Integration of Kenya's Nature Based Solution and Climate Smart Agriculture Reporting Tools

An Integration Process Report



Ministry of Agriculture & Livestock Development

ICAT Initiative for Climate Action Transparency

Alliance Bioversity & CIAT

Contributors & Acknowledgments

© *September 2026*

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Prepared Under:

The Initiative for Climate Action Transparency (ICAT), supported by Austria, Canada, Germany, Ireland, Italy and the Children's Investment Fund Foundation.

Acknowledgments

The project team would like to thank colleagues from the UNEP–Copenhagen Climate Centre for their valuable review of this report. We are particularly grateful to Julia Romero, Freya Milford, and Henry Neufeldt for their constructive feedback and insights, which helped in shaping the report. We would also like to appreciate the technical experts for their inputs.

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Design and layout by Adisababa Design Agency

ICAT is hosted by the United Nations Office for Project Services (UNOPS).

Executive Summary

Kenya's agricultural systems are increasingly required to deliver multiple and interconnected outcomes, including improved productivity, climate resilience, greenhouse gas mitigation, biodiversity conservation, ecosystem restoration, food and livelihood security, and sustainable natural resource management. Climate-Smart Agriculture (CSA) and Nature-Based Solutions (NbS) provide complementary approaches for achieving these outcomes. However, within Kenya's policy space the CSA and NbS M&E frameworks were developed through separate processes. The resulting overlap in indicators, institutions and reporting flows created a practical case for harmonization.

This report documents the technical integration of the Kenya CSA M&E Framework and the NbS M&E Framework into a common reporting architecture. It is primarily a technical reference for the Ministry of Agriculture and Livestock Development, county reporting teams, partner institutions, technical reviewers and administrators responsible for operating and maintaining the integrated reporting system. It explains what was integrated, the decisions made during harmonization, and how the resulting framework is intended to support routine reporting and future refinement.

The integration process was undertaken through a participatory, technical, and iterative process with technical experts and representatives from relevant institutions. Indicators were mapped by thematic purpose, compared for equivalence and complementarity, and either harmonized, retained as distinct measures, repositioned, or excluded from the core national results matrix where they served a different diagnostic function. CSA outcomes and outputs provided the initial agriculture-sector organizing structure, while NbS indicators broadened coverage of biodiversity, restoration, ecosystem management and community-level nature-positive outcomes. The resulting Integrated Reporting Framework is organized around four outcomes: (i) an enabling environment for climate- and nature-positive interventions; (ii) adaptive and competitive agricultural value chains; (iii) climate resilience, ecosystem management and mitigation; and (iv) communication, knowledge management and use of climate and nature-positive information. The framework is designed to reduce duplicate reporting while preserving indicators needed for distinct policy and technical purposes.

The integrated indicator matrix was subsequently configured within the Climate-Smart Agriculture Reporting Tool (CSART), with standardized data fields, metadata, disaggregation categories, validation rules, controlled typologies and reporting workflows. This creates a practical basis for consistent data collection, review, aggregation and use across national and county levels.

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Abbreviations

Abbreviation	Meaning
BTR	Biennial Transparency Report
CCU	Climate Change Unit
CIAT	International Center for Tropical Agriculture
CSA	Climate-Smart Agriculture
CSART	Climate-Smart Agriculture Reporting Tool
GHG	Greenhouse Gas
KCSAS	Kenya Climate Smart Agriculture Strategy
KCSAIF	Kenya Climate-Smart Agriculture Implementation Framework
M&E	Monitoring and Evaluation
MoALD	Ministry of Agriculture and Livestock Development
MRV	Measurement, Reporting and Verification
TIMPs	Technologies, Innovations and Management Practices
NAP	National Adaptation Plan
NbS	Nature-Based Solutions
NDC	Nationally Determined Contributions

Glossary of Key Terms

Administrative Unit

The geographic or governance area to which reported data applies. Depending on the indicator and reporting arrangement, this may include the national level, county, sub-county, ward, landscape, or another approved reporting area.

Agricultural Safety Net

A service or instrument intended to protect vulnerable agricultural households, producers, or value-chain actors against shocks and livelihood losses. Agricultural safety nets may include cash or in-kind transfers, public works, targeted subsidies, productive asset support, insurance-related support, and emergency agricultural assistance.

Agro-weather Advisory

Weather- and climate-related information that has been interpreted and communicated to support agricultural planning and decision-making. Agro-weather advisories may guide decisions on planting, harvesting, irrigation, livestock management, pest and disease control, and other agricultural activities.

Approver

A designated user or institutional authority responsible for formally accepting reviewed data before it is aggregated, published, or used for official reporting.

Climate and nature-positive Interventions

Interventions that contribute to climate resilience, sustainable agricultural development, greenhouse gas mitigation, ecosystem protection, sustainable natural resource management, biodiversity conservation, ecosystem restoration, or improved livelihoods.

Climate-Smart Agriculture

An approach to agricultural development that seeks to sustainably increase productivity and incomes, strengthen adaptation and resilience to climate change, and reduce or remove greenhouse gas emissions where possible.

Conditional Reporting Logic

A set of rules that determines when a reporting field should be displayed, required, or completed based on a user's response to another field. For example, selecting a particular intervention type may trigger a follow-up field requesting the corresponding value.

Data Form Element

An individual reporting field configured within the digital tool to capture a specific item of information required for an indicator. A data form element may collect a number, percentage, date, text response, single selection, or multiple selection.

Data Provider

A user, institution, or reporting entity responsible for entering and submitting data for assigned indicators, reporting periods, and administrative units.

Digitization

The process of translating the harmonized results framework and indicator matrix into structured digital forms, reporting fields, typologies, validation rules, conditional logic, metadata, and reporting outputs within CSART.

Disaggregation

The separation of an indicator value into relevant categories to support more detailed analysis. Disaggregation categories may include sex,

stakeholder type, value chain, season, market scope, intervention type, species group, or administrative level.

Ecosystem Restoration

Actions that assist the recovery of degraded, damaged, or destroyed ecosystems and their ecological functions, services, and biodiversity.

Framework-Agnostic

Designed to accommodate multiple related reporting frameworks without being restricted to the terminology, structure, or reporting requirements of a single source framework.

Harmonization

The process of reviewing related indicators, results statements, terminology, and reporting requirements and aligning, adapting, or consolidating them where appropriate while preserving their original reporting intent.

Indicator

A quantitative or qualitative measure used to assess progress toward an outcome or output.

Integration

The broader process of bringing the CSA and NbS frameworks into a coherent results, indicator, reporting, and digital tool structure. Integration includes mapping, comparison, harmonization, terminology review, restructuring, and digitization.

Metadata

Information that describes an indicator, reporting field, typology, or dataset. Metadata may include the definition, source, unit of measure, reporting level, reporting frequency, applicability, validation requirements, and configuration details.

Nature-Based Solutions

Actions that protect, sustainably manage, or restore natural or modified ecosystems in ways that address societal challenges while delivering benefits for people, biodiversity, and ecosystem resilience.

Nature-Positive

Contributing to the protection, sustainable management, recovery, or improvement of biodiversity, ecosystems, and natural resources.

Operationalization

The institutional, procedural, technical, financial, and capacity arrangements required to put the Integrated Reporting Framework and digital tool into routine use.

Option List

A predefined set of values from which a user selects when completing a structured reporting field.

Outcome

A higher-level change in systems, institutions, behaviour, capacity, resilience, value chains, ecosystem condition, or information use to which outputs contribute.

Output

A direct product, service, capacity, system, or implementation result expected to contribute to the achievement of an outcome.

Reporting Logic

The rules that define what information must be collected for an indicator, including the required fields, units, disaggregation categories, conditions, validation rules, and aggregation approach.

Reporting Period

The defined period for which data is collected and submitted, such as a month, quarter, season, financial year, or calendar year.

Results Chain

The hierarchical and logical relationship among outcomes, outputs, indicators, and the actions or data that support them.

System Administrator

A user responsible for managing user accounts, access rights, reporting periods, data forms, option lists, configurations, and routine technical administration of the digital tool.

Technical Reviewer

A designated user responsible for checking submitted data for completeness, consistency, plausibility, and compliance with the relevant indicator and reporting requirements.

Typology

A standardized classification of categories used to organize and report comparable data consistently.

Validation Rule

A system rule used to prevent invalid, incomplete, or implausible entries. Examples include requiring non-negative values, limiting percentages to an allowable range, or requiring an explanation when "Other specified" is selected.

Value Chain

The connected actors, activities, and processes involved in producing, processing, transporting, marketing, distributing, and using an agricultural, livestock, fisheries, aquaculture, forestry, or agroforestry product.

Chapter 1: Introduction

1.1 Background Context

Kenya's agriculture sector remains central to national development, food and nutrition security, livelihoods, climate resilience, and environmental sustainability. The sector is also highly exposed to climate variability because a large share of agricultural production depends on rainfall, natural resources, and ecosystem services. At the same time, agricultural systems interact closely with land, water, forests, rangelands, biodiversity, and other natural assets that support production and rural livelihoods. This creates a policy and implementation context in which agricultural transformation, climate action and ecosystem stewardship are closely connected.

Kenya has progressively positioned CSA within its national climate and agricultural policy architecture. The Kenya CSA Strategy (KCSAS) 2017–2026 (Ministry of Agriculture, Livestock and Fisheries, 2017) provides the strategic direction for transforming agriculture toward greater productivity, resilience and lower emissions, while the Kenya CSA Implementation Framework (KCSAIF) 2018–2027 (Ministry of Agriculture, Livestock and Fisheries, 2018) translates that strategy into implementation components, roles and reporting arrangements at national and county levels. The Kenya CSA M&E Framework (Ministry of Agriculture, Livestock, Fisheries and Cooperatives, 2021) was developed to track whether KCSAIF objectives, outcomes and outputs are being achieved and to support coordinated data collection, analysis and use. This architecture also connects agriculture-sector reporting to Kenya's wider climate commitments, including the National Adaptation Plan (NAP) 2015–2030 (Government of Kenya, 2016), the Nationally Determined Contribution (NDC 3.0) (Government of Kenya, 2025) and transparency arrangements under the Paris Agreement. The CSA M&E framework therefore has a strong national and county reporting orientation and is designed to inform implementation management, resource use and climate reporting in the agriculture sector.

NbS have gained increasing importance as a practical approach for addressing land degradation, biodiversity loss, climate risks, water insecurity, and declining ecosystem services. In Kenya's agricultural and biodiversity landscapes, NbS are particularly relevant because many rural livelihoods depend directly on forests, rangelands, wetlands, soils, water resources, and other natural systems. Supported by the Initiative for Climate Action Transparency, the Ministry of Agriculture and Livestock Development (MoALD) in collaboration with the Alliance of Bioversity International and CIAT and the UNEP Copenhagen Climate Centre have been co-developing a national NbS M&E framework (Ministry of Agriculture and Livestock Development & Alliance of Bioversity International and CIAT, 2026). Its formulation was informed by structured stakeholder engagement (Ndetu et al., 2026) and by field piloting in the Chyulu Hills landscape, which tested the practicality of the proposed indicators and data-collection arrangements (Binge et al., 2026). Its development responds to the need for a more systematic way to demonstrate the contribution of landscape and ecosystem interventions to national climate, biodiversity and restoration commitments. The framework is intended to provide clear metrics for tracking resilience, adaptation and mitigation benefits, strengthen national and county reporting capacity.

