



AICCRA

Accelerating the Impact of CGIAR
Climate Research for Africa



Monitoring and evaluation of climate- smart agriculture (CSA) investments

Methodology and approach

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1. CONTEXT



Objectives of investment monitoring and evaluation



Monitoring and evaluation (M&E) represent foundational activities for any investment.

M&E helps to

- **intentionally plan for results and outcomes**
- **monitor progress** in implementation of actions (investments) against set targets
- **measure changes** and impacts
- **learn** and **adapt**
- increase **accountability** and **transparency**

Photo: Ollivier Girard/CIFOR

Monitoring vs. Evaluation

Monitoring

Continuous, routine process used to collect and analyze **progress towards achieving desired results**, including data on actions, outputs, and short-term outcomes, during investment implementation.

Aim: **track activity implementation** and **improve results delivery**.



Evaluation

Process to collect data on **investment performance** in relation to the **desired outcomes and impacts**, analyze change over time in key outcomes of interest, and assess differences in impacts over space and for individuals.

Aim: **rate investment performance** against **established targets**.

Key terms

Theory of change: A comprehensive description and illustration of how and why a desired change is expected to happen due to an investment. It outlines the desired changes (impacts, outcomes) and actions required to achieve them, as well as the conditions (assumptions) that need to be in place in to unlock actions and outcomes.

Action: A broadly defined activity or measure required for investment implementation.

Output: An immediate and short-term result of the investment actions, usually referring to a tangible product, like training materials, events, communication activities, research findings, technology, or infrastructure.

Outcome: A change occurring in the medium and long term due to the output, usually including changes in knowledge, skills, attitudes, and behaviors of individual and groups of stakeholders.

Impact: Long-term results of project outputs and outcomes, usually referring to goals and objectives of the overall investment plan.

Assumptions: Details about the context that are necessary to enable the impact pathways (see below) described in the theory of change (see below).

2. M&E STRATEGY



Scope of the M&E strategy for CSA investments (CSAIPs)

An M&E strategy offers a comprehensive description of how the investment contributes to improved agricultural productivity, climate change adaptation and mitigation and how these changes will be measured and tracked over time.

An M&E strategy covers various elements, including:

Context

Background information on the investment and objectives of monitoring and evaluation

Theory of change

Describes how investment activities contribute to desired impacts and outcomes

Indicators and metrics

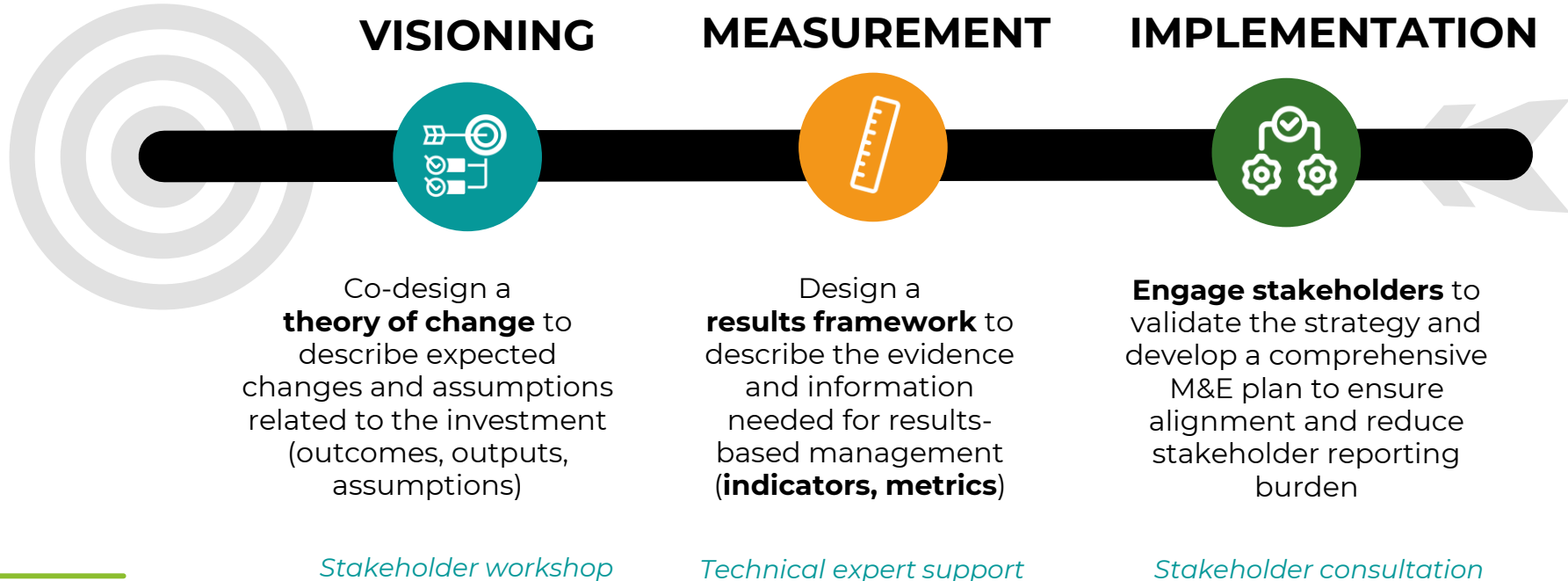
Results framework aligned to the investment theory of change

