GCCA+

THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE

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PRACTICAL GUIDE

MONITORING AND EVALUATION OF CLIMATE ADAPTATION ACTION

A REVIEW OF GCCA/GCCA+ EXPERIENCE

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Acronyms

CC	Climate Change
COP	Conference of the Parties
CSA	Climate-Smart Agriculture
CSO	Civil Society Organisation
DFID	UK Department for International Development
DRR	Disaster Risk Reduction
EU	European Union
FNSA	Food, Nutrition and Sustainable Agriculture
GCCA/GCCA+	Global Climate Change Alliance (Plus)
GDP	Gross Domestic Product
GERF	Global Europe Results Framework
GHG	Greenhouse Gas
GIZ	German Institute for International Cooperation
GPS	Global Positioning System
I&S (Study)	Impact & Sustainability (Study)
IIED	International Institute for Environment and Development
INTPA	International Partnerships
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
M&E	Monitoring and Evaluation
MSMEs	Micro, Small and Medium-Sized Enterprises
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organisation
OECD-DAC	Organisation for Economic Cooperation and Development - Development Assistance Committee

SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
SMART (Indicators)	Specific, Measurable, Achievable, Relevant, Time-bound
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environmental Programme
ToC	Theory of Change
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USP	University of the South Pacific
V&A	Vulnerability and Adaptation

1. Introduction

1.1. Context and objectives

Since 2007, the Global Climate Change Alliance (GCCA) and Global Climate Change Alliance Plus (GCCA+) initiatives have supported climate action with a focus on developing countries.

As climate change impacts are getting stronger and more visible with each passing year, there is a growing **sense of urgency** regarding the need to strengthen adaptation action. At COP26[1] in 2021, Parties were requested to at least double (from 2019 levels) the provision of *climate finance for adaptation* to developing countries by 2025 – which would amount to annual spending of at least US$40 billion. A two-year *Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation* was also adopted; among other objectives, it aims to help improve the assessment of progress toward adaptation (notably through work on suitable methodologies, indicators, data and metrics); and help Parties establish robust systems for monitoring and evaluating adaptation actions.

This is thus an appropriate time for taking stock of the GCCA/GGCA+ experience in the monitoring and evaluation (M&E) of adaptation. A study based on a sample of 15 GCCA/GGCA+ projects (listed in **Annex 1**), of which 13 national and 2 regional projects, was undertaken to make a detailed investigation of practices regarding: (i) the M&E of adaptation at the level of GCCA/GGCA+ projects; and (ii) the support given by the projects to the strengthening of adaptation M&E systems in partner countries and regions.

The key findings of this exercise are summarised in this document in the form of practical steps and illustrations drawn from the reviewed projects. In addition, examples of adaptation-relevant indicators linked to some of the results chains developed by DG INTPA to underpin its activities in key sectors are provided in **Annex 2**. These practical steps and examples are intended to:

- Help improve the design and implementation of new *EU-funded actions* that have climate change adaptation as a main or significant objective, from the perspective of the monitoring and "evaluability" of adaptation; and
- Inform and guide the provision of EU support for the setting up of robust *partner country systems* for the M&E of adaptation.

In both cases, the operation of strong M&E systems is intended to support learning on what works and what could be improved in the field of adaptation, and thus facilitate the replication and scaling up of successful approaches to adaptation while averting "maladaptation".

1.2. Conceptual framework

The methodology used for conducting the study was inspired by a conceptual framework for the M&E of adaptation based on a review of best international practices – more specifically one developed at policy level, summarised in **Table 1a**, and one at project level, summarised in **Table 1b**.

[1] The 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

Table 1a: Conceptual framework for the M&E of adaptation at policy level

Focus of M&E	Focus of indicators	Indicator types
Background information for guiding adaptation action		
Climate-related hazards, exposure, vulnerabilities, risks & impacts	Climate-related hazards (trends, projections) Exposure & vulnerability of key human & natural systems to climate hazards, disaggregated as relevant by location, sector & population groups Loss & damage (economic, human) incurred from climate-related hazards, disaggregated in the same way	Climate indicators & indices Socio-economic & environmental indicators & indices
Resources dedicated to adaptation action		
Resources dedicated to adaptation action	Financial, technical & human resources dedicated to adaptation[2]	Input indicators
Short- to medium-term perspective: M&E of adaptation performance		
Adaptation processes, incl. *institutional climate risk management* (institutional processes & governance mechanisms that directly address climate risks or influence how people & systems respond to them) & *progress* in implementing the adaptation agenda	Institutional mechanisms Policies, plans, legislation Capacity building Other elements of the enabling environment Milestones, progress against plans	Process indicators Output indicators
Adaptation action results, expressed in terms of **vulnerability, resilience & adaptive capacity** of people, populations & systems (as defined in Box 2)	Context-specific indicators related to capacities, assets & their distribution, resources, livelihoods, behaviour, knowledge, technology, …	Outcome indicators
Long-term perspective: M&E of development performance in the context of climate change		
Development outcomes: improvements in human wellbeing, reduced costs of climate-related stresses & shocks	Standard indicators of human, economic & environmental wellbeing Loss & damage incurred from climate-related hazards (economic, human lives)	Impact indicators
Climate hazards: extreme events, long-term trends and other climate-related phenomena that have the potential to affect development outcomes (monitored to help interpret development outcomes / calibrate or contextualise indicators of wellbeing)	Meteorological variables & climate indices describing the hazards that affect wellbeing	Climate indicators & indices

Sources: Adapted from IIED 2018, with inputs from IIED 2014a, 2014b, GIZ 2014, 2016a, Leiter 2017, IIED 2019

This version of the conceptual framework can inspire the support given to the strengthening of partner country systems for monitoring and evaluating adaptation action.

[2] Including in the context of sector policies that significantly contribute to adaptation.

Table 1b: Conceptual framework for the M&E of adaptation at project level

Intervention level	Focus of M&E	Indicator types
Project activities	Direct use of financial, technical & human resources **inputs** to carry out planned activities	Input indicators
	Assumptions linked to the conversion of activities into outputs (e.g. related to political, socio-economic, environmental incl. climate conditions)	*Ad-hoc (depending on the nature of the assumptions)*
Project's expected results *(understood as "immediate" or "intermediate" results)*	**Direct support to institutional climate risk management** (institutional processes & governance mechanisms that address climate risks or influence how people & systems respond to them)	Process indicators Output indicators
	Direct support to vulnerability reduction, resilience and/or adaptive capacity (as defined in Box 2)	Output indicators
	Assumptions linked to the conversion of outputs into outcomes (e.g. related to political, socio-economic, environmental incl. climate conditions)	*Ad-hoc (depending on the nature of the assumptions)*
Project's purpose or specific objective(s)	**Adaptation outcomes**, expressed in terms of changes in vulnerability, resilience and/or adaptive capacity	Outcome indicators
	Assumptions linked to the conversion of outcomes into impacts (e.g. related to political, socio-economic, environmental incl. climate conditions)	*Ad-hoc (depending on the nature of the assumptions)*
Project's overall objective(s)	**Development outcomes**, expressed in terms of improvements in human wellbeing and/or reduced costs of climate-related stresses & shocks	Impact indicators

Sources: GCCA+ Support Facility, based on inputs from GIZ 2016a, 2016b and IIED 2018, 2019 and DG INTPA's logical framework approach

This version of the conceptual framework can support the development of theories of change and logical frameworks ("logframes") suitable for the M&E of adaptation results in EU-funded projects.

2. Practical steps towards a robust M&E of adaptation in EU-funded projects

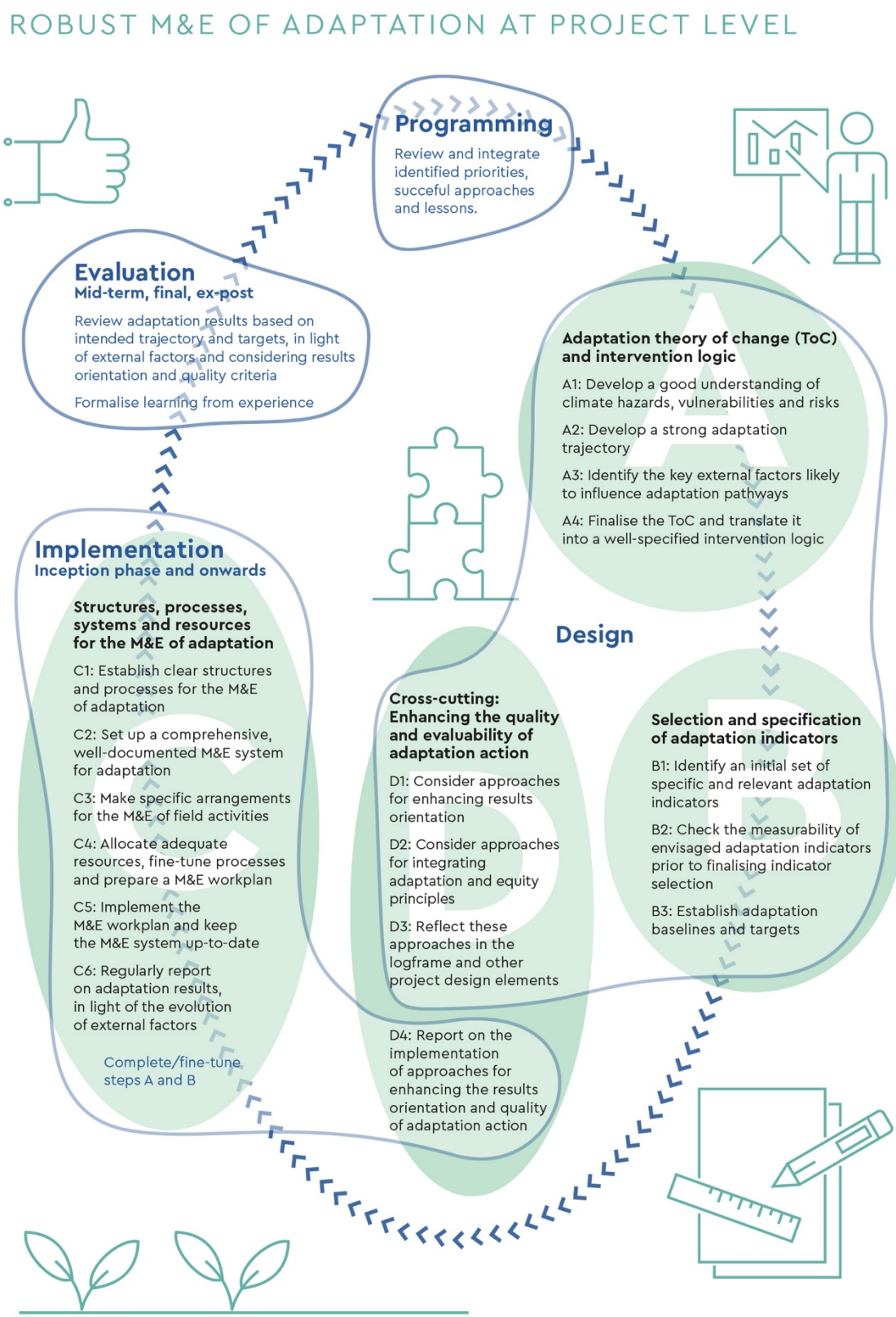
In this section, we develop practical steps towards the robust M&E of adaptation in EU-funded projects, organised into three essential building blocks, with additional cross-cutting approaches also proposed for enhancing the quality and evaluability of adaptation action. The key steps are summarised in **Figure 1**.

Note that no specific step or building block is dedicated to the "learning" derived from the M&E of adaptation action. Learning (and the associated experience sharing and dissemination of good practices) was indeed not covered as a distinct dimension by the study that underpins the preparation of this practical guide. The need to support learning on adaptation nevertheless underlies many of the proposed practical steps, in particular those associated with the development and operation of M&E systems.