The CSA and NbS M&E frameworks are therefore complementary rather than interchangeable. CSA provides the agriculture-sector implementation and reporting architecture while NbS deepens the treatment of ecological condition, restoration, biodiversity and ecosystem services. Interventions such as agroforestry, conservation agriculture, integrated soil fertility management, watershed restoration and sustainable grazing can generate results relevant to both frameworks, but the significance and indicators attached to those results may differ. Integration must therefore identify common reporting needs while retaining framework-specific measures where they add distinct value. The two frameworks consequently sit within the same national implementation and reporting space but enter it from different starting points: CSA from agricultural transformation

under climate change, and NbS from ecosystem protection, sustainable management and restoration in response to societal challenges. Their integration is intended to improve coherence in monitoring and reporting without collapsing these distinct concepts into one framework.

This document is an integration process and technical reference report. It is intended primarily for MoALD and county-level agriculture and climate teams, CSART data providers, reviewers and administrators, and partner institutions involved in generating or using CSA and NbS evidence. It records the rationale, harmonization decisions and resulting reporting structure so that the integrated framework can be operationalized consistently, reviewed transparently and updated without losing traceability to the two source frameworks and ensuring operationalization within a common system. This integration is particularly important because the strong overlap between CSA and NbS interventions can otherwise result in fragmented evidence, duplicated data requests, and parallel reporting processes, limiting the ability of decision-makers to assess the combined contribution of interventions to climate resilience, agricultural development, biodiversity conservation, ecosystem restoration, and related national priorities.

1.2 Rationale for Integrating CSA and NbS Monitoring and Reporting Frameworks

A coherent M&E system is required to demonstrate progress, support accountability and guide planning and resource allocation. The CSA M&E Framework already provides an agriculture-sector mechanism for tracking KCSAIF results, while the NbS framework expands the evidence base to ecological, socio-economic and governance outcomes. Because many interventions contribute to both sets of outcomes, the value of the two frameworks depends on how efficiently their data requirements can be coordinated.

In practice, the same national and county institutions, extension services, community organizations and implementing partners may be asked to report on a single intervention for adaptation, mitigation, agricultural performance, biodiversity, restoration and livelihood purposes. A common reporting architecture allows information that is genuinely shared to be collected and validated once, while retaining additional fields where a framework has a distinct reporting need. Without this coordination, similar data may be requested through separate tools, indicators may use different definitions, and national reporting teams may have to reconcile overlapping results after data collection. The consequences are duplicated effort, reporting fatigue, inconsistent aggregation and reduced confidence in the evidence used for policy and investment decisions.

Integration therefore refers to harmonizing the monitoring architecture rather than merging CSA and NbS as concepts. The aim is a traceable system in which shared outcomes are reported consistently, distinct outcomes remain visible, and data can be reused across relevant national and international reporting processes. The objectives of the integration are therefore;

- **Reduce duplication and reporting burden**: Consolidating equivalent indicators and reporting fields limits repeated requests to counties, implementing partners and national institutions, especially where the same intervention contributes to both CSA and NbS outcomes.
- **Improve efficiency and data reuse**: A harmonized system supports collection, validation and storage of data in a form that can be used for more than one reporting purpose, improving aggregation, retrieval and analysis across reporting periods.
- **Strengthen policy and results coherence**: Integrated reporting makes the links between agricultural productivity, adaptation, mitigation, biodiversity, restoration, sustainable land management and livelihoods more visible without obscuring the distinct contribution of each framework.
- **Support national and international reporting:** A common evidence base can feed agriculture-sector performance

reporting, national climate planning and transparency processes, and biodiversity and restoration reporting, reducing the effort needed to reconcile parallel datasets.

Clarify institutional coordination and accountability: A shared reporting architecture helps define who provides, reviews, approves and uses data across national and county government, research, civil society, private-sector, development-partner and community actors.



Chapter 2: Methodology for Integration of CSA and NbS M&E Frameworks

2.1 Approach and Methodology

2.1.1 Methodological Approach and Rationale

The integration of the CSA and NbS monitoring and evaluation frameworks was undertaken through a participatory, technical, and iterative methodological approach. This approach was selected because the assignment required a structured process for comparing two related but distinct reporting frameworks and developing a harmonized reporting structure that could support more coherent tracking of climate, agriculture, biodiversity, and restoration outcomes.

The methodology was designed to respond to three practical requirements: preserving the technical integrity of both the CSA and NbS frameworks; reducing duplication by identifying indicators with similar meaning, focus, or reporting intent; and supporting the development of an Integrated Reporting Framework that improves data collection, aggregation, analysis, reporting, and use within national reporting systems. The integration process therefore applied a results-based and thematic review logic. Indicators were examined in relation to their source frameworks, corresponding outcomes and outputs, thematic focus, and expected reporting use. This helped ensure that the emerging Integrated Reporting Framework retained coherence across reporting levels while creating space for harmonized reporting across CSA and NbS priorities.

2.1.2 Data Sources and Expert Inputs

The integration process drew on the existing CSA and NbS M&E frameworks, associated indicator matrices, and working files developed during the integration process. These sources provided the core indicator lists, outcome and output structures, thematic areas, and reporting logic used for the technical review. Technical inputs were provided by representatives from various institutions, supporting the integration and tool-development process. Annex 2 summarizes the participating institutions involved in the process.

The CSA M&E framework provided the agriculture-sector climate reporting structure, including its outcomes, outputs, indicators, and implementation logic. The NbS framework provided the corresponding reporting structure for nature-based solutions, including indicators relevant to ecosystem restoration, biodiversity, sustainable land management, resilience, governance, and community-level benefits. Together, the two frameworks formed the technical basis for identifying areas of convergence, overlap, complementarity, and difference.

2.1.3 Stakeholder Consultations

Stakeholder input was gathered through two technical stakeholder consultations held during the integration process. These consultations provided the main participatory mechanism for reviewing the frameworks, discussing linkages, validating the emerging integration logic, and refining the proposed reporting structure.

The first technical stakeholder consultation was held from 16–18 March 2026 at Movenpick Hotel, Nairobi. The workshop brought together technical experts and key stakeholders to review the CSA M&E reporting tool and the NbS monitoring framework, identify linkages between CSA and NbS indicators and metrics, and provide recommendations for integrating the two reporting frameworks. The consultation included sessions on the overview of the CSA M&E Framework, the NbS Tool Framework, the steps for integrating CSA and NbS M&E, mapping of interlinkages between indicators, clustering of indicators into common themes, integration and standardization of indicators, and agreement on next steps.

The second technical stakeholder consultation

was held from 2–3 June 2026 at Ibis Styles Hotel, Nairobi. This follow-up engagement provided an opportunity to present amendments made during the integration process, review the emerging integrated reporting tool, refine the Integrated Reporting Framework, and support final revisions before submission.

Together, the consultations ensured that the integration process was informed by technical review, institutional perspectives, reporting needs, and practical considerations for implementation.

2.1.4 Analytical Process: Indicator Mapping and Harmonization

The analytical process focused on comparing, mapping, and harmonizing CSA and NbS indicators in a structured and traceable manner. The process began by consolidating indicators from both frameworks into a common working structure, with each indicator linked to its source framework and corresponding outcome and output.

CSA outcomes and outputs were used as the initial organizing architecture because the integrated system is intended to operate within the national agriculture-sector reporting environment and CSART. This was an organizational choice rather than a substantive prioritization of CSA over NbS. NbS indicators were mapped to the closest thematic area, and where they introduced ecological, biodiversity, restoration or community dimensions not adequately represented in CSA, those dimensions were retained or used to broaden the harmonized result statement.

Harmonization decisions were guided by five practical criteria: similarity of reporting intent; relevance to national and county reporting; feasibility of consistent measurement and aggregation; avoidance of double counting; and preservation of distinct information needed for CSA or NbS. Where convergence was weak or absent, indicators were not forced into a common statement. They were retained separately, repositioned under a more appropriate result area, or left outside the core integrated matrix where they served a different analytical function.

This distinction was particularly important for driver indicators in the initial NbS framework. Drivers such as land-use pressure, degradation processes or locally specific climate and livelihood pressures remain important for diagnosing why ecosystem and resilience outcomes are changing. However, they were not retained as core performance indicators in the national integrated results matrix because many are context-specific, difficult to attribute to implementation performance, and require landscape-specific baselines and interpretation. Their exclusion from the core matrix should therefore not be read as removing drivers from NbS assessment, they remain relevant for landscape diagnostics, baseline studies, contextual metadata and targeted monitoring that can inform interpretation of the national results indicators.

The analytical process also included the review of framework-specific terminology. Where appropriate, CSA- and NbS-specific references were generalized into broader language that could accommodate both frameworks. This supported the development of a more flexible integrated reporting structure while still retaining the conceptual foundations of CSA and NbS. The detailed stepwise process followed during indicator mapping and harmonization is presented in Section 2.2.

2.1.5 Validation and Quality Assurance

Validation and quality assurance were embedded throughout the integration process. The first layer of quality assurance was traceability. Each indicator was retained with a reference to its source framework, allowing the team to track whether it originated from the CSA framework or the NbS framework. This helped ensure that the integration process did not lose the source, meaning, or reporting intent of individual indicators.

The second layer was thematic consistency. Indicators were reviewed within their recommended thematic areas to ensure that related indicators were compared with similar reporting items. This

reduced the risk of harmonizing indicators that appeared similar in wording but served different reporting purposes.

The third layer was results chain coherence. Indicators were reviewed in relation to their outcomes and outputs to ensure that the integrated structure remained coherent across reporting levels. This was important for maintaining a logical relationship between output-level reporting and outcome-level analysis.

The fourth layer was stakeholder review. The two technical consultations provided opportunities for stakeholders to review the integration logic, comment on proposed alignments, assess the practicality of the emerging reporting structure, and recommend refinements. This supported both technical validation and institutional ownership.

Finally, the framework was progressively refined based on mapping results, thematic review, harmonization decisions, and stakeholder feedback. This iterative process helped move the integration from separate CSA and NbS indicator lists towards a coherent Integrated Reporting Framework that can support harmonized reporting, reduce duplication, and improve the usefulness of reporting outputs.

2.1.6 Digitization and Tool Configuration

Following the development and refinement of the integrated indicator matrix, the Integrated Reporting Framework was digitized and configured within the CSART reporting environment. This step translated the Integrated Reporting Framework from a technical matrix into a structured digital reporting tool that can support data entry, validation, aggregation, review, and reporting.

The detailed methodological steps followed in developing the integrated matrix are summarized below.

2.2. Stepwise Integration Process

The integration of the CSA and NbS M&E frameworks followed a structured nine-step process. The process was designed to move systematically from consolidation of the two source frameworks towards a harmonized and more flexible reporting structure. Each step built on the previous one, allowing the integration team to retain traceability to the original frameworks while progressively identifying areas of convergence, overlap, complementarity, and harmonization.