Implementation plan

Describes how the M&E strategy will be operationalized (data frequency, responsibilities, etc.)

Approach

Three steps for developing the M&E strategy



Principles



Co-design

A participatory, user-oriented process to define desired impacts and pathways to achieve and measure them



Alignment

Indicators and metric following the theory of change established by investment stakeholders



Coherence

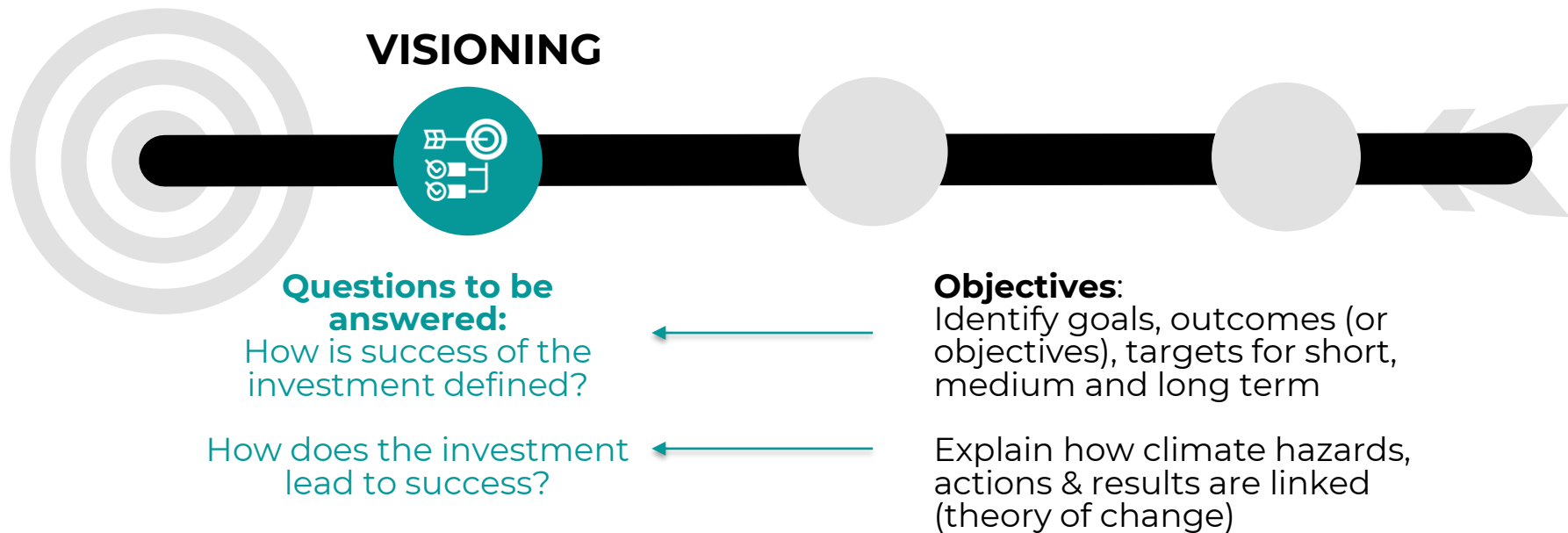
Building on existing knowledge and data frameworks and systems

3. VISIONING



Aim and objectives

The overall aim of this step is to develop a **theory of change** for the investment.