Figure 1 shows how M&E steps relate to the EU intervention cycle.[3] Note that many of the steps initiated at the design stage are likely to require completion or fine-tuning during implementation, in particular during the inception phase and subsequent first months of implementation.

[3] The figure does not show the financing stage, which has no particular relevance here.

Figure 1: Key steps towards the robust M&E of adaptation in the intervention cycle



2.1. Adaptation theory of change and intervention logic

KEY STEPS:

#	Do	When? *When to complete?*
A1	Develop a **good understanding of climate-related hazards, vulnerabilities and risks**	As early as possible at the design stage *Early in project implementation, for missing information*
A2	Develop a **strong adaptation trajectory**, based on **clear and logical pathways**	At the design stage *During the inception phase and subsequently during implementation, if fine-tuning or adjustment is needed*
A3	**Identify the key external factors** likely to influence adaptation pathways	
A4	Finalise the theory of change and translate it into a **consistent, well-specified intervention logic**	

IN PRACTICE:

Step A1: Develop a good understanding of climate-related hazards, vulnerabilities and risks

This understanding should ideally:

- Encompass both **current** and **anticipated** hazards, vulnerabilities and risks in the project's sector and geographical area;
- Be **informed by data** on climate trends and projections (including long-term projections), exposure to climate hazards, environmental and socio-economic conditions, cultural factors such as attitudes and perceptions, etc.

Sources of information used in the context of preparation and implementation of GCCA/GCCA+ projects include *inter alia*:

- Climate vulnerability and adaptation assessments or similar studies;
- Documents prepared in the context of UNFCCC implementation, such as nationally determined contributions (NDCs), recent national communications on climate change, or national adaptation plans (NAPs);
- General-purpose or sector-specific climate change or adaptation policies, strategies and plans;
- Studies and publications from authoritative sources that include information on climate trends and projections, sector issues, trends and projections, socio-economic trends and projections, state of the environment and natural resources, etc.

This information should be used to:

- Develop the **rationale for engaging in adaptation action**: information on *climate trends and projections* (e.g. changes in temperatures and rainfall patterns), associated *climate-related hazards* (e.g. floods, droughts, heatwaves, storms and storm surges, sea level rise), *exposure and vulnerability* of people, livelihoods, infrastructure and ecosystems to such hazards should be presented in the action document to make the case for integrating climate change adaptation in the project design; **Box 1** illustrates, in concise form, what an adequately informed rationale may look like;
- Identify **priorities for adaptation action**, preferably aligned with national priorities as identified in key policy documents.

Box 1: Example of adequately informed rationale for engaging in adaptation action

The action document of the GCCA+ project in **Mauritius** includes a detailed description of the climate-related hazards that bear on the agricultural sector, as well as explanations on the associated impacts, vulnerabilities and risks for the agricultural sector, distinctly for Mauritius and Rodrigues Island.

For example, in Mauritius, the observed rise in temperature and increasingly variable rainfall, characterised by the growing occurrence or severity of both drought and heavy precipitation, result in heat stress on crops and livestock, changes in soil moisture, increased risk of flooding and soil erosion, increased pest and disease incidence, and ultimately reduced crop yields and lower productivity of poultry and other livestock. Climate change is expected to accentuate these trends.

Rodrigues, with its hilly topography, is particularly vulnerable to heavy downpours which erode fertile soils and trigger flash floods that destroy crops. The island now also faces long periods of drought that, in the absence of sufficient water retention structures, affect subsistence agriculture and preclude the further development of the sector. Climate change compounds the effects of poor land husbandry over the past fifty years, which has resulted in degraded and exposed lands that retain less water, leading to more runoff and erosion and less recharged water tables.

In both islands, sea level rise and the increasing severity of tropical storms result in more frequent storm surges, seawater intrusion in coastal aquifers, declining soil quality and salinisation of irrigation water in coastal zones – which, combined with soil erosion caused by increased surface runoff from mountain slopes to the sea, negatively impacts the productivity of food crops in coastal areas.

This analysis makes a strong case for supporting the adoption of climate-smart agriculture practices and the development of efficient irrigation techniques, which are mentioned as adaptation priorities in the NDC and are at the core of the GCCA+ project.

Note that although these aspects did not get particular attention in the design of the reviewed GCCA/GCCA+ projects, it is recommended, in the identification and selection of adaptation measures, to pay specific attention to:

- Avoiding **maladaptation**, i.e. actions that may drive further vulnerability, exposure and risks in the medium-longer term, and unintendedly lead to increased risk of adverse climate-related and/or social outcomes now or in the future;
- If possible, anticipating the needs of **transformational adaptation**, i.e. adaptation that goes beyond "climate-proofing" existing systems and practices, and takes into account the possible need for deeper changes in socio-ecological systems under new (emerging or anticipated) climatic and environmental conditions.

For more information on these concepts, see Step E3 in Section 3.

Step A2: Develop a strong adaptation trajectory, based on clear and logical pathways

The adaptation trajectory underpinning the action, which will constitute the backbone of its "theory of change", should be based on logical pathways (i.e. pathways reflecting valid **causal relationships**) from adaptation activities to outputs, adaptation outputs to outcomes, adaptation outcomes to impacts – possibly with the support of a conceptual framework for adaptation similar to the one presented in **Table 1b** (Section 1.2).

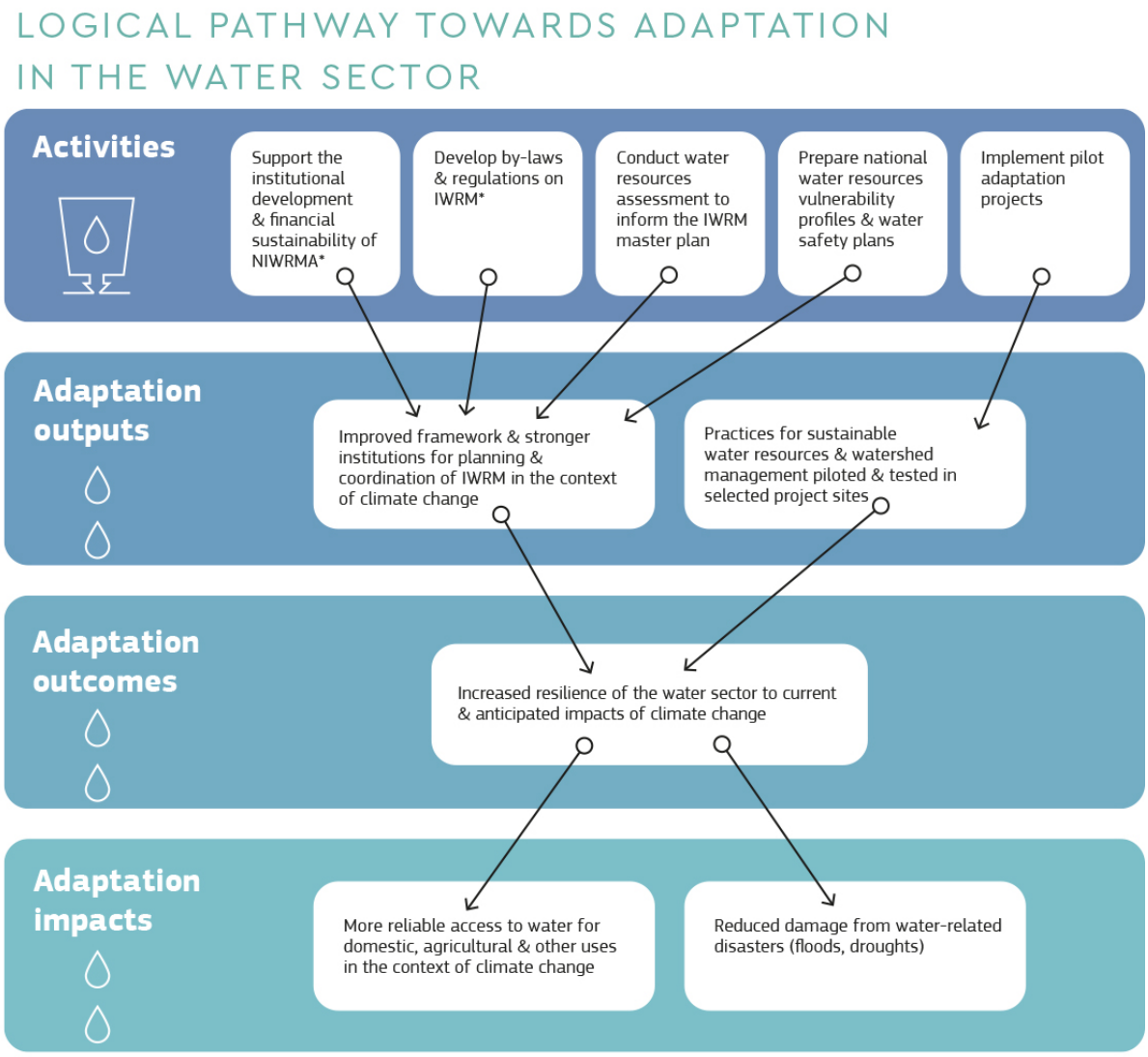
Figure 2 gives an example of a logical pathway towards adaptation for a project in the water sector – inspired by and freely adapted from the water sector component of the GCCA project in **Belize**. This is a simplified representation. In practice:

- Causal relationships between the various elements may be more elaborated, involving more levels in the results chain and/or more complex interactions (e.g. with feedback loops between some elements); this can be represented in the form of a more dynamic "system diagram" – on the

understanding however that a simplified intervention logic will ultimately have to be packaged into a logical framework with three levels of results and one-way causal relationships.

- The action document, in a section dedicated to explaining the intervention logic, should provide some explanations on the envisaged causal relationships as well as synergies between activities and results.

Figure 2: Example of a logical pathway towards adaptation in the water sector



IWRM: integrated water resources management
NIWRMA: National Integrated Water Resources Management Authority

Step A3: Identify the key external factors likely to influence adaptation pathways

These external factors, typically of a **politico-institutional, socio-economic or environmental** nature, are factors largely **outside the control of the project** that may influence the achievement of adaptation results at the various levels of the intervention logic (i.e. at output, outcome and impact level), in a positive or negative manner. Identifying and understanding them is important as:

- It facilitates the monitoring and management of **risks**, as well as the seizing of **opportunities**, arising from the project's environment; and

- It is essential for **interpreting adaptation results**: for example, a change in the yield of a given crop as a result of the introduction of climate-smart agricultural practices would be interpreted differently depending on the more or less favourable climate conditions that prevailed in the years during which observations were made.

External influencing factors should be identified in the process of building the project's theory of change, and discussed in the action document (e.g. in the "context", "lessons learnt" and/or "risks and assumptions" sections). The most significant ones should also be reflected in the "assumptions" column of the logical framework, in the form of positive statements associated with the achievement of project impacts, outcomes and outputs.

Table 2 gives examples of external factors identified in GCCA/GCCA+ projects as likely to support or on the contrary hinder the achievement of adaptation results.