Step 1: Consolidation of CSA and NbS Indicators

The first step involved consolidating indicators from the CSA and NbS framework into a single working file. This provided a common basis for reviewing the two frameworks together rather than treating them as separate reporting systems.

Each indicator was mapped to its corresponding outcome or output, and a source column was added to indicate whether the indicator originated from the CSA framework or the NbS framework. This ensured that the source of each indicator remained visible throughout the integration process and that traceability was maintained.

The working file was structured hierarchically. Outcomes were listed first, followed by their respective outcome indicators. Outputs were then listed next, followed by their respective output indicators. This structure helped preserve the results chain logic of the original frameworks and provided a clear basis for later review and harmonization.

During consolidation, not every item from the source frameworks was carried into the core national indicator matrix. The initial NbS framework included driver indicators intended to help diagnose local pressures and conditions. These were retained conceptually as part of contextual assessment but were not treated as national performance indicators because drivers vary strongly by landscape, are not always attributable to programme implementation, and often require locally defined baselines and methods. Piloting of the NbS framework in the Chyulu Hills had already indicated that driver information is most usable at landscape level, where local baselines and interpretation are available (Binge et al., 2026). The integrated framework therefore focuses its core matrix on enabling conditions, implementation outputs and measurable outcomes, while allowing driver information to be captured through landscape diagnostics, baseline assessments or future contextual modules.

The drivers of degradation from the initial NbS framework were therefore retained, but their function within the reporting architecture was changed. Rather than being maintained as standalone national performance indicators, drivers such as land-use pressures, degradation processes, climate-related stresses and livelihood pressures were repositioned as a cross-cutting diagnostic reporting dimension within Outcome 3 of the integrated indicator matrix. Outcome 3 (Annex 1) covers climate resilience, soil health and degraded land rehabilitation, ecosystem conservation and restoration, watershed management, grazing systems and related natural resource management issues. The drivers field therefore complements output 3.1 on soil health and degraded land rehabilitation and Output 3.2 on ecosystem conservation, restoration and watershed management by capturing the underlying pressures that the reported interventions are intended to address.

This treatment reflects the different purposes of diagnostic indicators and performance indicators. Drivers are important for understanding why degradation or changes in ecosystem condition are occurring, but many are context- and landscape-specific, require locally defined baselines, and cannot readily be attributed to the performance of a particular intervention. The integrated framework is primarily designed for national reporting (of interventions) rather than data-collection system.

A	B	C
Source	**Outcome / Output**	**Indicator**
CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total amount of finances invested in CSA
		Indicator 1.2. Existence of functional CSA coordination mechanisms at the national and county levels
		Indicator 1.3. Presence of up-to-date CSA policies and strategies in place at both the national and county levels of governance
		Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels
		Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms
		Indicator 1.6. Number of institutions involved in CSA research
NbS	Outcome 1: Sustainable agricultural practices	Indicator 1.1. Percentage increase in average household income derived from sustainable agriculture and NbS-related enterprises
		Indicator 1.2. Total hectares of agricultural land demonstrating improved soil health and reduced degradation (such as increased soil organic matter, reduced soil erosion)
		Indicator 1.3. Percentage of farming households reporting improved food security and enhanced resilience to climate shocks (such as droughts) due to diversified systems
		Indicator 1.4. Percentage change in agricultural productivity (crop yield per hectare) for households utilizing integrated soil fertility management and local seed varieties

Figure 1: Initial consolidation of CSA and NbS indicators

The worksheet shows CSA and NbS indicators consolidated into a single structure, with each indicator mapped to its source framework and corresponding outcome or output.

Step 2: Addition of Recommended Thematic Area Mapping

The second step involved adding a "Recommended Thematic Area" column to support alignment between CSA and NbS indicators. This column provided a practical way of grouping indicators from both frameworks under common reporting areas.

CSA outcomes and outputs were used as the initial reference structure for thematic mapping. CSA indicators were mapped back to their corresponding CSA outcome or output. NbS indicators were then reviewed and mapped to the CSA outcome or output with which they were most closely aligned.

This step made it possible to compare indicators that were related in substance but located in different framework structures. It also provided the foundation for identifying where CSA and NbS reporting priorities converged around common themes such as institutional coordination, financing, policy, productivity, resilience, ecosystem restoration, biodiversity, and community-level benefits.

A	B	C	D
Source	**Outcome / Output**	**Indicator**	**Recommended Thematic Area**
CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total amount of finances invested in CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
		Indicator 1.2. Existence of functional CSA coordination mechanisms at the national and county levels	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
		Indicator 1.3. Presence of up-to-date CSA policies and strategies in place at both the national and county levels of governance	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
		Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
		Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
		Indicator 1.6. Number of institutions involved in CSA research	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
NbS	Outcome 1: Sustainable agricultural practices	Indicator 1.1. Percentage increase in average household income derived from sustainable agriculture and NbS-related enterprises	Outcome 2: Agricultural Productivity and Integration of Value Chain Approach Promoted
		Indicator 1.2. Total hectares of agricultural land demonstrating improved soil health and reduced degradation (such as increased soil organic matter, reduced soil erosion)	Outcome 3: Increased resilience with mitigation benefits
		Indicator 1.3. Percentage of farming households reporting improved food security and enhanced resilience to climate shocks (such as droughts) due to diversified systems	Outcome 3: Increased resilience with mitigation benefits
		Indicator 1.4. Percentage change in agricultural productivity (crop yield per hectare) for households utilizing integrated soil fertility management and local seed varieties	Outcome 2: Agricultural Productivity and Integration of Value Chain Approach Promoted

Figure 2: Recommended thematic area mapping for CSA and NbS indicators

The figure shows the addition of the "Recommended Thematic Area" column used to align CSA and NbS indicators under common thematic areas. CSA indicators were mapped back to their corresponding CSA outcomes or outputs, while NbS indicators were mapped to the CSA thematic areas with which they were most closely aligned.



Step 3: Reordering of Indicators by Thematic Area

After the recommended thematic areas had been assigned, the working file was reordered by thematic area. This ensured that indicators aligned to the same thematic area appeared together, regardless of whether they originated from the CSA framework or the NbS framework.

Reordering the indicators in this way made it easier to compare related indicators side by side. It also helped the integration team to identify where the two frameworks were addressing similar issues, where one framework provided additional detail, and where indicators appeared to have different wording but similar reporting intent.

Importantly, the reordering process preserved the overall outcome–output–indicator hierarchy. This ensured that the thematic review did not disconnect indicators from their original results chain location or weaken the logic linking outputs to outcomes.

	A	B	C	D
1	**Source**	**Outcome / Output**	**Indicator**	**Recommended Thematic Area**
2	CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total amount of finances invested in CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
3	CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.2. Existence of functional CSA coordination mechanisms at the national and county levels	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
4	CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.3. Presence of up-to-date CSA policies and strategies in place at both the national and county levels of governance	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
5	CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
6	CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
7	CSA	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.6. Number of institutions involved in CSA research	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
8	NbS	Outcome 4 : Enabling Environment for NbS Implementation	Indicator 4.2: Increased financial resources mobilized and invested in NbS implementation	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
9	NbS	Outcome 4 : Enabling Environment for NbS Implementation	Indicator 4.3: Functional and Coherent policy and legal frameworks supporting NbS implementation	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
10	NbS	Outcome 4 : Enabling Environment for NbS Implementation	Indicator 4.4: Effective and coordinated institutional arrangements for NbS implementation	Outcome 1: Institutional coordination of CSA policy and implementation strengthened
11	CSA	Output 1.1: Strengthened Inter-Ministerial and County Government Coordination	1.1.1. Number of joint CSA coordination forums	Output 1.1: Strengthened Inter-Ministerial and County Government Coordination

Figure 3: Indicators reordered by recommended thematic area

The figure shows the worksheet reordered by recommended thematic area so that related CSA and NbS indicators appear together under the same mapped outcome or output. This made it easier to compare indicators across frameworks while preserving the outcome-output-indicator structure.



Step 4: Streamlining of Worksheet Columns

The fourth step involved simplifying the working file to support focused thematic review. The worksheet was streamlined to retain only the fields required for the integration analysis.

The "Recommended Thematic Area" column was moved to the first position, the indicator column to the second position, and the source column to the third position. Other columns were removed from the working view during this stage.

This streamlined structure made the review process more manageable. It allowed the integration team to focus on the relationship between three core pieces of information: the thematic area under which an indicator had been placed, the indicator statement itself, and the source framework from which the indicator originated.

	A	B	C
1	**Recommended Thematic Area**	**Indicator**	**source**
2	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total amount of finances invested in CSA	csa
3		Indicator 1.2. Existence of functional CSA coordination mechanisms at the national and county levels	csa
4		Indicator 1.3. Presence of up-to-date CSA policies and strategies in place at both the national and county levels of governance	csa
5		Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels	csa
6		Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms	csa
7		Indicator 1.6. Number of institutions involved in CSA research	csa
8		Indicator 4.2: Increased financial resources mobilized and invested in NbS implementation	nbs
9		Indicator 4.3: Functional and Coherent policy and legal frameworks supporting NbS implementation	nbs
10		Indicator 4.4: Effective and coordinated institutional arrangements for NbS implementation	nbs
11	Output 1.1: Strengthened Inter-Ministerial and County Government Coordination	1.1.1. Number of joint CSA coordination forums	csa
12		1.1.2. Number of harmonized CSA policies	csa
13		1.1.3. Mainstreamed relevant National CSA policies (KCSAIF, KCSAS, NCCA/NCCAP or any other)	csa

Figure 4: Streamlined worksheet structure for thematic review

The figure shows the worksheet after the columns were reordered and simplified to retain only the fields required for thematic review: recommended thematic area, indicator, and source. This structure made it easier to review related indicators under each thematic area and trace each indicator back to its source framework.



Step 5: Identification of Related Indicators

The fifth step involved identifying related indicators within each recommended thematic area. Indicators were considered related where they shared a similar focus, meaning, or reporting intent.

This comparison was not based only on wording. Indicators were reviewed in terms of what they were trying to measure and how they contributed to reporting under their respective frameworks. For example, the CSA indicator on total finances invested in CSA and the NbS indicator on financial resources mobilized for NbS implementation were identified as related because both focused on financing for implementation.

Related indicators were color-coded to support visual comparison and prepare them for harmonization. This helped the integration team to distinguish between indicators that could potentially be merged, indicators that should remain separate, and indicators that required further technical review.