Strategy

Dynamic:

The step is co-developed with investment stakeholders, as part of the first Stakeholder Engagement workshop of the CSA Investment plan.

Expected result from the activity:

A theory of change for each prioritized investment, ideally compiled as a diagram (see next slide) .

Who should be involved:

Representatives of institutions who play a key role in the design and implementation of the investment.



Activity description

The activity takes between 1.5-2 hours, depending on the number of investments (one discussion group per investment). Each stakeholder group will:

1. Define desired outcomes

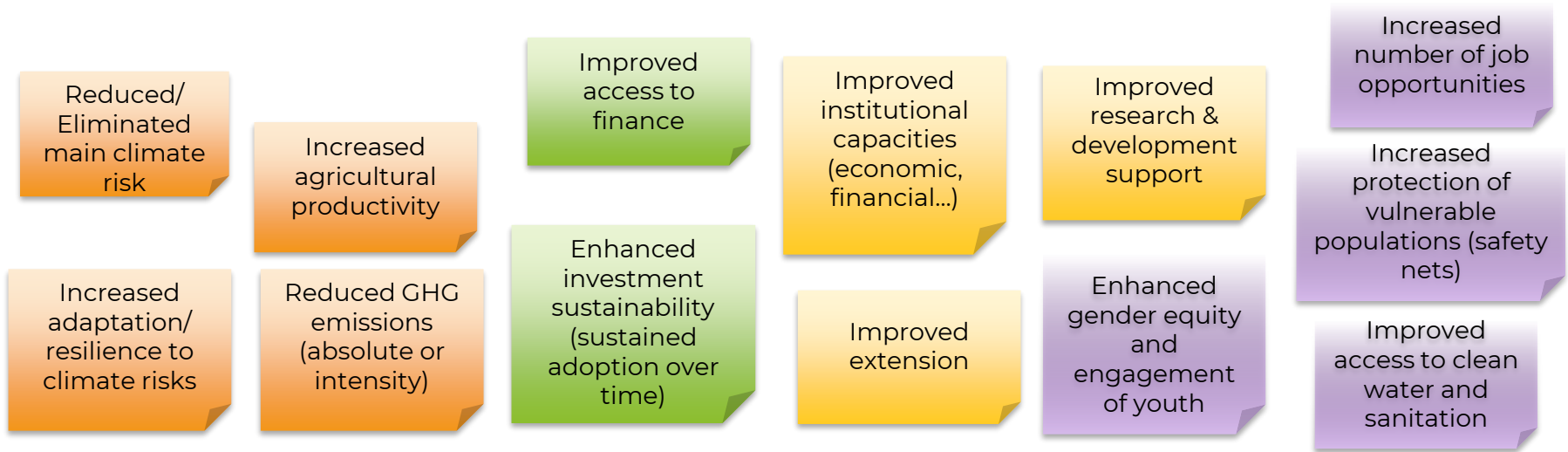
Participants may **choose one or more** options from the list of investment outcomes discussed in the prioritization session, **modify** the list of outcomes to make them more specific (measurable), or **add new** outcomes that are not on the suggested list

2. Develop a theory of change

Identify **key intermediary steps (activities, assumptions) needed for outcomes to happen** (i.e., what needs to happen for the investment to translate into desired outcomes) (see next slide) and indicate the **institutions/ initiatives** that collect data related to the outcome/activity/investment in the theory of change