Table 2: Examples of external factors likely to influence adaptation pathways

External factors *(expressed in the form of assumptions)*	Influence level
Politico-institutional factors	
Political commitment to supporting dedicated climate change and water governance institutions persisting after project completion *(Belize)*	Impact
Stable policy and strategic framework with regard to food security and sustainable agricultural development *(Niger)*	Impact
Issues linked to land ownership and user rights not hindering long-term adaptation efforts *(Uganda)*	Impact
Major water sector stakeholders supportive of the Integrated Water Resources Management Act, incl. political will to implement the required tariffs on water *(Belize)*	Outcome
Environmental priority in the government's agenda confirmed / maintained *(Haiti)*	Outcome
Willingness of the ministries and technical services involved in forest sector governance to collaborate, exchange of data and share experience sharing *(Mali)*	Outcome Output
Owners of data on climate change prepared to provide access to data and analysis for the purposes of the new multi-stakeholder climate change knowledge management platform *(Cambodia)*	Output
National Climate Change Committee functional and proactively participating in some project activities *(Mali)*	Output
Gradual improvements in land tenure security enabling the implementation of sustainable land management activities in community spaces *(Niger)*	Output
Socio-economic and socio-cultural factors	
Demographic growth not impeding efforts to control the over-exploitation of forest resources and restore them *(Mali)*	Impact
Society (general population) and economic sector in particular receptive to changes in some practices for the purposes of climate change adaptation *(Haiti)*	Outcome
Existence of a market demand for sustainably produced farming products *(Mauritius)*	Outcome
Readiness of the population in targeted communes and communities to actively participate in the implementation of improved land and farming system management practices *(Niger)*	Outcome
Willingness [and ability] of potential grantees to co-finance field projects *(Mauritius)*	Output
Willingness among stakeholders in target communities to undertake collective or synergising actions on climate-smart agriculture *(Uganda)*	Output

External factors *(expressed in the form of assumptions)*	Influence level
Environmental factors	
Poverty-driven environmental degradation not offsetting efforts to adopt improved practices for climate resilience and adaptation *(Haiti)*	Impact
No extreme weather events undermining programme results in the promotion of climate-smart agriculture *(Uganda)*	Outcome
No adverse weather events affecting the implementation of pilot sustainable land management projects *(Eastern Caribbean)*	Output
No new natural disaster forcing project stakeholders to focus their resources on responding to emergencies *(Haiti)*	Output

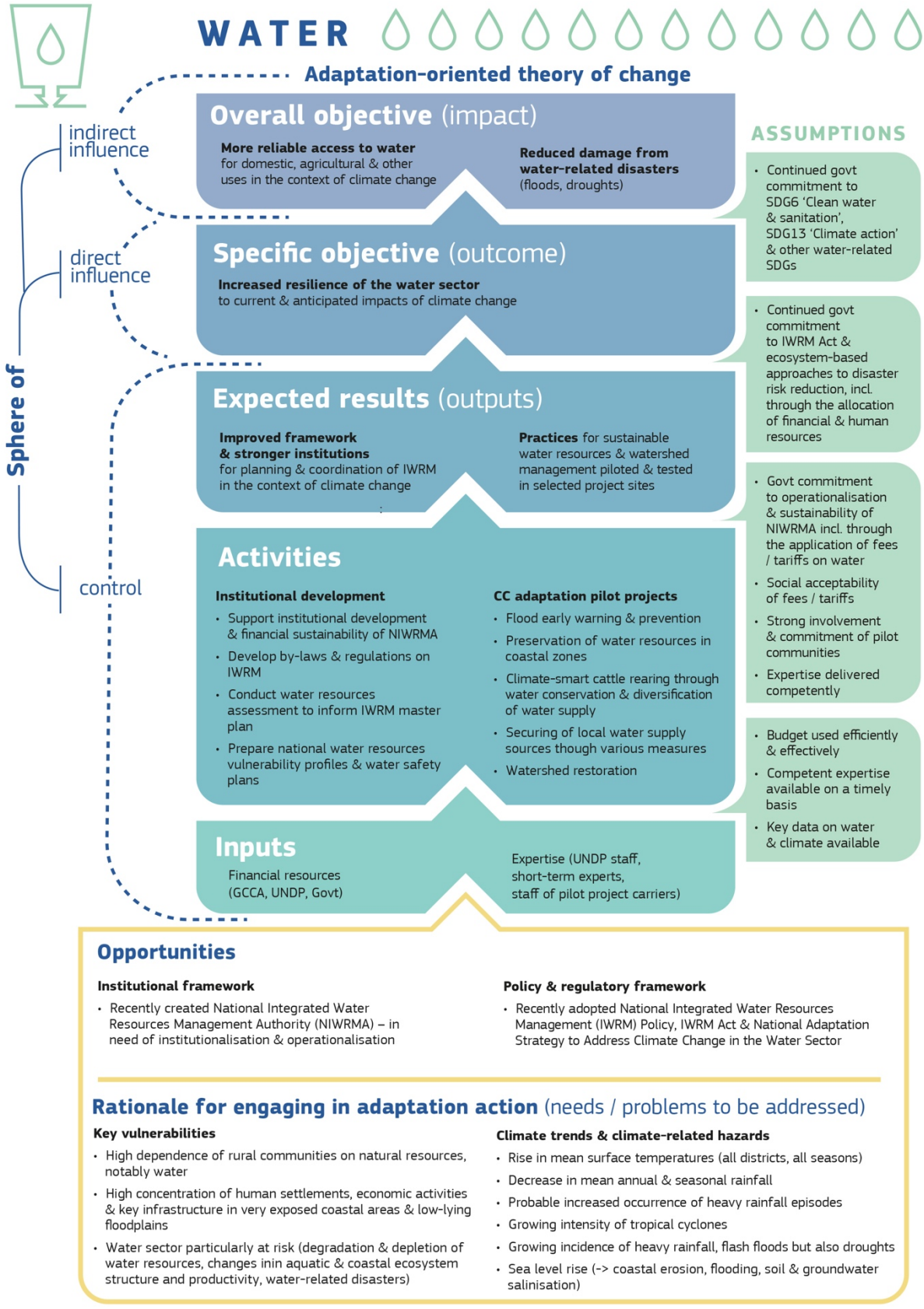
Step A4: Finalise the theory of change and translate it into a well-specified intervention logic

The integration of external influencing factors in the project's theory of change may lead to adjusting the proposed adaptation pathways (e.g. by adding or adjusting some activities to improve the ability to manage the associated risks and opportunities). The **final theory of change for adaptation** should encompass:

- An analysis of the key climate-related issues, needs and possible opportunities to be addressed – providing the *rationale for engaging in adaptation action*;
- The *intervention logic* for adaptation action, showing clear and logical pathways from activities to outputs and outputs to intended outcomes and impacts; and
- The identification of the *key external factors* expected to influence, positively and/or negatively, the achievement of adaptation results across the proposed pathways.

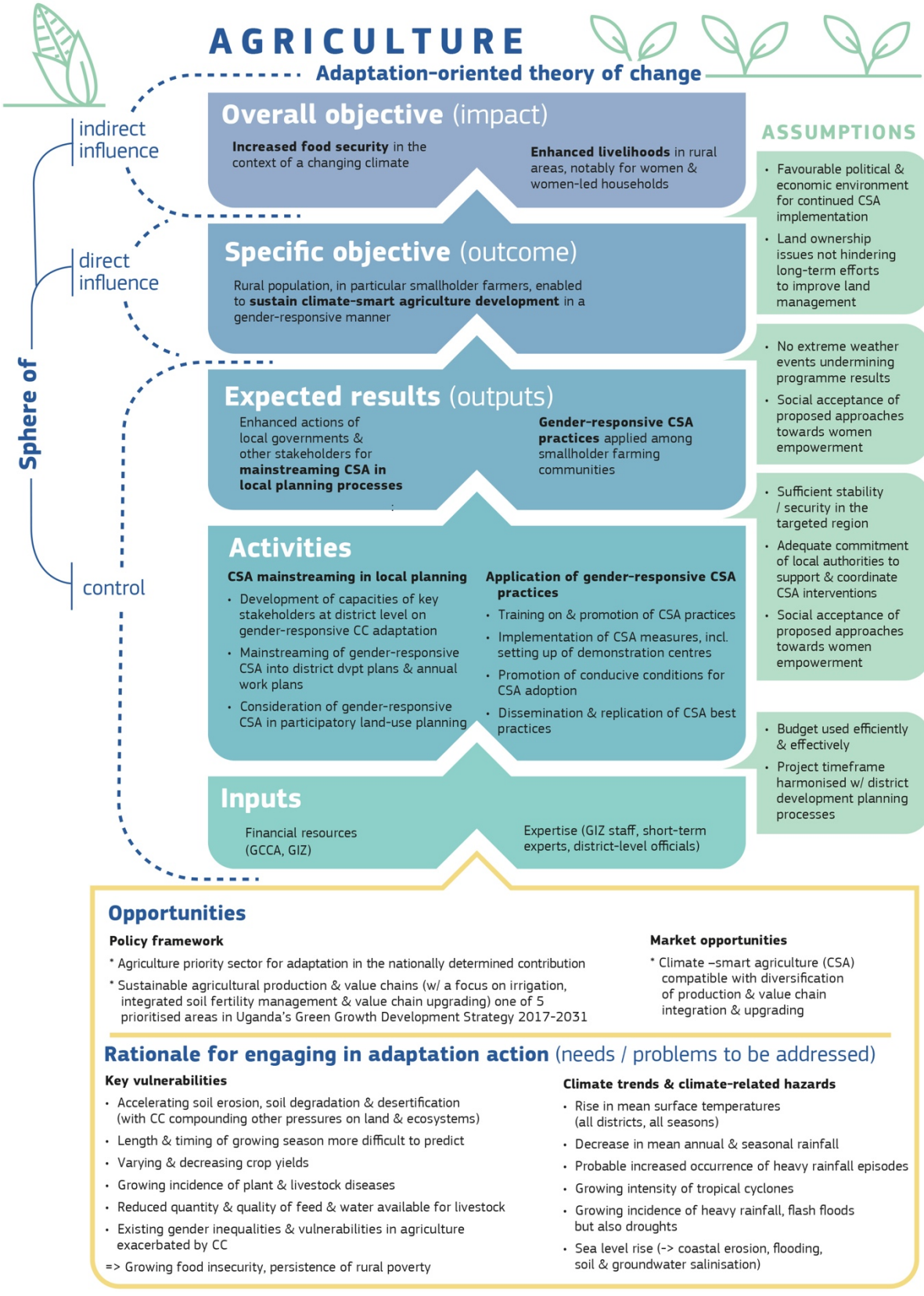
Figures 3 and **4** show a simplified representation of adaptation-oriented theories of change for interventions in the water and the agriculture sector. Diagrams must be accompanied by some narrative explanations of the considered causal relationships and external influences, in the theory of change document if one is developed as a distinct document (e.g. as an annex to the project design report), and in all cases in the relevant sections of the action document (context, risks and assumptions, intervention logic, …).

Figure 3: Example of an adaptation-oriented theory of change (water sector project)[4]



[4] This example is inspired by and freely adapted from the GCCA project in **Belize**, and more specifically its water sector component.

Figure 4: Example of an adaptation-oriented theory of change (agriculture sector project)[5]



[5] This example is inspired by and freely adapted from the GCCA+ project in **Uganda**.

Whatever the format chosen for representing it, the theory of change must then be translated or "packaged" into a well-specified **intervention logic** aligned with the logical framework format – which in some cases may require simplifying some elements. (The figures above are already aligned with the logframe format.) It is recommended, to the extent possible, to have:

- **Expected results** expressed in terms of *adaptation outputs* ("immediate products" or "intermediate results" of adaptation activities) *or processes* (reflecting changes in the institutional processes and governance mechanisms needed for addressing climate risks and creating an enabling environment for effective adaptation action);
- **Specific objective(s)** expressed in terms of *adaptation outcomes* (corresponding to changes in vulnerability, resilience and/or adaptive capacity);
- **Overall objective(s)** expressed in terms of *development outcomes* (reflecting improvements in human wellbeing achieved in the context of a changing climate or "in spite of climate change", or reduced costs of climate-related stresses and shocks); or if this is not realistic considering the nature and/or timescale of the project, in terms of *adaptation outcomes of a higher order* than those pursued at specific objective level (e.g. with a larger spatial and/or temporal scope);

Complemented by:

- **Assumptions** reflecting the expected influence of key external factors on the achievement of adaptation results at various levels.