	A	B	C
1	**Recommended Thematic Area**	**Indicators**	**source**
2	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total amount of finances invested in CSA	csa
3		Indicator 1.2. Existence of functional CSA coordination mechanisms at the national and county levels	csa
4		Indicator 1.3. Presence of up-to-date CSA policies and strategies in place at both the national and county levels of governance	csa
5		Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels	csa
6		Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms	csa
7		Indicator 1.6. Number of institutions involved in CSA research	csa
8		Indicator 4.2: Increased financial resources mobilized and invested in NbS implementation	nbs
9		Indicator 4.3: Functional and Coherent policy and legal frameworks supporting NbS implementation	nbs
10		Indicator 4.4: Effective and coordinated institutional arrangements for NbS implementation	nbs
11	Output 1.1: Strengthened Inter-Ministerial and County Government Coordination	1.1.1. Number of joint CSA coordination forums	csa
12		1.1.2. Number of harmonized CSA policies	csa
13		1.1.3. Mainstreamed relevant National CSA policies (KCSAIF, KCSAS, NCCA/NCCAP or any other)	csa

Figure 5: Identification of related indicators within thematic areas

The figure shows related indicators identified within the same recommended thematic area. Indicators with similar focus, meaning, or reporting intent were color-coded using the same color to support comparison and prepare them for harmonization.

Step 6: Harmonization of Related Indicators

The sixth step involved harmonizing indicators that were related in focus, meaning, or reporting purpose. Where indicators from the CSA and NbS frameworks were found to be measuring similar issues, they were reviewed together and consolidated into common indicator statements where appropriate.

The purpose of harmonization was to reduce duplication while maintaining the reporting intent of the original indicators. For example, the CSA indicator on total finances invested in CSA and the NbS indicator on increased financial resources mobilized and invested in NbS implementation were harmonized into a combined indicator statement focused on total financial resources mobilized and invested.

Harmonization was applied carefully. Indicators were not merged simply because they appeared similar. Where indicators addressed different dimensions of a theme, or where merging them would reduce clarity, they were retained separately or positioned more appropriately within the emerging integrated structure.

	A	B	C
1	**Recommended Thematic Area**	**Initial Indicators**	**Revised Indicators**
2	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total amount of finances invested in CSA	Indicator 1.1. Total amount of finances mobilized and invested in CSA/NbS
3		Indicator 1.2. Existence of functional CSA coordination mechanisms at the national and county levels	Indicator 1.2. Existence of functional CSA/NbS coordination mechanisms at the national and county levels
4		Indicator 1.3. Presence of up-to-date CSA policies and strategies in place at both the national and county levels of governance	Indicator 1.3: Functional and Coherent policy and legal frameworks supporting CSA/NbS implementation
5		Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels	Indicator 1.4. Operational joint agricultural sector CSA programming and financing mechanism at national and county levels
6		Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms	Indicator 1.5. Existence of functional research-extension-farmer linkage mechanisms
7		Indicator 1.6. Number of institutions involved in CSA research	Indicator 1.6. Number of institutions involved in CSA research
8		Indicator 4.2: Increased financial resources mobilized and invested in NbS implementation	
9		Indicator 4.3: Functional and Coherent policy and legal frameworks supporting NbS implementation	
10		Indicator 4.4: Effective and coordinated institutional arrangements for NbS implementation	
11	Output 1.1: Strengthened Inter-Ministerial and County Government Coordination	1.1.1. Number of joint CSA coordination forums	Indicator 1.1.1. Number of joint national/county coordination forums addressing CSA/NbS.
12		1.1.2. Number of harmonized CSA policies	Indicator 1.1.2 Number of Interministerial/interdepartmental forums addressing CSA/NbS
13		1.1.3. Mainstreamed relevant National CSA policies (KCSAIF, KCSAS, NCCA/NCCAP or any other)	

Figure 6: Harmonization of related indicators

The figure shows the harmonization of related CSA and NbS indicators into revised indicator statements. Indicators with similar focus, meaning, or reporting intent were reviewed together and consolidated where appropriate to reduce duplication and support a common reporting structure.

Step 7: Generalization of Framework-Specific Terminology

The seventh step involved reviewing and generalizing framework-specific terminology. This was necessary because the emerging framework needed to accommodate both CSA and NbS reporting priorities without being limited to the language of either framework.

Where appropriate, references to CSA and NbS were replaced with broader terminology that could accommodate both frameworks and potentially future related frameworks. For example, the phrase "CSA/NbS" was replaced with broader language such as "climate and nature-positive interventions."

This step helped create a more flexible reporting structure. It allowed the Integrated Reporting Framework to remain grounded in CSA and NbS while also supporting a broader reporting lens that captures interventions contributing to climate resilience, sustainable agriculture, ecosystem restoration, biodiversity benefits, and improved livelihoods.

	A	B
1	**Recommended Thematic Area**	**Revised Indicators**
2	Outcome 1: Institutional coordination of CSA policy and implementation strengthened	Indicator 1.1. Total financial resources mobilized and invested in climate and nature positive interventions.
3		Indicator 1.2. Functional status of multi-stakeholder coordination mechanisms supporting climate- and nature-positive interventions at the national and county levels
4		Indicator 1.3: Operational Status of Coherent policy and legal frameworks supporting climate- and nature-positive interventions
5		Indicator 1.4. Operational status of integrated planning and financing mechanisms for climate- and nature-positive interventions at national and county levels
6		Indicator 1.5. Functional status of research, extension and farmer learning mechanisms supporting climate and nature positive interventions
7		Indicator 1.6. Number of institutions actively engaged in research, innovation, and knowledge management for climate and nature positive interventions
8	Output 1.1: Strengthened Inter-Ministerial and County Government Coordination	Indicator 1.1.1. Number of functional national and county coordination forums supporting climate- and nature-positive interventions.
9		Indicator 1.1.2 Number of functional inter-ministerial and interdepartmental coordination mechanisms supporting climate- and nature-positive interventions.

Figure 7: Generalization of framework-specific terminology

The figure shows the revision of harmonized indicators to remove framework-specific references such as CSA and NbS. These references were replaced with broader terminology, such as "climate and nature-positive interventions," to support an integrated reporting structure that can accommodate CSA, NbS, and future frameworks.

Step 8: Reframing of Thematic Areas

The final step involved reframing the thematic areas themselves. Outcomes and outputs that had been used as recommended thematic areas were rewritten using broader, framework-neutral language.

This was done to ensure that the integrated reporting structure could accommodate CSA, NbS, and related future frameworks without being constrained by framework-specific wording. For example, the outcome "Institutional coordination of CSA policy and implementation strengthened" was reframed as "Enabling environment for implementation and scaling of climate and nature-positive interventions strengthened." Similarly, the output "Enabling environment for CSA enhanced" was reframed as "Strengthened policy and regulatory frameworks supporting climate and nature-positive interventions."

This step marked the transition from alignment of two existing frameworks to the development of a more integrated reporting structure. By reframing thematic areas, the process created a foundation for harmonized outcomes, outputs, and indicators that can support reporting across climate, agriculture, biodiversity, restoration, and related national priorities.

	A	B
1	**Recommended Thematic Area**	**Revised Indicators**
2	Outcome 1: Enabling environment for implementation and scaling of climate and nature positive interventions strengthened	Indicator 1.1. Total financial resources mobilized and invested in climate and nature positive interventions.
3		Indicator 1.2. Functional status of multi-stakeholder coordination mechanisms supporting climate- and nature-positive interventions at the national and county levels
4		Indicator 1.3: Operational Status of Coherent policy and legal frameworks supporting climate- and nature-positive interventions
5		Indicator 1.4. Operational status of integrated planning and financing mechanisms for climate- and nature-positive interventions at national and county levels
6		Indicator 1.5. Functional status of research, extension and farmer learning mechanisms supporting climate and nature positive interventions
7		Indicator 1.6. Number of institutions actively engaged in research, innovation, and knowledge management for climate and nature positive interventions
8	Output 1.1: Strengthened multi-stakeholder coordination and partnerships	Indicator 1.1.1. Number of functional national and county coordination forums supporting climate- and nature-positive interventions.
9		Indicator 1.1.2 Number of functional inter-ministerial and interdepartmental coordination mechanisms supporting climate- and nature-positive interventions.

Figure 8: Generalization of framework-specific terminology

The figure shows the revision of harmonized indicators to remove framework-specific references such as CSA and NbS. These references were replaced with broader terminology, such as "climate and nature-positive interventions," to support an integrated reporting structure that can accommodate CSA, NbS, and future frameworks.



Step 9: Digitization and configuration of the integrated tool

Following the development and validation of the integrated indicator matrix, the harmonized CSA–NbS framework was digitized and configured within the CSART reporting environment. This involved translating the integrated results structure, indicators, and reporting logic into digital data form elements, reporting fields, option lists, typologies, disaggregation fields, validation rules, and conditional reporting logic.

Chapter 3: Results from the Integration Process

3.1 Overview of Results from the Integration Process

The integration process resulted in the development of a framework-agnostic reporting structure that brings together the CSA and NbS monitoring and evaluation frameworks under a broader climate and nature-positive results framework.

The initial CSA and NbS frameworks contained separate outcomes, outputs, and indicators. These were consolidated into a common working structure, mapped against recommended thematic areas, reviewed for convergence and overlap, and harmonized where indicators shared similar meaning, focus, or reporting intent. The final framework therefore reflects both the technical content of the original CSA and NbS frameworks and the harmonized reporting logic developed through the integration process.

In line with the agreed integration approach, the CSA outcomes and outputs were used as the primary thematic structure for organizing agricultural climate action reporting. NbS indicators were then reviewed based on how they aligned with, complemented, or expanded this CSA-derived structure. The final framework therefore does not introduce a separate thematic structure. Instead, it uses the harmonized outcome and output structure as the basis for integrated reporting.

1. The main result of the integration process is the Integrated Reporting Framework, organized around four harmonized outcome areas:
2. Enabling environment for implementation and scaling of climate and nature-positive interventions strengthened.
3. Adaptive capacity and competitiveness of agricultural value chains enhanced.
4. Climate resilience, ecosystem management, and mitigation actions enhanced.
5. Communication, knowledge management, and use of climate and nature-positive information strengthened.

These four outcomes provide the organizing structure for the final Integrated Reporting Framework. They show how the initial CSA and NbS indicators were reframed into a broader reporting structure that can track institutional strengthening, value chain transformation, ecosystem management, resilience, mitigation, knowledge management, climate information, and reporting.

3.2 Convergence of CSA and NbS within the Integrated Reporting Framework

The integration process confirmed that CSA and NbS are distinct but strongly complementary frameworks. To examine this convergence, indicators from both frameworks were grouped around common thematic areas such as coordination, finance, adaptive technologies, value chains, ecosystem restoration, resilience, mitigation, knowledge management, climate information, and early warning.

This thematic review was not intended to create a new thematic framework. Rather, it was used to determine how NbS indicators aligned with, complemented, or expanded the CSA outcome and output areas. The CSA outcomes and outputs were therefore adapted as the main thematic structure for the Integrated Reporting Framework.

The results showed that NbS indicators could be integrated within this CSA-derived structure while strengthening the framework's coverage of biodiversity, restoration, ecosystem management, and nature-positive livelihood outcomes.

Table 1: Summary of the convergence observed within the harmonized outcome areas.