Examples of outcomes

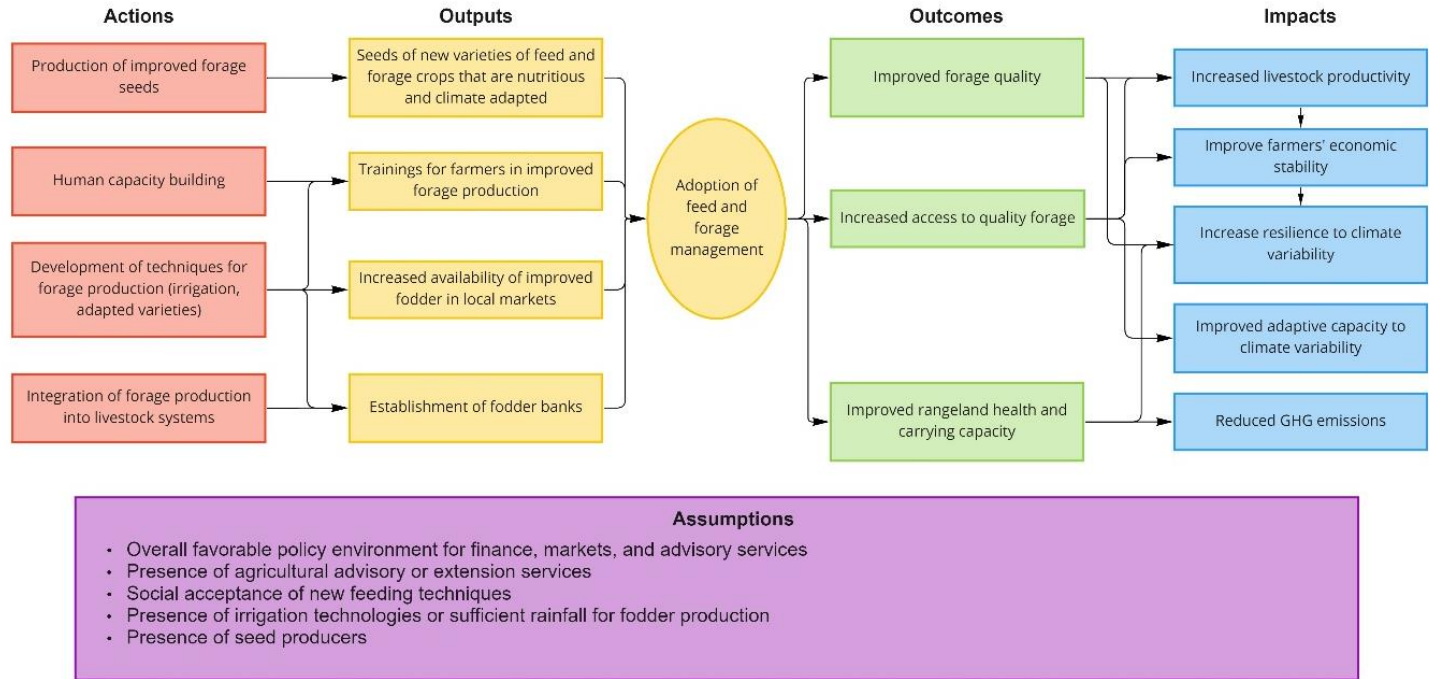
An **outcome** describes a change at the level of the target groups that has been made possible by the investment and can verifiably be attributed to it. An outcome is achieved on medium and long-term and is therefore different from immediate results of actions (also known as outputs or results)



Note: these outcomes were used for the prioritization of investments in Ethiopia. The list can be adjusted (modified, shortened, amended) to suit the theory of change of a particular investment

Example of a theory of change

Example visualization of the theory of change for an investment in **improved cultivated forage production, management and utilization**