Table 3 gives examples of **adaptation objectives and expected results** formulated at the correct level in the intervention logic, drawn from the logical frameworks of GCCA/GCCA+ projects.

Table 3: Examples of adaptation objectives and expected results

Adaptation-relevant objectives or results
Overall objectives
To reduce poverty and inequality by developing sustainable rural livelihoods resilient to climate change impacts *(Bhutan)*
To contribute to Lesotho's efforts to poverty alleviation and sustainable development *(Lesotho)*
Specific objectives
To improve the region's natural resource base resilience to the impacts of climate change *(Eastern Caribbean)*
To strengthen the capacity of national actors at various levels to manage rural development in a more integrated, sustainable and climate-resilient manner *(Niger)*
To support the rural population to sustain climate-smart agriculture development in a gender-responsive manner *(Uganda)*
Expected results *(expressed in terms of outputs)*
The applied research programme in forest management and biodiversity conservation in the context of climate change is improved *(DR Congo)*
Practices and techniques with low environmental impact and supporting enhanced resilience of the population to climate change and climate risks are tested / demonstrated in the field and evaluated with a view to scaling up *(Haiti)*
Climate adaptation and resilient development initiatives are implemented by poor and vulnerable communities in the most climate-vulnerable districts *(Nepal)*

Adaptation-relevant objectives or results
Expected results *(expressed in terms of processes)*
Climate change is mainstreamed in the next five-year plan *(Bhutan)*
Planning and decision-making capacities to address climate change and disaster risks at sub-national and community level are strengthened, applying participatory, gender-sensitive and rights-based approaches *(Pacific)*
From 2011 onwards, budget is allocated to key institutions carrying out climate change and disaster risk reduction activities, notably those targeting people living on low-lying atolls, artificially build islands and other low-lying coastal areas *(Solomon Islands)*

For examples of adequately formulated assumptions, please refer to **Table 2** above.

Based on the experience of the GCCA+ funded sector reform contract in **Bhutan**, it is recommended to develop a **fully-fledged logframe** also for **budget support interventions**, providing a more comprehensive M&E framework than just the performance assessment framework used for determining the disbursement of budget support tranches, with:

- *Indicators* (not all of them linked to disbursement criteria) proposed at all levels including overall and specific objectives;
- The key *assumptions* underpinning the generation of outputs, outcomes and impacts duly identified.

This is useful for putting the budget support intervention in perspective, and keeping wider adaptation goals in perspective.

2.2. Selection and specification of adaptation indicators

KEY STEPS:

#	Do	When? *When to complete?*
B1	Identify an initial set of **specific and relevant adaptation indicators**	At the design stage *During the inception phase and subsequently during implementation, if fine-tuning or adjustment is needed*
B2	Check the **measurability of envisaged adaptation indicators** prior to finalising indicator selection	At the design stage *During the inception phase, if fine-tuning or adjustment is needed*
B3	Establish adaptation **adaptation baselines and targets**	At the design stage, if possible *Otherwise during the inception phase*

IN PRACTICE:

Step B1: Identify an initial set of specific and relevant adaptation indicators

Indicators complement the intervention logic by providing a way of measuring achievements against the stated objectives and results. Frequently, they also contribute to further specifying what the project intends to achieve. Adaptation projects (or the adaptation-relevant components of interventions) typically rely on a mix of **quantitative** and **qualitative** indicators, which considered together should provide a reasonably comprehensive picture of the intervention's key achievements

in terms of **processes and outputs** (at expected results level), **outcomes** (at specific objective level) and **impacts** (at overall objective level).

A good starting point in the selection of adaptation indicators is to draw up a "short list" of possible indicators for each result and objective in the logframe, based on the following criteria:

- **Alignment** with existing monitoring and results frameworks: whenever possible, indicators already in use in national or sectoral monitoring systems (including for monitoring progress against sustainable development goals) should be preferred to ad-hoc indicators – recognising however that this may involve trade-offs with specificity and relevance;
- **Specificity**, i.e. how well the indicator matches with the aspect it seeks to capture: this requires thinking about and comparing, on the one hand, the *core concept(s) and/or attribute(s)* associated with the objective or expected result as formulated and, on the other hand, the core concept(s) or attribute(s) captured by the indicator (the more they match, the better); and
- **Relevance**, i.e. the extent to which the indicator constitutes a valid measure of the output, outcome or impact it seeks to capture: this requires thinking about "conceptual coincidence", as in the case of specificity but with a tolerance for "proxy" indicators[6] – but also about coincidence in the level at which the objective or expected result and the indicator are expressed (e.g. an output indicator should not be used, or definitely not in isolation, to measure an outcome).

The **specificity** (if possible) **and relevance** (in all cases) **of indicators to adaptation** must also be ensured. The extent to which an indicator is relevant to adaptation depends to a large extent on the *context* in which it is used, and on the *nature and strength of the adaptation theory of change* underpinning the intervention. For example, "Proportion of agricultural area dedicated to agroforestry" may be adaptation-relevant in a project where support for agroforestry is explicitly associated with adaptation action – but not otherwise. Both the specificity and the relevance of an indicator to adaptation may be strengthened by modifying its formulation to add an *explicit reference* to adaptation, climate resilience or vulnerability, and/or through the specification of a *target or sub-target* that is clearly associated with adaptation (e.g. "Number of students graduating in forestry / agriculture" --> "Number of students graduating in forestry / agriculture *based on a curriculum integrating at least X credits dedicated to climate change adaptation, of which Y students with a related dissertation topic*").

A difficulty with climate change adaptation is that many adaptation-relevant processes, outcomes and impacts are **multidimensional** – so that it is not always easy to capture them with a single indicator. In such cases, the use of several indicators, which individually may not be sufficiently relevant but are specific to and jointly capture the key dimensions of the corresponding objective or expected result, is appropriate and encouraged.

Table 4 provides a few examples of indicators that are (mostly, see comments) specific and relevant to the corresponding result – either taken individually or in combination. In practice, the selection and formulation of adaptation indicators needs to be **context-specific**.

[6] Proxy indicators do not measure an attribute directly but rather measure a correlated attribute. For example, the indicator "Land area under climate-smart agriculture (CSA) measures", although not specific to the objective of "strengthened capacity of smallholder farmers to develop and sustain CSA", can nevertheless qualify as a relevant "proxy" indicator, considering the correlation between the capacity of farmers to implement CSA measures and the land area exploited using such measures *(example drawn from the logframe of the Mauritius project)*.

Table 4: Examples of (mostly) specific and relevant indicators for monitoring adaptation results

Result	Corresponding indicator(s)	Comments
To reduce poverty and inequality by developing sustainable rural livelihoods resilient to climate change impacts (impact level) *(Bhutan)*	• National poverty rate	• Not specific to adaptation nor to the objective as formulated (does not capture the climate-resilient rural livelihoods dimension) • Nevertheless relevant to the objective of poverty reduction, and acceptable as a long-term impact indicator if monitored and interpreted in the context of a changing climate
Increased resilience of coastal communities and ecosystems to climate change (outcome level) through adaptation planning, demonstrated targeted local interventions and provision of practical learning experience in adaptation planning to the National Climate Change Committee and Climate Change Department (process level) *(Cambodia)*	• Number of coastal plans considering climate change risk approved (process indicator) • Number of government staff [national and provincial departments] trained on climate change on technical adaptation themes (output indicator) • % of targeted population in coastal communities aware of climate change risks and appropriate adaptation measures (outcome indicator) • % of mangrove forests in target areas restored and in good health (outcome indicator)	• Each indicator specific to a particular dimension of the result as formulated • First two indicators not relevant (in the sense of "not constituting a valid measure of increased resilience") if considered alone – but part of a relevant set of indicators for measuring the outcome if considered in conjunction with the next two indicators, which are valid measures of increased resilience of, respectively, coastal communities and coastal ecosystems
To strengthen forest sector governance systems (output / process level) and enhance forest cover in the targeted areas (outcome level) *(Mali)*	• Number of projects that use data originating from Mali's forest or environmental information systems (process indicator) • Change in forest cover in the areas targeted by the project (outcome indicator)	• First indicator specific and relevant to one particular aspect of forest sector governance systems (one that is quite central to the support provided) • Second indicator specific and relevant to the outcome component
National Council for Environment and Sustainable Development (CNEDD) equipped with an operational M&E system for initiatives related to climate change, desertification and biodiversity management, providing a foundation for the identification, dissemination, replication and scaling up of climate resilience good practices (…) (output / process level) *(Niger)*	• Existence of an operational database of initiatives related to the 3 themes, regularly updated and accessible (process indicator) • Existence of a validated and operational "dashboard" of indicators supporting the monitoring of national policies related to the 3 themes (process indicator) • Number of agents of CNEDD and partner ministries and agencies involved in the operation of the CNEDD's M&E system trained in data management and analysis (output indicator), and effectively applying the acquired	• All three indicators specific and relevant • Measuring complementary dimensions of the pursued result

Result	Corresponding indicator(s)	Comments
	competences (outcome indicator)	
Climate and disaster risk information, knowledge management, monitoring and strategic planning capacities strengthened (output / process level) *(Pacific)*	• Status of Pacific-specific methodologies for objective assessment of longer-term impacts of past climate and disaster risk interventions (related target: "In place by 2020") (process indicator) • Number of countries (a) with an impacts database and (b) applying the impacts database to inform decision making (process indicator) • Status of reporting on analysis of impact of the climate change and disaster risk management actions in the target countries (output indicator, since target expressed in terms of number of reports)	All 3 indicators specific and relevant – and reflecting progress in the implementation of activities linked to this result

Where a project includes **field projects and activities**, corresponding output and outcome indicators should be identified for inclusion in the initial version of the logical framework – even if the exact nature of these projects or activities is not yet known. If needed, these indicators can always be adjusted after the selection of projects. **Box 2** gives examples of indicators retained on a tentative basis in the initial logical framework of the **Niger** project for monitoring the outputs and outcomes of field actions (which were selected later on, during project implementation, based on a call for proposals).

Box 2: Examples of indicators for monitoring the results of adaptation-relevant field actions

In the initial logframe of the **Niger** project, the following indicators were among those proposed on an indicative basis for monitoring the outputs and outcomes of field actions focused on strengthening agro-silvo-pastoral productions and the sustainable management of land and ecosystems – on the understanding that the most relevant ones would be chosen (or additional indicators could be used) once the exact nature and scope of the projects would be known:

- Number / Surface area of protected watersheds / catchment areas
- Surface area of degraded land recovered (hectares)
- Surface areas planted / reforested (hectares)
- Length of firebreaks developed and maintained (km)
- Surface area dedicated to agroforestry (hectares) (of which surface area exploited by women)
- Number of non-timber forest product value chains developed
- Surface area of new small irrigation schemes developed for vegetable and tree production (of which surface area exploited by women)
- Number of infrastructure items (sills, dams) for surface water mobilisation rehabilitated or built
- Number of wells dug / rehabilitated for farming purposes (incl. crop and vegetable production and pastoralism)
- Number of farmers / breeders / pastoralists / foresters (m/f) trained in the use of climate-resilient techniques for sustainable management of land and productive systems

This is a mix of output and outcome indicators – most of them drawn from the monitoring system of the national initiative on food security and/or the results matrix of the Economic and Social Development Plan 2012-2015.

