-being. With limited supplies of suitable land, water, and other inputs, producers must increase productivity, resource use efficiency, and positive impacts 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. The framework is oriented to cultivated commodities, specifically in agriculture, agroforestry, and plantation forestry but users are able to create indicators and metrics for other production sectors. These may include extraction of non-renewable

¹⁹ Using a credible methodology, as specified further in the assessment guidelines.

resources (e.g., minerals) and those that involve extraction from natural ecosystems, such as management and harvesting of natural forests for timber or water bodies for fish. Sectors such as natural-resource based tourism may also be included. If there is user demand to standardize measures for these other sectors in the future, LandScale will work in consultation with recognized organizations focused on the sustainability of such sectors on inclusion of appropriate indicators and metrics.

Note that this pillar addresses only the production practices, productivity, and input use efficiency of production sectors. The environmental and social impacts of such activities 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				
<p>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 producer and laborer 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.</p>				
Indicator	Description	Applicability	Performance metrics	UN SDGs
4.1.1 Agricultural, agroforestry & tree plantation productivity	Productivity of major 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

<p>4.1.2 Input use efficiency in agricultural, agroforestry & tree production systems</p>	<p>Efficiency of input use in agricultural, agroforestry & tree production systems for major production systems in the landscape</p>	<p>Landscape-dependent</p>	<p>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)</p>	<p>2.4; 6.4; 12.3; 12.4</p>
<p>4.1.3 Adoption of sustainable land management practices</p>	<p>Adoption of sustainable land management (SLM) practices in agricultural & forest plantation operations and appropriate practices for other land use sectors</p>	<p>Optional</p>	<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) 4.1.3.2 Land area (ha) under other specific SLM practices appropriate to the crop, livestock, and/or plantation forestry systems²⁰ in the landscape & percentage (%) of total production area that this represents (disaggregated by SLM practice and production system) (recommended) 4.1.3.3 User-defined metric on environmental and health risk from pesticide use (recommended) 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>	<p>2.4; 15.2</p>

²⁰Examples include conservation agriculture, diversified agroforestry systems, holistic grazing management, tree plantations certified for good management practices, and others.

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 User-defined metric(s) on adoption of sustainable waste management practices for agricultural solid waste and wastewater (recommended)	6.3; 6.6; 12.4; 12.5
<p>Goal 4.2 Promote sustainability of other natural resource-based production sectors</p> <p>Other natural resource-based sectors include extraction, such as mining and natural forest management, and non-extractive uses such as tourism oriented to experiencing natural areas and features. Users are encouraged to include other sectors, especially when they represent significant contributions and impacts in the landscape.</p>				
4.2.1 User-defined indicator(s)	User-defined indicator(s) for sustainability considerations in other natural-resource based production sectors	Optional	4.2.1.1 User-defined metric(s) for measures of the defined indicator(s) (recommended)	