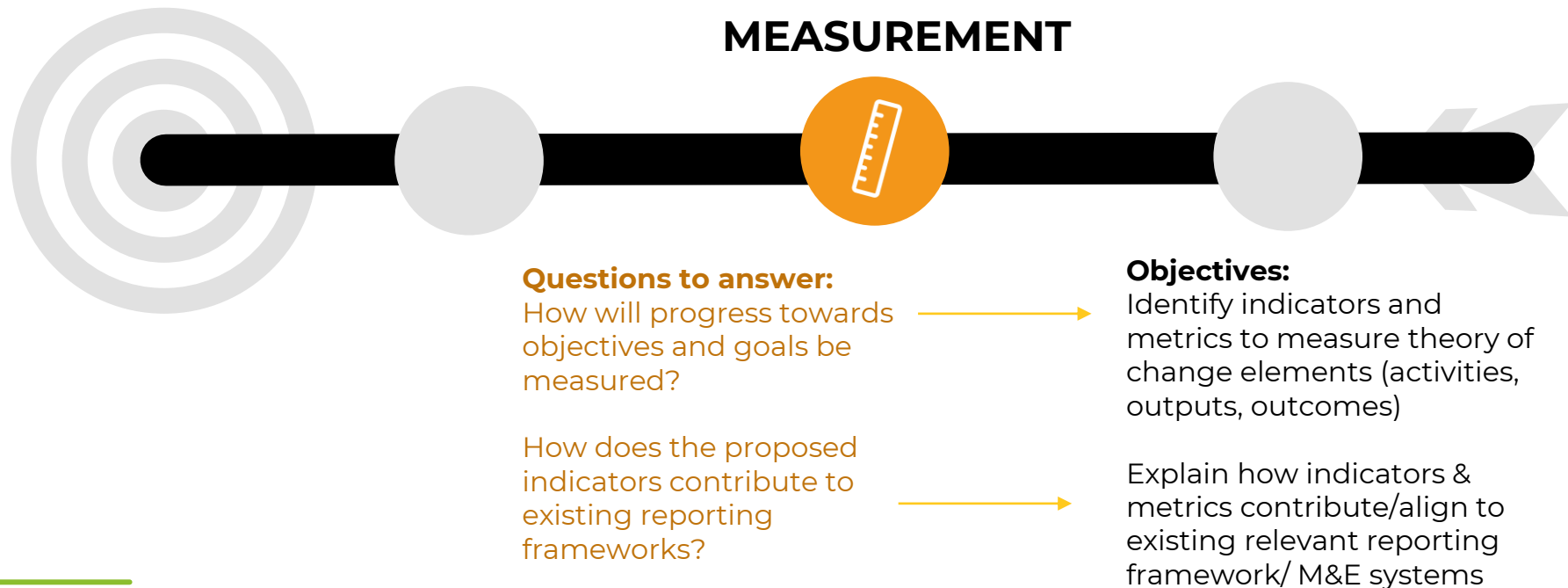


4. MEASUREMENT



Aim and objectives

The overall aim of this step is to identify **indicators and metrics** linked to the theory of change for the investment.



Strategy

Dynamic:

The measurement step is led by the technical support team, in close collaboration with the investment stakeholders, who will be engaged in data validation.

Expected result from the activity:

- Revised and validated theory of change
- Review of existing relevant M&E systems and framework
- Results framework with indicators and metrics

Who should be involved:

M&E team (expert support team) for review and consolidation; Investment stakeholders for data validation



Activity description

This step is led by the expert support team and involves activities such as:

1. **Revise theories of change co-designed by stakeholders during the workshop**, to ensure clarity and conciseness

Result: Theory of change diagrams (figures) for each investment (see previous example).

2. **Compile individual theories of change into one diagram**, to illustrate how individual investments feed into the larger CSAIP and how they link to one another

Result: Theory of change diagram (figure) for the entire CSAIP

3. **Review existing M&E systems/ reporting frameworks of relevant policies and international adaptation finance mechanism** to understand how the CSAIP M&E could align/ contribute to these (and reduce reporting burden)

Result: summary table with key M&E systems in place and list of indicators for each policy and finance mechanism relevant for the CSAIP (see next slide)

4. **Organize all the above information and validate with stakeholders**

Result: Results framework table that suggests indicators and metrics relevant to the ToC, grouped by type (M&E function, CSA pillar), and relevance to existing M&E systems and reporting frameworks

Reviewing existing M&E systems/ reporting frameworks

Each investment should be monitored and evaluated using **appropriate indicators and metrics**.

Many of these indicators are also included in **existing monitoring and reporting plans** of national policies and global finance mechanisms.

Aligning investment M&E protocols with existing systems enables **two-way information sharing** and **accountability** within and across investments.

The investment may also **leverage existing M&E capacity to gather outcome and impacts data**.



Example review of M&E systems/ frameworks

The table below outlines key national plans and policies, their M&E systems, and CSA-relevant indicators that could align with the CSAIP of Ethiopia.