The **disaggregation** of indicator values for specific criteria, where it is possible, supports finer analysis and can bring additional and useful information for interpreting adaptation results. Opportunities for disaggregating indicators should be considered at an early stage. Meaningful opportunities include disaggregation by:

- Gender, social or socio-economic group, vulnerability status, for *people-centred* indicators;
- Type of measure, type of production, sector and/or geography, for indicators related to the implementation of *adaptation measures*.

Step B2: Check the measurability of envisaged adaptation indicators prior to finalising indicator selection

Selecting specific and relevant indicators is not enough: the chosen indicators must also be measurable. Measurability encompasses **various dimensions**, including:

- The choice of an adequate *measurement unit*, for quantitative indicators;
- The *detailed specification* of indicators (and related targets), based on *objectively verifiable criteria* – for all indicators including qualitative and milestone indicators;
- The existence of reliable and timely *data sources*;
- The clear *documentation of the methodology* to be used for establishing indicators values or status;
- Last but not least, the *cost and time implications* of collecting (or acquiring) and processing the necessary data – which must be commensurate with the budget and duration of the action.

Box 3 gives examples of good practices adopted by some GCCA/GCCA+ projects for ensuring the measurability of indicators.

Box 3: Examples of good practices for ensuring the measurability of adaptation indicators

- For the **Nepal** project, the methodology for monitoring and updating indicator values and the achievement of targets was clearly documented in an "indicator baseline status report" as well as an ad-hoc M&E manual developed specifically for the purposes of the project.
- To monitor the **Uganda** project, the implementing agency took particular care of developing precisely specified indicators and targets, using a combination of clear criteria to measure aspects such as change in resilience, change in capacities, and several types of processes, outputs and outcomes[7]:
  - At *specific objective level*, "Increased proportion of smallholder farmers who register resilience of their farming systems to climate change and their effects" is measured in two complementary manners, based on: (i) a combination of technical and objectively verifiable resilience criteria (diversification of farming activities for income and consumption, access to and availability of quality farm inputs, and adoption of climate-smart agriculture practices – to be combined into a resilience score); and (ii) improvements in subjectively perceived resilience by farmers themselves.
  - At *expected results level*, one indicator is specified as "Staff of all 6 local governments (legislative and executive arms) and other relevant stakeholders (farmer organisations, civil society, development partners) are equipped with knowledge and skills – i.e. have received training / coaching / mentoring and confirm having the capacity to implement previously specified actions on technical aspects of climate-smart agriculture and on mainstreaming CSA in planning processes, in line with climate change-related needs and priorities for their district established by means of

[7] Some of the specifications in the examples given here appear in the project's original logframe, but most are to be found in the "definition" column of the "indicator reference table" included in annual reports.

vulnerability and needs assessment workshops"; this is an example of good practice in terms of specifying a capacity-related output indicator – with targeted stakeholders mentioned, training topics not directly listed but to be determined based on an objective methodology, and verification of the acquired capacities.

- Another example is "Number of district development plans (DDPs) 2021-2025 where CSA is systematically mainstreamed – i.e. CSA is mentioned, with clear recognition of the need to make agriculture resilient to the impacts of climate change, and specific CSA activities are included with budget lines in DDPs, annual budgets and annual workplans": here a process indicator linked to mainstreaming is made measurable by defining objective criteria for establishing that a theme has effectively been "mainstreamed".
- A final example is "Targeted smallholder farmers having adopted (i.e. implementing consistently and correctly) CSA practices [*consistently*: previous and current season, current season and planning to adopt next season, or previous season and planning to adopt next season; *correctly*: technical criteria to be developed for each practice by the technical team or M&E officer]"; here a practice-oriented outcome indicator is made measurable by defining what constitutes the effective "adoption" of new or improved practices.

In practice, **measurability** (especially in its *affordability* dimension) frequently involves **trade-offs with specificity and relevance**, and consideration of this criterion may lead to narrowing down or adjusting the set of indicators initially envisaged under the previous step.

Whether data originate from external sources or are to be collected at project level, the cost and resource (working days) implications of acquiring and processing data and information for monitoring indicators needs to be considered at an early stage, during formulation – so that **adequate financial and human resources** can be earmarked in the intervention's budget. This consideration also applies to *field projects* – the proponents of which must be informed at an early stage (e.g. through the guidelines of the call for proposals) of potentially costly requirements such as the organisation of baseline and end-of-project household surveys.

The detailed **documentation of the methodology** to be used for collecting and processing data and establishing indicator values or status can in most cases be left to the inception phase, in the context of the setting up of the project's M&E system (see Step C2) – however there can be exceptions. In particular, the methodology for establishing the value or status of performance indicators used for triggering the disbursement and determining the amount of budget support tranches must be established at the design stage, as it needs to be included in the financing agreement.

Step B3: Establish adaptation baselines and targets

Baselines are essential for establishing the level of achievement of adaptation action, in particular in particular as far as processes, outcomes and impacts are concerned.[8] They are also important for setting meaningful targets, and where change is measured in proportional terms (e.g. "% increase / decrease in …"), achievements cannot be measured without a quantified baseline.

Key considerations in the **setting of baselines** include:

- *Clarity:* quantitative indicators should have a quantified baseline (including by explicitly mentioning "zero", if this is the case); qualitative indicators, a baseline reflecting the status of one or several qualitative attributes; and status or milestone indicators, a clear, objectively verifiable baseline expressed in terms of "categorical" status (e.g. if the indicator is related to the adoption of a new policy or strategy document, it is useful to mention whether it is to be developed from scratch, or the policy development process has already started, or a draft document already exists);

[8] At output level, the baseline is frequently (although not always) "zero", as the standard practice is to measure specifically the outputs that are under direct project control.

- *Time-specificity*: a baseline should always be associated with a year or more precise moment in time;
- *Verifiability*: the source of information and/or method for establishing the baseline should be clear and documented – especially for baselines drawing on an external data source and/or a precise methodology, since the same source and methodology should in principle be used for subsequently updating the indicator value.

Box 4 gives examples of good practices adopted by some GCCA/GCCA+ projects in establishing baselines.

Box 4: Examples of good practices in the setting of baselines

- In the logframe of the **Bhutan** budget support project, quantified, time-specified baselines are provided for all indicators, including those that were not retained as performance indicators conditioning the disbursement of the variable tranche.
- In the logframe of the **Mali** project, the baseline value of two indicators at expected results level (namely "Forest cover in the targeted communes", and "Number of communes that integrate environment and climate change in their economic, social and cultural development plans and land use plans") was not available in the initial version of the logframe, but was effectively established during project implementation, after the targeted communes had been selected.
- For the **Nepal** project, an extensive baseline household survey involving 2 037 households was conducted. This and other activities enabled the establishment of well-informed baselines for all indicators in the DFID logframe. This helped establish, for example, that at the start of the project, "132 540 people (31%) [lived] in households with very low, 145 750 people (34%) in households with low, 103 130 people (24%) in households with medium, and 45 170 people (11%) in households with high adaptive capacity"; that "89 000 people (21%) lived in households that had already adopted adaptation actions, with indigenous nationalities particularly under-represented (12%)"; that "23 non-governmental and community-based organisations [were] working on climate change adaptation in 28 village district committees across 14 districts"; and that "7.5% out of 2 037 surveyed households [had] received training on climate change before the Nepal Climate Change Support Programme". The results of this exercise were documented in an "indicator baseline status report".

Targets are important for guiding and stimulating adaptation action, and providing a benchmark against which to evaluate performance. They may also contribute to specifying or "operationalising" indicators, and the way they are defined can enhance their measurability.

Key considerations in the **setting of targets** include:

- *Clarity:* quantitative indicators should have a quantified target, expressed in the adequate measurement unit; qualitative indicators, an objectively verifiable target expressed in terms of one or several qualitative attributes; and status or milestone indicators, a clear, objectively verifiable target expressed in terms of "categorical" or implementation status (e.g. if the indicator is related to the adoption of a new policy or strategy document, it is useful to mention whether the target is just validation of a draft or formal adoption – and if so by which institutional body);
- *Time-specificity:* a target should always be associated with a year or moment in time – and ideally, some targets should be set before "the end of the project";
- *Progressivity:* while for some indicators it makes sense to have a single target, for results for which progress is expected to occur gradually, it is useful to set progressive, intermediate targets in addition to final ones;
- *Disaggregation:* disaggregated targets may be used to reflect objectives concerning specific groups or categories (e.g. sub-target for the participation of women or other vulnerable groups in capacity building activities).

Box 5 gives examples of good practices adopted by some GCCA/GCCA+ projects in defining targets.

Box 5: Examples of good practices in the setting of targets

- In the performance assessment framework of the **Lesotho** budget support project, the clear specification of targets contributed to clarifying the selected performance indicators – a necessity since these indicators were intended to determine the disbursement and value of the variable tranche of budget support. For example:
  - "Preparation and approval by Cabinet of a National Climate Change Adaptation and Mitigation Strategy": the target specified that the strategy should comprise at least the following elements: (i) Roles of different institutions; (ii) Distinct regulatory and service-providing responsibilities of different institutions across the government; (iii) Clear strategic objectives, incl. goals and targets; and (iv) Medium-term implementation plan that indicates resource requirements.
  - "Functional and operational central-level coordination group(s) in the areas of climate change and renewable energy": the target mentioned the following functionality and operationality criteria: (i) Permanent membership of the coordination group(s) has been established; (ii) Terms of reference (ToR) prepared, presented and adopted; (iii) Full coordination group meets regularly; (iv) Technical / working groups meet more frequently and report back to coordination group(s); (v) Minutes are taken and circulated; and (vi) Decisions are taken and implemented as per ToR.
- In the **Nepal** project, all indicators in the logframe developed by DFID had intermediate targets or "milestones" as well as a final target. For example:
  - "National climate change strategy is financed and implemented in ways that support the delivery of adaptation priorities of the poorest and most vulnerable" – Baseline (implicitly 2012, at project start): climate change policy (2011) but no strategy or funding mechanism – Milestone end 2013: climate change funding mechanism designed; milestone end 2014: climate change strategy in place; target 2015: climate change strategy being implemented through climate change funding mechanism.
  - "Number of district development committees delivering effective adaptation benefits with the integration of adaptation priorities into planning and budgeting processes" – Baseline 2012: climate change adaptation actions not integrated into any of the 14 district level plans – Milestone end 2013: 10 districts with adaptation integrated and delivering effective benefits to 50 village development committees (VDCs); milestone end 2014: 14 districts with adaptation integrated and delivering effective benefits to 70 VDCs / municipalities; target end 2015: 14 districts with adaptation integrated and delivering effective benefits more widely to their constituent VDCs / municipalities [i.e not just the original 70 VDCs].
- Still in the logframe of the **Nepal** project, output indicator "Capacity developed of climate-vulnerable poor people to identify and address adaptation needs" had gender-disaggregated targets for "vulnerable men" and "most vulnerable women" (with higher targets for women).

2.3. Structures, processes, systems and resources for the M&E of adaptation

Note: This section is focused on *internal* M&E and reporting, i.e. the M&E activities conducted by the actors in charge of implementing, supervising and steering adaptation interventions.[9] By enhancing the "evaluability" of adaptation action, effective internal M&E processes and systems also provide the foundation for effective *external* M&E (not addressed in this practical guide).

[9] The study that underpins the preparation of this practical guide does not include an appraisal of the systems and processes in place for the *external* M&E of projects.