Harmonized Outcome Area	How CSA Indicators Framed the Theme	How NbS Indicators Converged	Resulting Integration Logic
Outcome 1: Enabling environment for implementation and scaling of climate and nature-positive interventions strengthened	CSA indicators addressed coordination, policy, research-extension linkages, institutions, financing, and enabling systems for implementation.	NbS indicators aligned through governance, institutional coordination, resource mobilization, policy support, and community-level implementation arrangements.	NbS indicators were integrated under the enabling environment theme because they strengthened the institutional, policy, financing, and coordination dimensions of agricultural climate action.
Outcome 2: Adaptive capacity and competitiveness of agricultural value chains enhanced	CSA indicators addressed adaptive technologies, value chains, irrigation, market access, value addition, productivity, and competitiveness.	NbS indicators converged where ecosystem-based and nature-positive practices supported productivity, resilience, livelihoods, enterprises, and sustainable value chains.	The integration retained the agricultural value-chain focus while broadening it to capture climate and nature-positive products, practices, enterprises, and livelihood benefits.
Outcome 3: Climate resilience, ecosystem management, and mitigation actions enhanced	CSA indicators addressed resilience, mitigation, soil health, safety nets, climate risk management, GHG-related capacity, storage, feed systems, and value-chain adaptation.	NbS indicators strongly aligned through ecosystem restoration, watershed management, degraded land rehabilitation, biodiversity, soil and water conservation, sustainable grazing, and ecosystem services.	This became the strongest integration area, linking CSA's resilience and mitigation logic with NbS restoration, biodiversity, and ecosystem management indicators.
Outcome 4: Communication, knowledge management, and use of climate and nature-positive information strengthened	CSA indicators addressed knowledge products, communication, extension, agro-weather advisories, climate information, early warning, and contingency planning.	NbS indicators aligned through awareness, training, community knowledge, dissemination, monitoring, reporting, and learning on nature-positive interventions.	The integration broadened CSA communication and climate information systems to also capture NbS knowledge, learning, and reporting needs.

3.3 Harmonized Results Chain

The harmonized results chain is anchored in the CSA outcome and output structure, which provided the primary organizing framework for the integration process. It shows how enabling systems, implementation capacity, value chain transformation, resilience and ecosystem action, and knowledge use are connected within the Integrated Reporting Framework.

The logic should not be read as a separate theory of change developed outside the framework. Rather, it reflects the CSA results structure, adapted to incorporate relevant NbS outcome and output indicators where they aligned with or strengthened the existing framework. The CSA M&E framework follows the KCSAIF implementation logic and organizes reporting around four broad components: institutional coordination and an enabling policy environment; agricultural productivity and value-chain integration; resilience with mitigation co-benefits; and communication systems for CSA extension, climate information and agro-weather services. The integrated results chain retains this agriculture-sector backbone while incorporating NbS indicators that strengthen biodiversity, restoration, ecosystem management and nature-positive livelihood reporting. This approach retains the agriculture-sector climate action orientation of the CSA framework while broadening the reporting structure to better capture biodiversity, restoration, ecosystem management, and nature-positive livelihood outcomes.

Table 2: The results of harmonized result chain

Results Chain Stage	What the Stage Does	Main Elements	Why It Matters
1. Strengthening the enabling environment	Establishes the institutional, policy, financial, and technical conditions needed for implementation and scaling.	Coordination mechanisms, policy and regulatory support, financing arrangements, research systems, extension systems, and institutional partnerships.	Provides the foundation for coordinated and sustained implementation of climate and nature-positive interventions.
2. Supporting adaptive and competitive agricultural value chains	Links the enabling environment to practical implementation within agricultural production and market systems.	Adaptive technologies and practices, efficient irrigation, market access, value addition, climate and nature-positive products, and producer-level benefits.	Strengthens productivity, competitiveness, income opportunities, and adaptive capacity across agricultural value chains.
3. Advancing resilience, ecosystem management, and mitigation actions	Captures the landscape, livelihood, and climate outcomes expected from implementation.	Soil health, degraded land rehabilitation, ecosystem conservation and restoration, watershed management, safety nets, food and feed systems, adaptation–mitigation synergies, and GHG accounting capacity.	Strengthens climate resilience, ecosystem condition, mitigation benefits, and livelihood security.

Results Chain Stage	What the Stage Does	Main Elements	Why It Matters
4. Strengthening knowledge, communication, and information use	Supports learning, decision-making, preparedness, and reporting across the framework.	Knowledge products, dissemination, agro-weather advisories, climate information services, early warning systems, contingency plans, and preparedness systems.	Enables evidence-based decision-making, adaptive management, learning, reporting, and scaling.

3.4 Harmonized Outcomes and Outputs

The integration process produced a harmonized outcome and output structure organized around four outcome areas. These outcomes and outputs were reframed using broader climate and nature-positive language to ensure that the framework could accommodate CSA, NbS, and related future reporting needs.

Table 3: Results from harmonized outcomes and outputs

Harmonized Outcome	Harmonized Outputs
Outcome 1: Enabling environment for implementation and scaling of climate and nature-positive interventions strengthened	Output 1.1: Strengthened multi-stakeholder coordination and partnerships. Output 1.2: Strengthened research, innovation, and extension systems. Output 1.3: Strengthened policy and regulatory frameworks supporting climate and nature-positive interventions. Output 1.4: Strengthened financing, investment, and resource mobilization mechanisms.
Outcome 2: Adaptive capacity and competitiveness of agricultural value chains enhanced	Output 2.1: Improved access to and use of adaptive technologies and practices. Output 2.2: Efficient irrigation systems enhanced. Output 2.3: Competitiveness and market access for climate and nature-positive products enhanced. Output 2.4: New products developed and value addition of commodities enhanced.
Outcome 3: Climate resilience, ecosystem management, and mitigation actions enhanced	Output 3.1: Soil health improved and degraded lands rehabilitated. Output 3.2: Ecosystem conservation, restoration, and watershed management interventions improved. Output 3.3: Enhanced access to climate risk-related agricultural insurance and other safety nets. Output 3.4: Adaptation and mitigation synergies promoted across crop, livestock, and fisheries value chains. Output 3.5: Capacity for GHG accounting enhanced. Output 3.6: Improved food and feed storage and distribution.

Harmonized Outcome	Harmonized Outputs
Outcome 4: Communication, knowledge management, and use of climate and nature-positive information strengthened	Output 4.1: Knowledge on climate and nature-positive interventions developed. Output 4.2: Communication and dissemination of knowledge on climate and nature-positive interventions enhanced. Output 4.3: Access to climate information and agro-weather advisory services enhanced. Output 4.4: Early warning systems and contingency plans for climate change response strengthened.

3.5 Integrated Indicator Framework

The final integrated indicator framework provides the detailed reporting basis for the harmonized outcomes and outputs. It reflects the results of the indicator consolidation, thematic mapping, comparison, harmonization, and terminology reframing process.

The integrated indicators serve three main functions.

- **Reduce duplication**: Indicators with equivalent reporting intent are consolidated into common measures, such as the broader indicator on financial resources mobilized and invested in climate- and nature-positive interventions.
- **Preserve distinct reporting needs**: Indicators remain separate where they capture different dimensions of coordination, policy implementation, technology uptake, ecosystem restoration, climate risk management, knowledge dissemination or use of climate information.
- Where appropriate, framework-specific wording is replaced with broader climate- and nature-positive terminology so that a common reporting system can serve CSA, NbS and related interventions without erasing their different technical purposes.

Table 4: Results from integrated indicators

Harmonized Outcome Area	Main Indicator Focus
Outcome 1: Enabling environment	Coordination mechanisms, stakeholder participation, institutional partnerships, policy and regulatory frameworks, research and extension systems, innovations, financing, investment, and resource mobilization.
Outcome 2: Adaptive capacity and agricultural value chains	Adaptive technologies and practices, irrigation, productivity, market access, climate and nature-positive products, value addition, SMEs, household income, and value chain competitiveness.
Outcome 3: Climate resilience, ecosystem management, and mitigation	Soil health, degraded land rehabilitation, ecosystem restoration, watershed management, safety nets, insurance, mitigation actions, GHG accounting capacity, food and feed storage, grazing systems, forage, and strategic reserves.
Outcome 4: Communication, knowledge, and information use	Knowledge products, dissemination, training, climate information, agro-weather advisories, early warning systems, contingency plans, indigenous knowledge, and use of climate information by producers and communities.

The detailed integrated indicator matrix is presented in **Annex 1**.

3.6 Cross-Cutting Issues Reflected in the Integrated Reporting Framework

The harmonized outcomes and outputs remain the primary organizing structure of the Integrated Reporting Framework. Cross-cutting issues were therefore not developed as a separate thematic framework. Instead, they were identified by reviewing the harmonized outputs and indicators to determine which recurring implementation and reporting issues appear across the final framework.

Table 5: The main cross-cutting issues of the harmonized output areas

Cross-Cutting Issue	Harmonized Output Area(s) Where Captured	Interpretation
Institutional coordination and governance	Output 1.1: Strengthened multi-stakeholder coordination and partnerships; Output 1.3: Strengthened policy and regulatory frameworks supporting climate and nature-positive interventions; Output 3.2: Ecosystem conservation, restoration, and watershed management interventions improved.	Coordination and governance are central to implementation because climate and nature-positive interventions require collaboration across national and county institutions, technical agencies, communities, private sector actors, civil society, and development partners.

Cross-Cutting Issue	Harmonized Output Area(s) Where Captured	Interpretation
Policy and regulatory coherence	Output 1.3: Strengthened policy and regulatory frameworks supporting climate and nature-positive interventions.	Policy and regulatory coherence provides the formal enabling environment for mainstreaming, implementing, and scaling climate and nature-positive interventions within agricultural climate action.
Finance, investment, and resource mobilization	Output 1.4: Strengthened financing, investment, and resource mobilization mechanisms; Output 2.3: Competitiveness and market access for climate and nature-positive products enhanced; Output 2.4: New products developed and value addition of commodities enhanced; Output 3.2: Ecosystem conservation, restoration, and watershed management interventions improved; Output 3.3: Enhanced access to climate risk-related agricultural insurance and other safety nets.	Financing is a recurring requirement across the framework because implementation, scaling, value chain development, restoration, insurance, safety nets, and community-level action all depend on predictable and well-targeted resources.
Research, innovation, extension, and capacity strengthening	Output 1.2: Strengthened research, innovation, and extension systems; Output 2.1: Improved access to and use of adaptive technologies and practices; Output 4.1: Knowledge on climate and nature-positive interventions developed; Output 4.2: Communication and dissemination of knowledge on climate and nature-positive interventions enhanced.	Research, innovation, extension, and capacity strengthening connect knowledge generation to practical implementation. They support the development, dissemination, adoption, and scaling of technologies, practices, and approaches across the framework.
Adaptive capacity and value chain transformation	Output 2.1: Improved access to and use of adaptive technologies and practices; Output 2.2: Efficient irrigation systems enhanced; Output 2.3: Competitiveness and market access for climate and nature-positive products enhanced; Output 2.4: New products developed and value addition of commodities enhanced.	Adaptive capacity and value chain transformation capture how the framework links climate and nature-positive interventions to productivity, market access, value addition, competitiveness, income opportunities, and livelihood benefits.