Policy/ mechanism	M&E system of policy / mechanism	Indicators included in the M&E system
Nationally Determined Contribution (NDC)	The NDC focuses primarily on farmers and pastoralists. The Ministry of Agriculture developed monitoring, verification, and reporting systems for agriculture and forestry mitigation activities. In the first NDC, the Ministry of Environment and Forests was charged with convening dialogues to monitor and update NDC implementation. The updated NDC (July 2021) highlights the central role of the Ministry of Environment, Forest, and Climate Change (MEFCC) in M&E. Projects and programs collect data on a sectoral basis, and the goal is to integrate that data into the general national statistical data management system.	<ul style="list-style-type: none"> • Improvement in productivity of rainfed crops (tons/hectare) • Increase in area under irrigation (hectares) • Improvement in crop productivity with irrigation (tons/hectare) • Improvement in productivity of poultry and livestock (tons, %) • Decrease in per-unit and absolute livestock emissions (CO₂eq/head) • Reduction in animal and plant disease (% lost) • Increase in area under improved crops (hectares) • Increase in productivity of staple grains to improve food security (tons/hectare) • Increase in production of high-value crops (hectares, profit) • Improvement in content in dry fodder (%) • Reduction in post-harvest loss (tons) • Expansion of coverage of monitoring systems (count, area) • Expansion of crop insurance coverage (%)

Example review of M&E systems/ frameworks

Table continued

Policy/ mechanism	M&E system of policy / mechanism	Indicators included in the M&E system
National Adaptation Plan (NAP)	The NAP focuses on eight sectors, including agriculture—livestock included—and forests. Both the targets set and the M&E indicators identified align with the Climate Resilient Green Economy M&E strategy as well as the 10-year development plan. The MEFCC is responsible for setting up and maintaining the M&E system, developing protocols and reporting templates, and receiving and aggregating the data to generate analysis. Monitoring is conducted by the federal implementing entities and their partners undertaking NAP activities.	<ul style="list-style-type: none"> • Increase in yield per hectare (tons) • Increase in population (women/men) adopting CSA practices (count) • Increase in population (women/men) that are food secure (%) • Increase in households or communities harvesting rainwater (count) • Increase in area where soil and water conservation measures have been implemented (hectares) • Population (women/men) better able to manage rainfall variability (%) • Population (women/men) adopting climate-resilient livelihood practices (%) • Increase in insurance companies offering drought and crop insurance (count) • Population (women/men) with crop insurance (%) • Population (women/men) with access to early warning systems (%) Increase in research products that consider climate change adaptation
Adaptation Fund (AF)	Ethiopia currently has two projects funded by the AF, each with a clear set of indicators collected. These indicators are more specific and concrete than those included in general indicator lists and results frameworks of other funders.	<ul style="list-style-type: none"> • Losses from drought events (tons, people) • Population adopting risk reduction measures (%) • Household heads who have access to irrigation (count) • Area irrigated from groundwater supplied (hectares) • Number of shallow wells with solar-powered pumps (count) • Increased crop yields (tons/hectare) • Household heads adopting CSA practices (count) • Area of rangeland managed using sustainable methods (ha) • Community-based systems for grazing and feed conservation management (count) • Household heads accessing credit and market information (count) • People trained in CSA techniques and technologies (count)

Example of results framework

Sample results framework for an investment in **improved cultivated forage production, management and utilization** (Ethiopia CSAIP)

Indicator	Metric	Reporting frequency	CSA pillar(s)	M&E function	Link to existing M&E system
Establishment of fodder banks	Area of fodder banks (hectares); amount of fodder produced (tons)	Annual	Productivity; adaptation	Output	GEF core indicators set goal of increase in area under sustainable land management.
Increased access to quality forage	Number of households using improved forage	Semi-annual	Productivity; adaptation	Outcome	NDC sets goal of improving nutritional content in dry fodder.
Decreased emissions intensity for livestock sector	Amount of animal emissions reduced (tons per animal)	Bi-annual	Mitigation	Impact	NDC commits to reducing emissions from enteric fermentation. GEF core indicator is GHG emissions avoided in AFOLU. GCF results framework sets goal of reduced GHG emissions.