KEY STEPS:

#	Do	When? *When to complete?*
C1	Establish **clear structures and processes** for the M&E of adaptation	At the design stage *During the inception phase and subsequently during implementation, if fine-tuning or adjustment is needed*
C2	Set up a **comprehensive, well-documented M&E system** for tracking adaptation results	At the design stage *Subsequently during implementation, if fine-tuning or adjustment is needed*
C3	Make **specific arrangements** for the M&E of adaptation-relevant **field activities**	As soon as the scope, nature and objectives of the field activities and/or sub-projects are known – and/or at the start of field activities or projects
C4	Allocate **adequate resources**, fine-tune **processes** and prepare a **M&E workplan**	At the design stage (for resource allocation in particular) During the inception phase *Subsequently during implementation, if fine-tuning or adjustment is needed*
C5	**Implement** the M&E workplan and keep the **M&E system up-to-date**	Throughout project implementation
C6	Regularly **report on adaptation results**, in light of the evolution of external factors	Throughout project implementation, up until the closure phase

IN PRACTICE:

Step C1: Establish clear structures and processes for the M&E of adaptation

The M&E of adaptation will be more effective if it is based on clear structures and processes.

Involving national stakeholders is important for promoting ownership of adaptation action, building national capacities and getting regular feedback from those primarily concerned. National stakeholders should participate in project steering and M&E structures and processes at both *political* and *technical* level. Which stakeholders to involve must be determined on a case-by-case basis. Typically, this would include:

- The concerned ministries and government agencies;
- Especially where activities take place at sub-national and local level, local authorities (e.g. regional and/or municipal council representatives) and decentralised technical services;
- Also, civil society organisations (e.g. chambers of agriculture, other industry-specific organisations, water user associations, national or local NGOs).

Another necessity is to **define clear roles and responsibilities for M&E**. Projects typically have a steering committee in charge of providing high-level supervision and guidance, as well as an implementing organisation responsible for day-to-day monitoring and periodic reporting. In between, there may be other structures such as technical working groups or local coordination committees, which can be given a role in M&E in general or more specifically in the M&E of adaptation. Whatever the structures in place, it is important to determine who contributes what to the M&E of adaptation, and how; and as relevant, to **build the capacities of national stakeholders** to exercise their role in this process.

Organising **regular monitoring meetings**, and where applicable **regular field monitoring visits**, is important for identifying and addressing any issues (whether associated with an external factor or with internal organisational or other difficulties) on a timely basis.

Finally, it is recommended to undertake **sufficiently frequent reporting**, including "light" interim reporting (e.g. on a quarterly basis) between six-monthly or annual reports: this stimulates regular stocktaking of progress, and enables the timely adoption of remedial measures should delays or negative developments in the project's external environment affect adaptation achievements.

Box 6 gives examples of good practices adopted by some GCCA/GCCA+ projects in the setting up and operation of structures and processes for adaptation project monitoring.

Box 6: Examples of effective structures and processes for adaptation project monitoring

- In the **Eastern Caribbean**, the Project Technical Team, made up of OECS[10] Secretariat in-house technical staff, reported on project implementation on a quarterly basis – each time documenting achievements against the project's M&E framework. More comprehensive "final reports" were also produced at the end of each of the three programme estimates through which the project was implemented. Eight Project Steering Committee meetings were organised over the 5.5 years during which the project was implemented.
- In **Nepal**, DFID was in charge of project implementation including day-to-day monitoring and reporting. A Project Steering Committee and Project Executive Board were established at the central level, both with a mandate including monitoring and progress review. Importantly, to coordinate and monitor the implementation of local adaptation plans, resources were allocated to the setting up of district-, municipality- and village-level energy, environment and climate change coordination committees with a dedicated monitoring sub-committee; and the establishment of ward-level citizen groups ("ward citizen forums") for field monitoring at community level. These local actors were trained and got support for carrying out their M&E-related duties, and participated in regular planning and review meetings.
- For the **Pacific** project, the three regional implementing organisations[11] produce 6-monthly and annual reports (SPC and SPREP jointly, USP separately). Country coordinators (one for each of the ten island states involved) report on the implementation of country-based activities, guided by country-specific logframes. Partner meetings (of which ten were conducted in 2021) are organised between the three regional implementing organisations to update partners including country coordinators on progress in implementation, and facilitate joint monitoring. Two Regional Steering Committee meetings were also conducted in 2021 (a "hybrid" and a "virtual" one), each involving representatives of all ten project countries, the three implementing partners and the EU Delegation to the Pacific.

Step C2: Set up a comprehensive, well-documented M&E system for tracking adaptation results

Projects with an adaptation focus or significant adaptation dimension need a **comprehensive M&E system**, designed at an **early stage** (i.e. ideally during the first quarter[12] of project implementation), to inform the monitoring and reporting of adaptation achievements (including outcomes and to the extent possible impacts) and to support evaluation and learning processes.

This system should be **aligned with, but not limited to the intervention's logical framework**. Possible enhancements include:

[10] Organisation of Eastern Caribbean States (the regional organisation in charge of project implementation).
[11] Namely the Pacific Community (SPC), the Secretariat of the Pacific Regional Environmental Programme (SPREP), and the University of the South Pacific (USP).
[12] The inception phase, often limited to one month, is generally not long enough to complete the design of the M&E system and gather all baseline data.

- More precise *specification of adaptation indicators* and associated baselines, targets and sources of information / verification;
- The *addition of indicators* to capture aspects of the theory of change not directly reflected in the logframe;
- The addition of indicators and/or specification of activities for the *monitoring of key assumptions and risks* (in particular those that represent external factors with potential for influencing adaptation pathways);
- The documentation of the *methodology* for collecting and processing data.[13]

Box 7 gives an example of good practices adopted by the GCCA project in **Nepal** in the setting up of a comprehensive and well-documented M&E system.

Box 7: Example of good practices in the setting up of a M&E system for adaptation

For the **Nepal** project, DFID (the implementing agency) developed a comprehensive logical framework including outcome indicators requiring the collection of data through household surveys (see Box 4), as well as output and process indicators involving the consolidation of data collected at field level. Responsibilities for M&E were distributed between DFID and a large number of local actors involved in the monitoring of local adaptation plans (see Box 6). To ensure consistency in data collection and processing and support timely and effective M&E operations, DFID developed a *dedicated M&E manual* aligned with the project's logical framework, including a M&E framework (with a logic model, milestones, a M&E workplan and identification of resources required); a M&E timetable; sections on data collection responsibilities, risk monitoring, and intended use of M&E for management, governance, evaluation and learning purposes; and various annexes including data collection templates and a methodology for scoring household adaptive capacity.

Step C3: Make specific arrangements for the M&E of adaptation-relevant field activities

Where a project includes field activities or sub-projects managed at the local level (e.g. by project carriers selected on the basis of a call for proposals), the development of a **common M&E framework** against which to monitor and report adaptation achievements is highly recommended, as it stimulates the use of at least partially **harmonised approaches** to M&E, facilitates the **consolidation** of adaptation outputs and outcomes, and supports subsequent evaluation and learning. The development of shared or at least *partly shared results frameworks*[14] for field projects is thus encouraged – while noting that this should not impose an unduly high or unforeseen burden on project carriers[15]; if useful, this can be complemented by the preparation of *shared monitoring guidelines*. The M&E framework for field activities or sub-projects, once developed, can be integrated into the project's overall M&E system.

Where grant-based field projects report (in part or exclusively) against their **own logframe**, it is also important to ensure that these logframes meet acceptable **quality standards**. This may require some dedicated support at the time of preparing grant agreements and/or during the first months of project implementation.

[13] Where M&E activities are complex and/or require inputs from a large number of actors, the development of detailed *M&E guidelines* or an *M&E manual* may be useful.

[14] Depending on the degree of consistency or diversity in the local circumstances and types of activities implemented.

[15] For example, the use of outcome indicators that require household surveys, environmental or other technical assessments should not be imposed ex-post, as it may involve costs that were not budgeted by project carriers – but is acceptable if the need for such surveys or assessments was made clear in the call for proposals (and could thus be budgeted).

Whatever the M&E arrangements, it may be useful to **train** project carriers and other implementers and supervisors of field activities on M&E requirements and good practices. In some cases, notably when working with resource-deprived local authorities and decentralised technical services, support for the acquisition of **equipment** (e.g. motorbikes for mobility over large expanses of territory, GPS to geo-reference data, smart phones to transmit data) and/or the development of **software applications** (for collecting, transmitting, storing, processing and/or analysing data) may be justified.

Box 8 gives an example of good practices adopted by the GCCA+ project in **Mali** in the setting up of a comprehensive and well-documented M&E system for field projects.

Box 8: Example of good practices in the setting up of a M&E system for field projects

For the field project component of the **Mali** project, a significant investment has been made in setting up a dedicated monitoring system and generally in monitoring field project implementation, including through the strengthening of logistical resources (motorbikes, GPS and smartphones) for data collection, and the development of GPS, web-based and mobile applications for collecting, storing, processing and analysing data on reforestation, forest protection and land restoration activities. Three missions were also organised to train grantee NGOs and local water and forestry service agents in the use of the field project M&E system: first with a focus on the use of geo-referencing for setting baselines at field project sites, then with a focus on data collection, processing and transfer using mobile and web applications. At central level, the forest information system (SIFOR) team with the help of a dedicated M&E officer is operating an integrated M&E system that uses data and other information collected in the field to aggregate results across all five field projects. The necessary data are provided by project carriers through M&E fiches (in addition to narrative reports), and a special data collection exercise was also organised on the occasion of the project's mid-term review.

Step C4: Allocate adequate resources, fine-tune processes and prepare a M&E workplan

Since the proper M&E of adaptation processes, outputs and especially outcomes and impacts provides the basis for learning and subsequent scaling up of effective adaptation practices, the **allocation of adequate resources** to the M&E of adaptation should be considered a long-term investment (rather than just a "management cost"), and a necessary complement to the allocation of resources for adaptation activities. It should be planned at the intervention design stage, in parallel with the development of the logical framework, taking into account the workload and other resource needs associated notably with the monitoring of the selected indicators.

During the inception phase or first few months of project implementation, the **M&E structures and processes** outlined at the design stage should be operationalised, refined and/or further specified and integrated into the project's M&E system.

The development of a **M&E workplan**, for the project in general and/or for adaptation aspects in particular, is encouraged. It typically defines:

- A *detailed agenda* for data collection and other M&E-related activities, including the updating of indicators;
- *Roles and responsibilities* for implementing M&E activities; and
- The allocation of *human and financial resources* for the planned M&E activities.

The GCCA/GGCA+ projects in **Nepal** and the **Pacific** are examples of projects for which a M&E workplan was adopted.

Step C5: Implement the M&E workplan and keep the M&E system up-to-date

Once a good M&E system has been designed, it must be **implemented as planned**, throughout project implementation. This brings back to the importance of allocating adequate resources for adaptation-

related (and other) M&E activities: it is better to opt for a less ambitious M&E system, but implement it fully and rigorously, than to design an excessively burdensome system and then fail to implement it for lack of resources.

A basic requirement is to systematically **document achievements against the project's logical framework**, throughout implementation (rather than just at the time of preparing the final report), so as to keep the "big picture" in mind and track project achievements over time. This involves:

- The ongoing and/or periodic *updating of the value or status of indicators*;
- Ideally, also the monitoring and documentation of *developments linked to assumptions, risks and key external factors* identified in the project's theory of change.

Box 9 gives examples of good practices adopted by some GCCA/GCCA+ projects in operating M&E systems for adaptation.

Box 9: Examples of good practices in the operation of M&E systems for adaptation

- In **Mauritius**, the field project managed by the *Mauritius Chamber of Agriculture* uses a set of technical, economic, social and environmental indicators, applied at farm level, for the M&E of the introduction of agroecological measures in vegetable production. It involves the ongoing collection of data (e.g. on farming techniques and practices, inputs, costs, outputs and income by product) throughout the trial period. This, combined with ad-hoc surveys, will help document outputs such as the identification of suitable agroecological production systems; outcomes such as the sustainability and climate-resilience of various cropping systems, and the sustainability of involved farms; and impacts such as changes in yields and the gross margins of participating farmers.
- In **Uganda**, a mid-term review involving key expert interviews, farmer group discussions and interviews involving no fewer than 1 225 households was undertaken to establish the intermediate value of the four indicators at specific objective level – the evolution of which would otherwise not have been known until the end-of-project survey.