Cross-Cutting Issue	Harmonized Output Area(s) Where Captured	Interpretation
Water, soil, land, and ecosystem management	Output 2.2: Efficient irrigation systems enhanced; Output 3.1: Soil health improved and degraded lands rehabilitated; Output 3.2: Ecosystem conservation, restoration, and watershed management interventions improved.	Water, soil, land, and ecosystem management form the natural resource base for agricultural climate action. These issues link agricultural productivity with restoration, biodiversity, ecosystem services, watershed management, and sustainable land management.
Climate risk management and resilience	Output 2.1: Improved access to and use of adaptive technologies and practices; Output 3.3: Enhanced access to climate risk-related agricultural insurance and other safety nets; Output 3.6: Improved food and feed storage and distribution; Output 4.3: Access to climate information and agro-weather advisory services enhanced; Output 4.4: Early warning systems and contingency plans for climate change response strengthened.	Climate risk management cuts across adaptive technologies, safety nets, food and feed systems, climate information, early warning, and contingency planning. It reflects the framework's focus on reducing vulnerability and strengthening preparedness.
Adaptation, mitigation, and carbon-related reporting	Output 3.4: Adaptation and mitigation synergies promoted across crop, livestock, and fisheries value chains; Output 3.5: Capacity for GHG accounting enhanced.	This issue captures the need to report not only on adaptation and resilience, but also on mitigation benefits, GHG accounting capacity, carbon-related outcomes, and the climate performance of land-based interventions.
Knowledge, communication, and information use	Output 4.1: Knowledge on climate and nature-positive interventions developed; Output 4.2: Communication and dissemination of knowledge on climate and nature-positive interventions enhanced; Output 4.3: Access to climate information and agro-weather advisory services enhanced; Output 4.4: Early warning systems and contingency plans for climate change response strengthened.	Knowledge, communication, and information use support learning, decision-making, adaptive management, dissemination, climate services, and practical uptake of climate and nature-positive interventions.

Cross-Cutting Issue	Harmonized Output Area(s) Where Captured	Interpretation
Community participation and local implementation	Output 1.1: Strengthened multi-stakeholder coordination and partnerships; Output 3.2: Ecosystem conservation, restoration, and watershed management interventions improved; Output 3.3: Enhanced access to climate risk-related agricultural insurance and other safety nets; Output 4.2: Communication and dissemination of knowledge on climate and nature-positive interventions enhanced; Output 4.4: Early warning systems and contingency plans for climate change response strengthened.	Community participation and local implementation are recurring issues because many interventions depend on producer groups, community institutions, local governance structures, and local actors involved in restoration, risk management, dissemination, and preparedness.

3.7 Alignment with National and International Reporting Frameworks

The Integrated Reporting Framework is designed as an agriculture-sector evidence platform that can feed several connected policy and reporting processes rather than create a new reporting obligation. At national level, its main users include the Ministry of Agriculture and Livestock Development and county agriculture and climate teams for KCSAS/KCSAIF implementation and sector performance; the national climate-change authorities for NDC, NAP and Biennial Transparency Report (BTR) processes; and institutions responsible for biodiversity, forests, restoration and natural-resource management where agriculture-sector interventions contribute relevant evidence. Internationally, the same data can support transparency and adaptation reporting under the Paris Agreement and contribute evidence relevant to biodiversity, land-restoration and sustainable-development commitments. The table below summarizes these linkages and the principal institutional users of the information.

Table 6: Reporting Frameworks supported by the integrated tool

Reporting Area	How the Integrated Reporting Framework Supports Alignment
Climate action reporting (International and national)	Supports national climate action monitoring and reporting by generating evidence on adaptation and resilience, mitigation co-benefits, finance, enabling conditions, institutional coordination, and implementation progress, with inputs generated by agriculture-sector institutions and county governments feeding into national climate reporting processes. This evidence can inform Kenya's international reporting and transparency obligations under the Paris Agreement, including tracking progress towards the NDC and preparation of Biennial Transparency Reports (BTRs) under the United Nations Framework Convention on Climate Change (UNFCCC).

Reporting Area	How the Integrated Reporting Framework Supports Alignment
Agriculture-sector reporting (National)	Retains a strong focus on productivity, value chains, adaptive technologies, irrigation, extension, market access, storage, strategic reserves, and producer-level benefits. The framework can contribute to implementation and review of the KCSAS and KCSAIF, while also generating data relevant to routine and periodic national agriculture reporting, including the National Agriculture Production Report, national and county statistical reporting. Primary users include MoALD, county agriculture departments,. Kenya National Bureau of Statistics (KNBS) and research and extension institutions
Biodiversity and restoration reporting (International)	Provides a coherent agriculture-sector evidence base relevant to adaptation and transparency reporting under the Paris Agreement, including inputs to BTRs, while also generating results that may contribute to reporting under the Convention on Biological Diversity (CBD) and National Biodiversity Strategy and Action Plan (NBSAP), the United Nations Convention to Combat Desertification (UNCCD) and land restoration commitments. Institutional use should follow the mandates and formal reporting channels of the responsible national authorities .



Chapter 4: Recommendations for Functionality and Operationalization of the Integrated Tool

This chapter presents recommendations for strengthening the functionality and operationalization of the Integrated Reporting Tool. The recommendations build on the harmonization of the CSA and NbS M&E frameworks, the development of the integrated indicator matrix, and the digitization of the framework within the CSART reporting environment.

Recommendations are organized around four areas: institutional arrangements; reporting and data management; capacity development; and sustainability and continuous improvement.

4.1 Institutional Recommendations

Effective operationalization of the Integrated Reporting Tool will require clear institutional ownership, coordination, and accountability arrangements. Because the tool brings together reporting requirements from climate-smart agriculture and nature-based solutions, its implementation should be anchored within an institutional arrangement that can coordinate across agriculture, climate change, biodiversity, restoration, resilience, and county-level implementation actors.

4.1.1 Clarify institutional ownership and coordination arrangements

A lead institution should be clearly designated to coordinate the operationalization of the Integrated Reporting Tool. This institution should provide strategic oversight, convene relevant technical actors, manage reporting timelines, and ensure that the tool remains aligned with national reporting priorities.

At the same time, the tool should not be managed as the responsibility of one institution alone. Its integrated nature requires coordination between institutions responsible for agriculture, climate change, biodiversity, land restoration, natural resource management, and subnational implementation. A formal coordination arrangement should therefore be established to guide implementation, review progress, resolve operational issues, and support institutional ownership. This arrangement should take account of the existing distribution of NbS-related mandates and reporting responsibilities across sectors (Ndetu & Jalango, 2026).

The coordination arrangement should define how participating institutions contribute data, review submissions, validate outputs, and use the information generated by the tool. This will help ensure that the tool functions as a shared reporting mechanism rather than as a standalone digital platform.

4.1.2 Define user roles and reporting responsibilities

User roles within the tool should be clearly defined and formally documented. At minimum, the tool should distinguish between system administrators, data entry users, reporting institutions, technical reviewers, approvers, and users of dashboards or reporting outputs.

Data providers should be responsible for entering data for their assigned indicators, administrative units, reporting periods, and institutional mandates. Reviewers should be responsible for checking completeness, consistency, and plausibility of submitted data. Approvers should provide final validation before data is aggregated or used for official reporting. Administrators should manage users, reporting cycles, data form configuration, access rights, and system maintenance.

Clear role definition will reduce confusion, improve accountability, and strengthen data quality assurance. It will also help ensure that each actor understands their responsibility within the reporting workflow, from data entry to validation, approval, aggregation, and use.

4.1.3 Strengthen national–county reporting coordination

The tool should support structured coordination between national and county-level reporting actors. Many CSA and NbS interventions are implemented at county, landscape, community, or project level, while reporting and aggregation often take place at national level. For this reason, the reporting workflow should clearly define how data moves from local and county actors to national review and reporting processes.

Guidance should be provided on the reporting units, administrative levels, reporting periods, and institutional responsibilities applicable to each indicator. This is particularly important for indicators that may be reported by multiple actors or across several geographic areas. Clear guidance will reduce double counting and improve consistency across administrative units.

National institutions should also provide technical backstopping to county-level users, especially during the initial reporting cycles. This will help build confidence in the tool and support the gradual institutionalization of integrated CSA–NbS reporting.

4.1.4 Establish governance arrangements for tool updates and indicator changes

A formal governance mechanism should be established for managing future changes to the tool. This should include changes to indicators, results statements, data form elements, option lists, validation rules, conditional fields, dashboards, and reporting outputs.

Uncontrolled changes to the tool could affect data comparability across reporting periods and weaken confidence in the reporting system. For this reason, updates should follow a documented review and approval process. Proposed changes should be assessed for technical relevance, reporting implications, compatibility with existing data, and alignment with the harmonized CSA–NbS framework.

A change log should also be maintained to document what was changed, why it was changed, when it was changed, and who approved the change. This will support transparency, version control, and long-term continuity of the integrated reporting system.

4.2 Reporting and Data Management Recommendations

The functionality of the Integrated Reporting Tool will depend heavily on the quality and consistency of its reporting and data management arrangements. The digitization process showed that harmonized indicators must be supported by clear reporting fields, controlled option lists, disaggregation structures, validation rules, and aggregation logic.

4.2.1 Use structured data form elements and controlled typologies

The tool should prioritize structured data capture over open-ended reporting wherever possible. Controlled typologies and option lists should be used for recurring categories such as stakeholder type, value chain, season, market scope, species group, agricultural safety net service type, conservation intervention type, water intervention type, soil conservation structure type, and financing source.

Structured data form elements will improve consistency, reduce variations in wording, and support automated aggregation and analysis. They will also make it easier to compare results across counties, institutions, value chains, ecosystems, and reporting periods.

Where open-ended responses are necessary, they should be limited to "Other specified" fields and linked to a corresponding controlled option. This will preserve flexibility while still maintaining the integrity of the structured reporting system.

4.2.2 Strengthen validation, review, and approval workflows

Data validation and review workflows should be strengthened to ensure that submitted data is complete, accurate, and consistent with the intended indicator logic. Numeric fields should include appropriate validation rules, such as non-negative values for counts, areas, lengths, volumes, percentages, and financial amounts.

Required fields, conditional fields, and "Other specified" fields should be configured consistently. For example, if a user selects an option such as "Other specified stakeholder type" or "Other specified intervention type," the tool should require the user to specify the other category before submission. Similarly, where an indicator requires disaggregation by value chain, stakeholder type, season, or intervention category, the relevant follow-up fields should appear only when applicable.

A clear review and approval workflow should also be established. Submitted data should be reviewed by designated technical reviewers before it is approved for aggregation and reporting. Reviewers should check completeness, plausibility, consistency across related indicators, and alignment with supporting evidence where applicable.

4.2.3 Improve aggregation, dashboards, and reporting outputs

The tool should support reporting outputs that are useful for both implementation monitoring and institutional reporting. These outputs may include indicator-level reports, county-level summaries, national aggregation views, and dashboards for decision-making.

Aggregation logic should be clearly defined for each indicator. Some indicators may aggregate through simple summation, while others may require percentages, status categories, disaggregation, or interpretation based on supporting output indicators. For indicators that are disaggregated by value chain, stakeholder type, season, sex, or intervention type, the tool should preserve the disaggregated data while also allowing meaningful summaries.