Example of results framework

Sample results framework for an investment in **enhanced and strengthened agricultural knowledge systems and digital advisory services** (Ethiopia CSAIP)

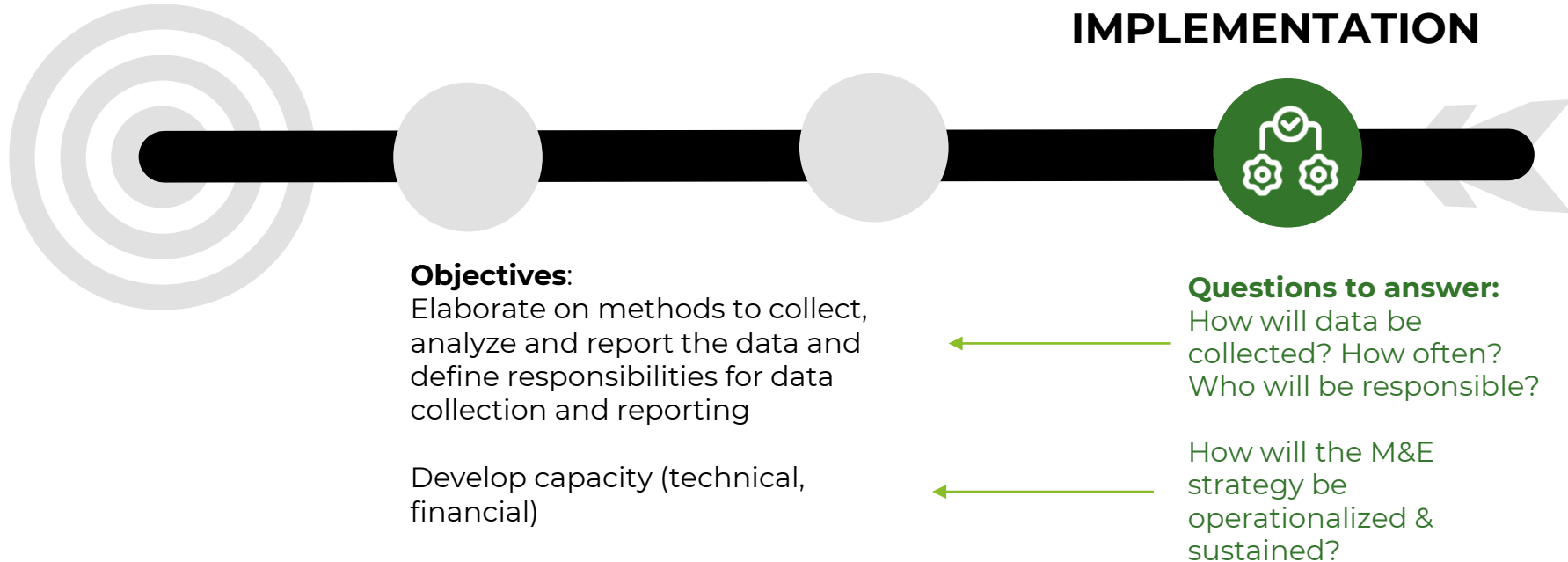
Indicator	Metric	Reporting frequency	CSA pillar(s)	M&E function	Link to existing M&E system
Development of guidelines for pest presence thresholds	Number of pests for which guidelines are developed	Annual	Productivity; adaptation	Output	NDC and NAP set goal of expanding coverage of monitoring systems. NAP sets goal of increasing research products that consider climate change.
Reduced damage to crops from pests	Change in proportion of crop lost to pest damage (by crop type or pest type)	Two or three times per year	Productivity; adaptation	Outcomes	NDC sets goal of reducing crop and livestock losses to pests and disease.
Increased utilization of climate data	Change in number of farmers who report using climate information services to make irrigation decisions	Annual	Adaptation	Impact	NAP sets goal of increasing population that adopts CSA practices.

5. IMPLEMENTATION



Aim and objectives

The overall aim of this step is to develop a **detailed plan for operationalizing the M&E strategy**