Step C6: Regularly report on adaptation results, in light of the evolution of external factors

It is recommended to report, even tentatively or provisionally, on **progress against all adaptation-relevant elements of the logical framework**, at least up to outcome level[16], **in each interim progress report** – both in *narrative form* (complemented as relevant by tables, graphs, etc.) and through the inclusion of the full *logical framework with updated indicator values*. More specifically, interim progress reports as well as final reports should provide:

- Sufficiently detailed information not just on *activities* implemented and *processes* supported, but also on *outputs* achieved – in a clear and structured manner (ideally in line with the structure of results and activities in the logframe), and including a summary of the activities and achievements of field projects if relevant;
- Information on *outcomes* and *impacts* achieved (as soon as they can be established) or anticipated (when they cannot yet be measured with precision but some anecdotal or provisional observations can be made).[17]

[16] Reporting on achievements at impact level may not be possible in the initial years of project implementation.
[17] For example, the final implementation report of the **Eastern Caribbean** project indicates that the project-funded "physical adaptation measures" withstood two category-5 hurricanes, and may thus in the longer run constitute good options for reducing the loss and damage caused by climate change. This is an interesting observation on impact, even if anecdotal and limited in scope. And in **Mauritius**, one of the supported field projects reports that nearby planters not directly involved in project activities have started emulating project participants and adopting climate-smart agriculture practices: this is an emerging impact not specifically identified in the project's logical framework, but worth reporting upon.

For those project results that are not explicitly aimed at climate change adaptation but have a connection with it (e.g. in the context of natural resources management projects or mitigation projects with adaptation co-benefits), it is also useful to **highlight connections with climate vulnerability, resilience and adaptive capacity**.

As already mentioned, **external factors** may interfere with the achievement of adaptation results – so reporting on their evolution and possible influence is a recommended practice. This involves:

- Reporting on *factors of specific relevance to adaptation trajectories*, at all levels (i.e. not just output but also outcome and impact levels), and explaining how they may have positively or negatively influenced the reported results; and
- Trying to establish the *underlying causes* of difficulties encountered (e.g. institutional, socio-cultural or economic barriers to the adoption of new climate-resilient practices), even in the form of hypotheses if there are no certainties.

Box 10 gives examples of good practices implemented by some GCCA/GCCA+ projects in reporting on adaptation results.

Box 10: Examples of good practices in reporting on adaptation results

- In the **Bhutan** project, the interim assessments of policy eligibility and the final report on budget support prepared by the EU Delegation provide useful and rather detailed information on the nature of adaptation-relevant outputs achieved with the help of budget support. They also document achievements against the logical framework's two outcome indicators (reported at "induced output" level), and provide some additional information (compared with indicator values alone) for understanding how and under which conditions progress was achieved, notably in the light of economic, institutional, capacity-, data- and infrastructure-related challenges. The final report also documents the evolution of the national poverty rate and the supported sector's GDP – two impact indicators unrelated to disbursement conditions but retained in the project's overall logical framework.
- Implementation reports for the **Eastern Caribbean** project discuss assumptions including the possible effect of political, capacity-related and climate-related factors on the generation of adaptation outputs.
- In **Uganda**, thanks in part to the mid-term review which enabled the updating of four important indicators (see Box 9), the third annual progress report includes an "Indicator reference table with status update" that, along with text provided in the narrative part of the report, gives information on achievements to date against all logframe indicators at specific objective and results level. The report also explains the impact of a political factor – namely how the holding of elections and subsequent replacement of many resident district commissioners and district councillors led to reduced momentum of coordination and implementation, required a new round of "on-boarding" of key local stakeholders and involved a risk of memory loss in the implementation of climate-smart agriculture approaches.

2.4. Cross-cutting: Enhancing the quality and evaluability of adaptation action

This section provides guidance on approaches for enhancing the "evaluability" of adaptation action based on a selection of generic and adaptation-specific quality criteria. The proposed steps are a "qualitative add-on" to the practical steps identified in Sections 2.1 to 2.3.

KEY STEPS:

#	Do	When to complete?
D1	Consider approaches for enhancing the **results orientation** of adaptation action (OECD-DAC evaluation criteria)	At the design stage *During the inception phase and subsequently during implementation, if fine-tuning or adjustment is needed*
D2	Consider approaches for integrating the **Paris Agreement's adaptation principles** and the **equity principle**	At the design stage *During the inception phase and subsequently during implementation, if fine-tuning or adjustment is needed*
D3	Integrate elements reflecting these approaches in the **logical framework** and other project design elements	At the design stage *During the inception phase and subsequently during implementation, if fine-tuning or adjustment is needed*
D4	**Report on the implementation** of these approaches	Throughout project implementation

IN PRACTICE:

Step D1: Consider approaches for enhancing the results orientation of adaptation action

The evaluation criteria of the Development Assistance Committee of the Organisation for Economic Cooperation and Development (OECD-DAC)[18] are widely used for assessing the results orientation of development interventions. The study underpinning the preparation of this practical guide examined the extent to which the reviewed projects' logical frameworks, and/or elements of their wider internal M&E systems, support the "evaluability" of adaptation based on five of the six **OECD-DAC criteria** – namely relevance, coherence, efficiency, impact and sustainability.[19]

Projects should be designed with these criteria in mind from the onset, so that they are strongly embedded in the intervention logic and implementation approaches and modalities.

Table 5 gives examples of approaches used by GCCA/GCCA+ projects to ensure the results orientation of adaptation action, based on these five criteria, as documented by their logical frameworks and implementation reports.

Table 5: Examples of approaches to enhance the results orientation of adaptation action

Approaches to enhance:
Relevance
[Participatory] needs assessment, national and local consultations, extensive use of participatory approaches as a basis for developing project activities or selecting the most relevant adaptation measures to be supported *(Eastern Caribbean, Haiti, Mauritius, Niger, Pacific)*
Vulnerability assessment to inform the prioritisation, design or planning of adaptation measures *(Belize)*
Customisation of training activities (contextualisation of training materials, use of local languages) *(Pacific)*

[18] Detailed information on these criteria is available from this web page.
[19] The *effectiveness* criterion was not addressed as by essence logical frameworks and M&E systems are set up to inform the achievement of objectives and results.

Approaches to enhance:
Monitoring of the satisfaction of project beneficiaries with the adaptation measures implemented and related services received *(Nepal, Niger)*
Monitoring of perceived changes in vulnerability or adaptive capacity by beneficiaries of field activities *(Belize, Cambodia)*
Coherence (internal)
Alignment, establishment of linkages and/or search for synergies with existing policies / plans and/or with ongoing development planning processes *(Cambodia, Eastern Caribbean, Haiti, Lesotho, Mali, Mauritius, Nepal, Niger, Rwanda, Pacific, Solomon Islands, Uganda)*
Coordination, cooperation and exchange of information with various ministries and other government agencies *(Mauritius, Niger, Uganda)*
Contribution to the implementation of existing adaptation-relevant policies, plans or legislation *(Belize, Mali, Solomon Islands)*
(Support for the) allocation of resources to existing adaptation plans *(Solomon Islands)*
Co-financing of a programme with the government *(Rwanda)*
Coherence (external)
Establishment of linkages, coordination and cooperation with other donors, programmes and/or projects relevant to adaptation action *(Belize, Cambodia, DR Congo, Eastern Caribbean, Haiti, Mauritius, Niger, Pacific, Uganda)*
Co-financing of a programme with other donors *(Nepal, Rwanda, Uganda)*
Participation in adaptation-relevant sector coordination mechanisms at national level *(Lesotho)*
Efficiency (cost-effectiveness)
Adoption of specific measures (through cooperation with other interventions) to avoid the duplication of efforts or support activities *(Pacific)*
Adaptation of a methodology for facilitating the scaling-up of project activities at a reduced cost *(Pacific)*
Efficiency (timeliness) monitoring
Use of progressive targets or intermediate milestones towards the achievement of the final goal *(Bhutan, DR Congo, Pacific)*
Setting of targets across various years (rather than all targets "by project end") *(DR Congo, Mali, Pacific)*
Interim reporting of achievements against the entire results framework *(Uganda)*
Monitoring of and reporting on the time needed to carry out some activities and/or produce some outputs (incl. as relevant justification for delays incurred) *(Cambodia, DR Congo, Eastern Caribbean, Niger)*
Impact monitoring
Integration of impact indicators (either in the sense of the study's conceptual framework, or in the usual sense) in the results framework *(Bhutan, Haiti, Mali, Mauritius, Niger, Rwanda, Uganda)*
Provision of anecdotal evidence of impact in report narratives *(Eastern Caribbean, Pacific)*
Sustainability[20]
Strengthening of the institutional framework and wider enabling environment for adaptation action *(Belize, Haiti, Mali, Nepal, Rwanda, Uganda)*

[20] In the sense of the OECD-DAC's evaluation criterion, i.e. the [potential for] continuation of the benefits generated by the intervention after it has ended.

Approaches to enhance:
Mobilisation of, or enhancement of the ability to mobilise funding (from domestic as well as external sources) for adaptation action *(Cambodia, Haiti, Nepal, Niger, Pacific, Rwanda)*
Implementation of specific activities, setting up of mechanisms, and/or strengthening of capacities for lesson learning, capitalisation of experience and/or dissemination, replication and scaling up of good adaptation practices *(Cambodia, Haiti, Mali, Mauritius, Niger, Pacific, Uganda)*
Training of trainers (facilitating the continuation of capacity building activities beyond project implementation, with other resources) *(Nepal, Pacific, Uganda)*
Strengthening of capacities for maintenance, or other measures for ensuring that equipment or infrastructure acquired with project support remain operational beyond the project's lifetime *(Eastern Caribbean, Pacific, Rwanda)*
Consideration of the economic viability, affordability and/or "maintainability" of promoted adaptation practices / techniques *(Haiti, Uganda)*

Step D2: Consider approaches for integrating adaptation and equity principles

Article 7 of the Paris Agreement establishes **six adaptation principles** – recommending that adaptation be country-driven, gender-responsive, participatory and transparent, addressing vulnerabilities, guided by best science and local knowledge, and supportive of national development / integrated into wider development policies and plans. Another important principle underpinning the UNFCCC, reiterated in the Paris Agreement, is the **equity principle**.

Projects should also be designed with these principles in mind from the onset, so that they are strongly embedded in the intervention logic and implementation approaches and modalities.

Table 6 gives examples of approaches used by GCCA/GCCA+ projects to ensure the quality of adaptation action through integration of these principles, as documented by their logical frameworks and implementation reports.