Dashboards and reports should be aligned with the harmonized results chain. This will help ensure that data collected through the tool can be used to track progress against outcomes and outputs, identify implementation gaps, support coordination, and inform national reporting.

4.2.4 Maintain metadata and version control

The tool should maintain clear metadata for indicators, data form elements, typologies, option lists, validation rules, and reporting outputs. Each indicator should retain information on its result level, result code, indicator code, indicator statement, unit of measure, reporting logic, source framework, and applicable disaggregation categories.

Version control should also be maintained. As the framework evolves, changes to indicators, typologies, option lists, or reporting fields should be documented and approved through a controlled process. This will help protect data comparability across reporting periods and prevent confusion among users.

A version history should be maintained for the integrated indicator matrix and the digitized tool configuration. This will make it easier to track changes, explain revisions, and support future updates to the reporting system.

4.3 Capacity Development Recommendations

Successful operationalization of the Integrated Reporting Tool will require targeted capacity development for all categories of users. Since the tool combines harmonized indicators, structured data forms, typologies, validation rules, and reporting workflows, training should cover both the technical use of CSART and the reporting logic behind the Integrated Reporting Framework.

4.3.1 Train users on the Integrated Reporting Framework and reporting logic

Data providers and reporting institutions should be trained on the integrated CSA–NbS framework before they are expected to report through the tool. This training should explain the purpose of the Integrated Reporting Framework, the relationship between outcomes, outputs, indicators, and data form elements, and the meaning of key reporting fields.

Training should also cover the correct use of disaggregation categories, controlled typologies, reporting periods, administrative units, and supporting evidence. Users should understand how to report values accurately and how to avoid double counting, especially where multiple institutions, counties, value chains, or intervention types are involved.

This will help ensure that users do not treat the tool as a simple data-entry platform, but understand the reporting logic behind the information they are submitting.

4.3.2 Build reviewer and administrator capacity

Technical reviewers and system administrators should receive specialized training. Reviewers should be trained to assess completeness, consistency, and alignment with indicator definitions. They should also understand how conditional fields, disaggregation structures, validation rules, and typologies affect the interpretation of submitted data.

System administrators should be trained on tool configuration and maintenance. This should include user management, role assignment, reporting period setup, data form configuration, option list management, validation rules, conditional logic, dashboard support, and troubleshooting.

Building reviewer and administrator capacity will be essential for maintaining the quality and reliability of the tool over time. It will also reduce dependence on external technical support for routine configuration and management tasks.

4.3.3 Develop user guides, protocols, and reference materials

Practical guidance materials should be developed to support consistent use of the tool. These may include a user manual, administrator guide, reporting protocol, indicator reference guide, typology reference sheets, data quality checklist, and frequently asked questions.

The reporting protocol should explain who reports, when reporting takes place, what evidence is required, how submissions are reviewed, and how approved data is used. The indicator reference guide should explain each indicator, its unit of measure, reporting logic, disaggregation requirements, and any special instructions.

These materials should be written in clear and practical language. They should also be updated whenever the framework, tool configuration, or reporting process changes.

4.3.4 Establish user support and feedback mechanisms

A user support mechanism should be established to assist reporting institutions, county users, reviewers, and administrators. This may include designated focal points, a helpdesk function, issue-tracking procedures, periodic refresher sessions, and structured channels for user feedback.

User support will be especially important during the first reporting cycles, when users are still becoming familiar with the Integrated Reporting

Framework and digitized tool. Common issues, frequently asked questions, and recurring errors should be documented and used to improve training materials and tool configuration.

Feedback from users should also inform continuous improvement. Users are likely to identify practical issues related to field wording, typologies, conditional logic, reporting burden, validation rules, and dashboard usefulness. A structured feedback mechanism will help ensure that these issues are captured and addressed systematically.

4.4 Sustainability and Continuous Improvement

The Integrated Reporting Tool should be treated as a living reporting system that requires ongoing maintenance, institutional support, and periodic improvement. Its sustainability will depend on both technical arrangements and institutional commitment.

4.4.1 Ensure long-term hosting, maintenance, and technical support

Long-term hosting, maintenance, and technical support arrangements should be clarified. This includes reliable system hosting, secure access management, data backup procedures, user account management, system monitoring, and troubleshooting support.

The responsible institution or technical team should be clearly identified, and adequate resources should be allocated for maintaining the tool. Without clear maintenance arrangements, the tool may become difficult to use, outdated, or unreliable over time.

Technical support should also include procedures for resolving system issues, managing user access, backing up data, and protecting the integrity of submitted information. These arrangements should be documented and reviewed periodically.

4.4.2 Institutionalize periodic review of indicators and typologies

The Integrated Reporting Framework should be reviewed periodically to ensure that it remains relevant and useful. Indicators, data form elements, typologies, option lists, validation rules, and dashboards may need to be updated as national reporting priorities evolve, new CSA or NbS interventions are introduced, or implementation experience reveals gaps in the reporting structure.

Periodic review should not mean frequent uncontrolled changes. Instead, reviews should follow a planned process with clear criteria, technical review, institutional consultation, and approval. This will help balance flexibility with the need for consistency across reporting periods.

Typologies should receive particular attention because they determine how data is classified and aggregated. As new practices, technologies, intervention types, or reporting needs emerge, option lists may need to be updated while preserving comparability with previous data.

4.4.3 Link tool outputs to planning, reporting, and decision-making

The value of the tool will depend on how its outputs are used. The tool should not function only as a data-entry platform. Its reports and dashboards should inform planning, budgeting, implementation review, coordination, and national reporting.

Reporting outputs should therefore be designed with users and decision-makers in mind. National institutions may require aggregated outcome and output summaries, while county actors may need implementation-level reports that show progress, gaps, and priorities. Technical teams may need disaggregated data to understand performance across value chains, ecosystems, stakeholder groups, and intervention types.

Linking the tool to decision-making processes will also encourage institutions to submit timely and accurate data. When users see that reported data is being used for planning, coordination, and resource allocation, the reporting system becomes more valuable and credible.

4.4.4 Establish continuous improvement and feedback loops

A continuous improvement mechanism should be established to ensure that lessons from implementation are used to improve the tool over time. Users, reviewers, administrators, and decision-makers should be able to provide feedback on the usability of forms, clarity of indicators, relevance of typologies, functionality of dashboards, and challenges experienced during reporting.

This feedback should be reviewed periodically and translated into practical improvements. These may include refining field descriptions, adjusting validation rules, improving dashboards, updating user guidance, adding missing typology options, or simplifying reporting workflows.

Continuous improvement should be managed through the same governance mechanism used for tool updates. This will ensure that improvements are documented, approved, and implemented in a way that protects the integrity and comparability of the reporting system.

Overall, sustainability will require institutional ownership, adequate resourcing, technical maintenance, user capacity, and a clear process for learning and adaptation. These elements will help ensure that the Integrated Reporting Tool remains functional, credible, and useful beyond the initial configuration phase.



Conclusion

The integration confirms that CSA and NbS are complementary but distinct approaches. CSA contributes an established agriculture-sector results and reporting architecture, while NbS expands the evidence base for biodiversity, ecosystem restoration, watershed and land management, community participation and nature-positive livelihood outcomes. The value of integration lies in connecting these reporting needs without treating the two approaches as interchangeable. Using the CSA results chain as an operational anchor, the process mapped and compared NbS indicators, harmonized genuinely overlapping measures, retained distinct indicators where necessary, and generalized terminology only where this did not weaken reporting intent.

Driver indicators from the NbS framework were treated as contextual diagnostic information rather than core national performance measures, while remaining relevant for landscape baselines and interpretation. The resulting four-outcome framework provides a common structure for tracking enabling conditions, adaptive and competitive value chains, resilience and ecosystem management, mitigation-related results, and knowledge and information use. Its configuration in CSART converts this structure into practical data fields, validation rules, typologies and reporting workflows that can support consistent national and county reporting.

The framework's contribution will ultimately depend on institutionalization rather than digitization alone. Clear ownership, defined data-provider and review roles, national-county coordination, capacity development, reliable hosting, controlled updates and routine use of outputs for planning and reporting are necessary to sustain data quality and user confidence. When these conditions are in place, the integrated framework can reduce reporting burden, improve traceability and reuse of evidence, and provide a clearer account of how agriculture and landscape interventions contribute to productivity, climate resilience, biodiversity, restoration, mitigation and sustainable livelihoods.

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Annex 1: Full Integrated Indicator Matrix

Results level	Result Code	Result Statement	Indicator Code	Indicator
Outcome	1	Enabling environment for implementation and scaling of climate and nature-positive interventions strengthened	1.1	Total financial resources mobilized and invested in climate and nature-positive interventions.
			1.2	Functional status of multi-stakeholder coordination mechanisms supporting climate and nature-positive interventions at the national and county levels
			1.3	Operational status of Coherent policy and legal frameworks supporting climate and nature-positive interventions
			1.4	Operational status of integrated planning and financing mechanisms for climate and nature-positive interventions at national and county levels
			1.5	Functional status of research, extension and farmer learning mechanisms supporting climate and nature-positive interventions
			1.6	Number of institutions actively engaged in research, innovation, and knowledge management for climate and nature-positive interventions
Output	1.1	Strengthened multi-stakeholder coordination and partnerships	1.1.1	Number of functional national and county coordination forums supporting climate and nature-positive interventions.
			1.1.2	Number of functional inter-ministerial and interdepartmental coordination mechanisms supporting climate and nature-positive interventions.
			1.1.3	Number of joint national and county government coordination and partnership forums established and/or convened to support climate and nature-positive interventions
			1.1.4	Number of stakeholders participating in coordination and partnership forums, disaggregated by affiliation
			1.1.5	Number of joint programmes, projects, or initiatives implemented through multi-stakeholder partnerships for climate and nature-positive interventions

Results level	Result Code	Result Statement	Indicator Code	Indicator
Output	1.2	Strengthened research, innovation, and extension systems	1.2.1	Number of farmer–research–extension learning and knowledge-sharing forums conducted to support climate and nature-positive interventions
			1.2.2	Number of organizations participating in farmer–research–extension learning and innovation platforms
			1.2.3	Number of climate and nature-positive technologies, practices, or innovations developed through research and extension systems
			1.2.4	Number of specialists trained and engaged in the design and implementation, and monitoring of climate and nature-positive approaches and practices
Output	1.3	Strengthened policy and regulatory frameworks supporting climate and nature-positive interventions	1.3.1	Number of national and county policies, strategies, guidelines, and regulatory instruments developed or revised to integrate climate and nature-positive solutions
			1.3.2	Number of counties that have adopted/ domesticated climate and nature-positive policies, strategies, guidelines, or regulatory instruments
			1.3.3	Number of policy briefs jointly developed to inform climate and nature-positive policy and regulatory processes
			1.3.4	Number of functional community governance structures established to support planning, implementation, and oversight of climate and nature-positive interventions
Output	1.4	Strengthened financing, investment, and resource mobilization mechanisms	1.4.1	Total budget allocated to climate and nature-positive interventions at national and county levels
			1.4.2	Total financial resources disbursed for climate and nature-positive interventions, disaggregated by funding source
			1.4.3	Number of financial products developed and accessed to support climate and nature-positive interventions
			1.4.4	Proportion of financing reaching local communities and producer organizations for implementation of climate and nature-positive interventions