Key considerations

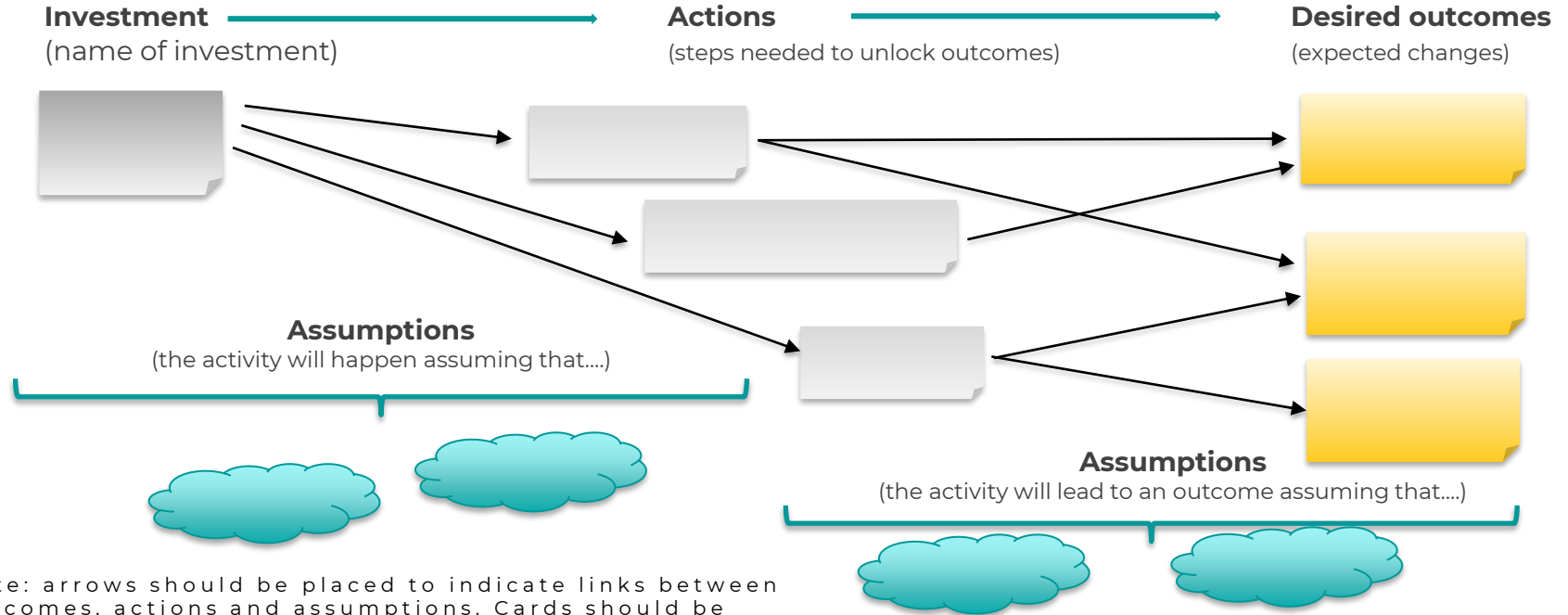
- **Alignment:** The M&E plan would ideally build on existing data collection and reporting processes aligned to meet international financial and policy commitments.
- **Capacity assessment:** Institutional capacity for data collection, analysis, and reporting should be assessed in order to draw a realistic, feasible plan, but also to create a roadmap for capacity building/ strengthening
- **Routine data collection and reporting:** Whenever possible, data collection and reporting should be integrated into project activities continuously to support iterative learning and to reduce the reporting burden at the end of the investment period.
- **Testing and refining theories of change:** The M&E plan also provides an opportunity to test the theory of change and assess the validity of expected outcomes and impacts of CSA investments. Ongoing data analysis allows for learning and adaptations, specifically to investment activities.
- **Budgets:** M&E activities must have an adequate budget for both the time and technological resources needed to make them consistent and comprehensive. In general, budgets for M&E should be proportional with investment ambitions (scale, scope, timeframes).

6. TEMPLATES



Theory of change (graphic)

This graphic can be used for collecting inputs from stakeholders during the visioning step.



Note: arrows should be placed to indicate links between outcomes, actions and assumptions. Cards should be added as needed

Review of M&E systems (table)

Policy/ International finance mechanism	M&E system of the policy (brief summary explaining of how data will be collected and reported, by which institutions, links to the framework, etc.)	Indicators (indicators suggested in the policy to measure progress on activities or outcomes)
1
2
3
4
5
6
7
8

Note: Add new rows for additional policies or finance mechanisms, as needed. Some of this information (objectives, targets) may already be collected as part of the Situation Analysis or the concept note for the investment. Information on indicators and M&E system description is typically included in the M&E/ Results frameworks sections of policies.

Results framework (table)

Indicator	Metric	Data collection frequency	CSA pillar (productivity, adaptation/resilience, mitigation)	M&E function of indicator (e.g., measures process, output, outcome)	Links to other M&E systems/frameworks (list M&E systems/frameworks and related indicator of policy/ finance mechanism)
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