Results level	Result Code	Result Statement	Indicator Code	Indicator
Outcome	2	Adaptive capacity and competitiveness of agricultural value chains enhanced	2.1	Percentage change in agricultural productivity (crop yield per hectare)
			2.2	Value chains with comparative advantage along agro-ecological zones
			2.3	Proportion of area under efficient irrigation systems
			2.4	Proportion of SMEs using green technologies for climate and nature-positive value addition, by value chain
			2.5	Quantity of climate and nature-positive products exported
			2.6	Percentage increase in average household income derived from sustainable agriculture and climate and nature-positive enterprises
			2.7	Percentage of farming households reporting improved food security and enhanced resilience to climate shocks due to diversified systems
			2.8	Number of appropriate efficient irrigation technological packages developed
			2.9	Number of water users associations using efficient irrigation systems
Output	2.1	Improved access to and use of adaptive technologies (TIMPs)	2.1.1	Number of climate and nature-positive adaptive technologies, innovations and management practices (TIMPs) in use along value chains (crops, livestock, fisheries)
			2.1.2	Number of climate and nature-positive products under a certification system
			2.1.3	Number of value chain actors, including households and experts, adopting climate-resilient technologies and practices
			2.1.4	Number of adaptive crop (food and forage) varieties cultivated by season
			2.1.5	Number of operational community-managed indigenous crops seedbanks
			2.1.6	Number of adaptive livestock breeds kept
			2.1.7	Area under adaptive crop (food and feed) varieties
			2.1.8	Number of households using climate and nature-positive pest management practices
Output	2.2.	Efficient irrigation systems enhanced	2.2.1	Area under efficient irrigation systems (by value chains)
			2.2.2	Number of producers undertaking efficient irrigated agriculture (food and feed)
			2.2.3	Number of appropriate efficient irrigation technological packages developed

Results level	Result Code	Result Statement	Indicator Code	Indicator
Output	2.3	Competitiveness and market access for climate and nature-positive products enhanced	2.3.1	Volumes of marketed climate and nature-positive commodities, by market scope (local and export)
			2.3.2	Number of market outlets trading in climate and nature-positive commodities
			2.3.3	Number of actors trading in climate and nature-positive commodities, by market scope (local and export)
			2.3.4	Volume of climate and nature-positive products undergoing formal grading, standardization, and certification
			2.3.5	Number of actors participating in traceability mechanisms for climate and nature-positive products
			2.3.6	Number of value chain actors using grading and standardization systems
			2.3.7	Household income generated from climate and nature-positive enterprises
Output	2.4	New products developed and value addition of commodities enhanced	2.4.1	Number of households with storage and preservation facilities for post harvest products.
			2.4.2	Number of enterprises (SMEs and community-driven) operating with green and climate and nature-positive technologies
			2.4.3	Number of new jobs generated from climate and nature-positive activities
			2.4.4	Number of households practicing value addition
Outcome	3	Climate resilience, ecosystem management, and mitigation actions enhanced	3.1	Proportion of GHG emissions sequestered or abated from agricultural systems
			3.1	Proportion of land under climate-resilient soil fertility and water management practices
			3.1	Proportion of individual ecosystems with management plans
			3.1	Proportion of land (rangelands, forestry, and protected areas) restored and protected sustainably
			3.1	Volume of Water Harvested and Stored for Agricultural Use
			3.1	Percentage change in vegetation cover on agricultural land and protected areas.
			3.1	Species population abundance
			3.1	Proportion of farmers or pastoralists adopting climate-resilient technologies, innovations, and management practices

Results level	Result Code	Result Statement	Indicator Code	Indicator
Output	3.1	Soil health improved, and degraded lands rehabilitated	3.1.1	Number of farming households adopting sustainable soil fertility and water management practices (disaggregated by gender)
			3.1.2	Area of agricultural land under sustainable soil fertility and water management practices
			3.1.3	Number of actors providing integrated soil and water management services
			3.1.4	Area of degraded land rehabilitated/restored (agricultural land, mining sites, riparian zones, wildlife corridors, forestry, rangelands)
			3.1.5	Number of households using organic fertilizers
			3.1.6	Annual volumes of organic inputs used
			3.1.7	Number of interventions implemented to prevent, mitigate, or restore mining-related land degradation (disaggregated by intervention type)
			3.1.8	Number of degraded mining sites rehabilitated.
Output	3.2	Ecosystem conservation, restoration, and watershed management interventions improved	3.2.1	Area under sustainable natural resource management, conservation, and restoration practices
			3.2.2	Number of sustainable water conservation and water harvesting interventions implemented (disaggregated by type)
			3.2.3	Number of ecosystem, watershed, and soil conservation interventions implemented (disaggregated by type)
			3.2.4	Number of stakeholders adopting or participating in ecosystem conservation and landscape management initiatives (disaggregated by stakeholder type)
			3.2.5	Number of farming households implementing sustainable water conservation and water harvesting interventions (disaggregated by type)
			3.2.6	Number of Protected Breeding Sites in Agricultural Ecosystems
			3.2.7	Number of Non-Traditional Livelihood Opportunities Linked to Integrated Watershed Management
			3.2.8	Number of species varieties identified in agroforestry and ecosystem management systems (e.g., birds, native animals, trees and plants)
			3.2.9	Length of Soil Conservation Structures (terraces, bunds, and check dams)
			3.2.10	Number of fire-prone areas mapped for targeted interventions

Results level	Result Code	Result Statement	Indicator Code	Indicator
Output	3.3	Enhanced Access to climate risk related agricultural insurance and other safety nets	3.3.1	Types of Agricultural Safety Nets Services
			3.3.2	Types of Index-Based Insurance Products
			3.3.3	Number of Value Chain Actors Using Index-Based Insurance Services
			3.3.4	Number of Value Chain Actors Accessing Other Safety Nets Services
			3.3.5	Number of Stakeholders Providing Index-Based Insurance
			3.3.6	Number of Households Accessing Safety Nets Services (by type)
Output	3.4	Adaptation and mitigation synergies promoted across crop, livestock, and fisheries value chains	3.4.1	Type of Adaptation Initiatives with High Potential for Mitigation, by Value Chains
			3.4.2	Number of Value Chain Actors Using Adaptive Technologies that Minimize GHG Emission and Enhance Carbon Sequestration
Output	3.5	Capacity for GHG accounting enhanced	3.5.1	Number of institutions with MRV systems to support GHG and soil carbon stock accounting
			3.5.2	Number of value chain actors using adaptive technologies that minimize GHG emissions and enhance carbon sequestration
			3.5.3	Number of GHG emission inventory reports (by value chain)

Results level	Result Code	Result Statement	Indicator Code	Indicator
Output	3.6	Improved Food and Feed storage and distribution	3.6.1	Number of climate and nature-positive Food/Feed Storage Technologies in Use (Refrigeration, Silos, etc.).
			3.6.2	Number of climate and nature-positive Food/ Feed Distribution Facilities and Equipment in Use
			3.6.3	Number of climate and nature-positive food/ feed storage technologies in use (refrigeration, silos, etc.)
			3.6.4	Number of climate and nature-positive food/ feed distribution facilities and equipment in use
			3.6.5	Number of actors using climate and nature-positive food/feed storage technologies
			3.6.6	Number of actors using climate and nature-positive food/feed distribution facilities and equipment
			3.6.7	Storage Facilities Capacity for Agricultural Produce/Products
			3.6.8	Number of Warehousing Receipt Systems in Place
			3.6.9	Capacity of Warehousing Receipt Systems in Place
			3.6.10	Number of Producers Linked to Warehousing Receipt System
			3.6.11	Number of Warehouse Receipting Service Providers
			3.6.12	Capacity of Strategic Reserves for climate and nature-positive Agricultural Products
			3.6.13	Quantity of Strategic Food Reserves, by Commodity
			3.6.14	Capacity of strategic reserves for climate and nature-positive agricultural products
			3.6.15	Number of pasture management initiatives
			3.6.16	Total area (hectares) under sustainable grazing management, disaggregated by management system (e.g., communal ranching systems, strategic grazing reserves)
			3.6.17	Number of community groups or sites implementing forage-based climate and nature-positive interventions

Results level	Result Code	Result Statement	Indicator Code	Indicator
Outcome	4	Communication, knowledge management, and use of climate and nature-positive information strengthened	4.1	Number of forage species introduced or promoted under climate and nature-positive interventions (e.g., indigenous grasses, legumes)
			4.2	Number of community groups or sites implementing forage-based climate and nature-positive interventions
			4.3	Percentage of actors (such as farmers, value chain actors) using climate information
			4.4	Functional curriculum on climate and nature-positive interventions
			4.5	Level of improved knowledge and capacity to implement climate resilient agriculture
Output	4.1	Knowledge on climate and nature-positive interventions developed	4.1.1	Number of climate and nature-positive Knowledge Products Developed (by Type)
			4.1.2	Number of stakeholders (such as institutions) generating climate information, knowledge and services
			4.1.3	Number of climate resilient practices documented
			4.1.4	Number of knowledge products on climate and nature-positive interventions developed, by type
Output	4.2	Communication and dissemination of knowledge on climate and nature-positive interventions enhanced	4.2.1	Number of stakeholders, such as institutions, generating climate information, knowledge, and services
			4.2.2	Number of climate-resilient practices documented
			4.2.3	Number of actors trained on climate and nature-positive implementation and management
			4.2.4	Number of packaged knowledge products on climate and nature-positive interventions disseminated
			4.2.5	Number of stakeholders, such as institutions, disseminating information on climate and nature-positive interventions

Results level	Result Code	Result Statement	Indicator Code	Indicator
Output	4.3	Access to climate information and agro-weather advisory services enhanced	4.3.1	Number of actors trained on implementation and management of climate and nature-positive interventions
			4.3.2	Level of community awareness about critical ecosystem management topics (e.g., wildlife corridors, ecosystem protection laws, and land carrying capacity regulations)
			4.3.3	Number of data-sharing, monitoring, and joint reporting systems for climate and nature-positive interventions established and operational
			4.3.4	Number of actors (e.g. Service Providers) Trained on climate information and agro-weather Advisory Service Delivery
			4.3.5	Mechanisms for Downscaling Climate agro-weather Information to Communities and Localities in Place-farmers?
Output	4.4	Early warning systems and Contingency plans for climate change response strengthened	4.4.1	Number of Climate Risk Contingency Plans Developed
			4.4.2	Number of actors, such as service providers, trained on climate information and agro-weather advisory service delivery
			4.4.3	Functional status of mechanisms for downscaling climate agro-weather information to communities and localities
			4.4.4	Type of functional early warning systems for Climate Change Response
			4.4.5	Number of households adjusting farming operations based on information from early warning systems

Annex 2: Technical Contributors to the Integration of Kenya's NbS and CSA Reporting Tools

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