Table 6: Examples of approaches to integrate adaptation and equity principles

Approaches to enhance:
Country (and regional) leadership
Explicit leadership role given to and exercised by regional organisations in the implementation of adaptation action *(Eastern Caribbean, Pacific)*
Strengthening of sub-national institutions for the delivery of adaptation action with strong local ownership *(Nepal, Niger, Pacific)*
Explicit support for community leadership in the implementation of adaptation action *(Pacific, Uganda)*
Direct management of pilot projects / field activities by government institutions and/or national non-state actors (local government, NGOs, civil society organisations) *(Belize, Cambodia, Nepal)*
Stimulation of country leadership in the planning and implementation of adaptation action through the use of the budget support modality *(Bhutan, Rwanda, Solomon Islands)*
Gender responsiveness
Use of one of more gender-disaggregated indicators (and/or gender-specific targets or sub-targets) *(Bhutan, Cambodia, Haiti, Mauritius, Nepal, Niger, Uganda)*
Use of one or more indicators specifically focused on women or gender mainstreaming *(Cambodia, Haiti, Pacific, Uganda)*
Explicit integration of the gender dimension in a project objective, result and/or activity *(Niger, Pacific, Rwanda, Uganda)*

Approaches to enhance:
Monitoring of female participation and/or gender mainstreaming in project or project-supported activities *(Cambodia, DR Congo, Mali, Mauritius, Nepal, Niger, Pacific, Rwanda, Uganda)*
Support for integration of gender aspects in the national policy framework *(Bhutan, Lesotho, Nepal)*
Participation
Use of consultations and/or participatory approaches in the planning of project activities *(DR Congo, Eastern Caribbean, Haiti, Nepal, Pacific)*
Use of consultations and/or participatory approaches in the implementation of project activities *(Belize, Cambodia, DR Congo, Eastern Caribbean, Haiti, Mali, Mauritius, Niger, Pacific, Solomon Islands, Uganda)*
Use of consultations and/or participatory approaches in the M&E of project activities *(Eastern Caribbean, Nepal, Niger, Pacific, Rwanda)*
Specific efforts to support stakeholder and/or community engagement in adaptation action *(Belize, Cambodia, Eastern Caribbean, Mauritius, Nepal, Niger, Pacific, Solomon Islands, Uganda)*
Transparency
Development of M&E frameworks or systems specifically dedicated to adaptation action *(Lesotho, Nepal)*
Strengthening of public financial management systems in support of adaptation action, development of fiduciary standards for the management of adaptation funds *(Nepal)*
Impact analysis of past climate and disaster risk interventions *(Pacific)*
Specific efforts to be accountable for adaptation action towards the population *(Pacific)*
Mention of the criteria used for prioritising the beneficiaries of adaptation activities *(Mauritius)*
Focus on vulnerability
General targeting of the action at vulnerable groups (e.g. coastal communities, island and atoll dwellers, smallholder farmers, rural population, poorest people) *(Cambodia, Mauritius, Nepal, Rwanda, Solomon Islands)*
Focus of field activities on particularly vulnerable groups or communities (e.g. coastal communities, outer islanders, smallholder farmers, the rural poor, young or elderly people, the unemployed, low-income women, female-headed households, ethnic minorities or other socially marginalised groups, …) *(Belize, Cambodia, DR Congo, Haiti, Mauritius, Nepal, Pacific, Uganda)*
Focus of field activities on particularly vulnerable ecosystems (e.g. coastal ecosystems, climate- and/or disaster-vulnerable watersheds or agricultural areas, degraded watersheds, degraded forests, threatened national park and its surroundings) *(Belize, Cambodia, DR Congo, Eastern Caribbean, Haiti, Mauritius, Nepal)*
Specific outreach efforts towards vulnerable groups *(Cambodia)*
Integration of science
Support for climate- or adaptation-relevant research *(Bhutan, DR Congo, Mauritius)*
Explicit use of scientific methods, and establishment of scientific collaborations in support of project implementation *(Mauritius)*
Support to the revitalisation of a “science-policy platform” *(Niger)*
Training and information sharing on climate science *(Cambodia)*
Integration of local knowledge
Integration of indigenous, traditional and local knowledge in climate change adaptation policy *(Lesotho)*

Approaches to enhance:
Support for the identification, assessment, adaptation and/or dissemination of local and traditional knowledge *(Mali, Pacific)*
Training on the integration of local knowledge in adaptation planning and implementation *(Solomon Islands)*
Integration into wider socio-economic and environmental policies and actions
Mainstreaming of climate change / adaptation / disaster risk management into the core national development policy and/or plan *(Bhutan, Cambodia, Lesotho, Solomon Islands)*
Mainstreaming of climate change / adaptation / disaster risk management into sector policies, plans and/or actions *(Belize, Bhutan, Cambodia, DR Congo, Eastern Caribbean, Haiti, Mali, Mauritius, Nepal, Niger, Pacific, Rwanda, Solomon Islands, Uganda)*
Mainstreaming of climate change / adaptation / disaster risk management into sub-national development plans *(Cambodia, Mali, Nepal, Niger, Pacific, Uganda)*
Development of cross-sectoral and interinstitutional coordination and collaboration mechanisms for climate action *(Belize, Cambodia, Haiti, Lesotho, Mali, Nepal, Niger)*
Building of capacities for climate change adaptation and/or adaptation mainstreaming across relevant socio-economic and environmental sectors *(Belize, Haiti, Mauritius, Niger, Solomon Islands, Uganda)*
Equity
Categorisation of project beneficiaries into various vulnerability / adaptative capacity classes, and subsequent monitoring of how various categories participate in project activities and the extent to which people or households change category over time *(Nepal)*
Implementation of a social inclusion, or joint gender and social inclusion approach *(Nepal, Pacific)*
Implementation of a rights-based approach, aimed notably at ensuring equity in adaptation action outcomes *(Pacific)*

Step D3: Reflect these approaches in the logical framework and other project design elements

The chosen approaches to ensuring the quality of adaptation action, as exemplified above, should be explicitly reflected in the project's logical framework, through integration in the formulation of objectives and results, the short description of activities, and/or the selection and formulation of indicators and targets. They should also be reflected in the action document and other project design documents as may be relevant, and considered in the choice of implementation modalities.

Box 11 gives a few examples of the integration of elements reflecting approaches towards the quality of adaptation action in the logical frameworks of the reviewed GCCA/GCCA+ projects.

Box 11: Examples of integration of approaches towards quality of adaptation in logical frameworks

- [RELEVANCE] In the logframes and related workplans of the **Pacific** project, the short description of activities and the formulation of a few indicators document the extensive use of participatory approaches (e.g. national consultations for the development of an impact assessment methodology, diagnostic assessment of capacity needs, national and local consultations for selecting the most relevant adaptation measures / intervention types to be scaled up) and other approaches (e.g. testing of the impact assessment methodology prior to its deployment, customisation of training materials to local contexts) that together support the relevance of project activities.
- [EXTERNAL COHERENCE] In the logframe of the **Cambodia** project, indicators "Amount (US$) of additional contribution to the Trust Fund or parallel funding mobilised" and "Continued donor support to Cambodia Climate Changes Alliance Trust Fund" reflect efforts towards cooperation with other donors to establish joint support mechanisms for adaptation action in Cambodia.

- [COUNTRY LEADERSHIP] In the logframe of the **Cambodia** project, the first result is focused on the strengthening of national institutions, with process indicators measuring the achievement of institutional and policy-related milestones that would be difficult to achieve without a reasonable degree of national ownership and leadership. Relevant indicators from this perspective stress the *allocation of national funding* to climate action, the *official endorsement* of new climate-related policies and institutional mechanisms, and the *functionality / operationality* of new institutional mechanisms.
- [INTEGRATION] The **Haiti** project was underpinned by joint and integrated consideration of climate and environmental action, and also aimed to support climate change mainstreaming in other sectors. This is reflected in the project's logical framework, notably in:
  - The formulation of the specific objective ("To strengthen the government's capacity to mainstream environmental sustainability and climate change adaptation into Haiti's development policies, strategies, programmes and projects") and related indicator;
  - The formulation of Result 1 ("Haiti's government has strengthened institutional mechanisms, capacities and resources for environmental management and climate change integration in the planning and implementation of reconstruction, development and energy sector actions") and related indicators; and
  - The tentative choice of indicators for the field activity component of the project, which highlight the possible connections of adaptation action with sustainable ecosystem management (forests, mangroves, coral reefs, …), domestic energy (charcoal and fuelwood consumption), agriculture, water resources management, land use planning, and construction.

Step D4: Report on the implementation of these approaches

The planning and, most importantly, the implementation of the chosen approaches to ensuring the quality of adaptation action, as exemplified above, should be explicitly documented in inception, interim and final implementation reports.

Box 12 gives a few examples of the documentation of approaches towards the quality of adaptation action in the reports issued by GCCA/GCCA+ projects.

Box 12: Examples of documentation of approaches towards quality of adaptation in reports

- [INTERNAL COHERENCE] The first "tranche assessment report" for the **Solomon Islands** project explains how this budget support intervention, by incentivising the allocation of resources from the national budget, contributed to the implementation of specific components of the national adaptation programme of action (NAPA).
- [SUSTAINABILITY] The final report of one of the TA contracts under the **Niger** project gives a detailed description of efforts made to ensure the sustainability of M&E- and capitalisation-related outputs, systems and processes established with project support. The supported approaches include on-the-job training, the significant involvement of national actors in the generation of outputs to ensure ownership, the use and strengthening of existing M&E systems and institutional cooperation processes, and the securing of funding to support ongoing operation of the mechanism for capitalising on experience and disseminating good practices for at least five years after the end of the project. The report also recommends the appointment of dedicated staff to keep operating the supported systems and processes.
- [COUNTRY LEADERSHIP] The final TA report of the **Haiti** project gives a short explanation on country leadership in the implementation of the action, achieved in spite of significant politico-institutional instability – and in the process also hints at limitations in country leadership (which is equally useful from the perspective of M&E of this aspect). it also briefly discusses how the project helped increase the standing of the Ministry of Environment at national level.
- [PARTICIPATION] The interim and final reports of the **DR Congo** project provide information on the use of participatory methods in support of the design of agroforestry options adapted to various types

of landscapes, the dissemination of agroforestry research results and good practices, the implementation of some reforestation activities, the demarcation of land in and around the Virunga National Park, and the resettlement of populations illegally settled in the park.

- [FOCUS ON VULNERABILITY] The final report of the **Cambodia** project gives evidence of consideration of the needs of vulnerable groups, as well as the use of vulnerability assessments, in several grant projects. The involvement of vulnerable groups (female-headed households, older people and widowers, children, ethnic minorities, the landless poor) in pilot adaptation projects was also a specific discussion topic at the 2014 adaptation learning event, as described in the event's final report.
- [INTEGRATION OF SCIENCE] In **Mauritius**, the grant project managed by the *Mauritius Chamber of Agriculture* is based on a strong science-based, evidence-based approach. The 2021 progress report describes scientific collaborations established to support project implementation, notably with Mauritius's Food Agricultural Research and Extension Institute, the French Agricultural Research Centre for International Development (CIRAD) and the Mauritius Research and Innovation Council. It also provides details on the scientific methods used for planning and monitoring the introduction of agroecological practices in vegetable production systems.

3. Practical steps towards strengthening partner countries' adaptation M&E systems

KEY STEPS:

#	Do	When to complete??
E1	**Identify opportunities** for using or enhancing national M&E systems for adaptation, based on a review of possible synergies with project activities and M&E needs	At the design stage *During implementation, if further opportunities arise*
E2	**Integrate activities** that contribute to the strengthening of national M&E systems for adaptation	At the design stage *During implementation, if further opportunities arise*
E3	Help lay the **foundations for transformational adaptation** and avoidance of maladaptation	During project implementation

IN PRACTICE:

Step E1: Identify opportunities for using or enhancing national M&E systems for adaptation

Looking at the articulation of the project's activities, data collection needs and own M&E system with national M&E systems for adaptation can lead to identifying concrete opportunities for the project to contribute to the strengthening of national adaptation M&E systems in parallel with conducting its own monitoring and other activities.

Opportunities for creating synergies between a project's activities and data collection needs and the strengthening or enhancement of national M&E systems for adaptation notably include:

- *Making use of national M&E or statistical systems* or elements thereof (such as specific indicators, databases, statistical datasets, surveys or reports) for developing specific project outputs or meeting at least part of the project's M&E needs – and in the process, helping address the identified gaps and weaknesses in the concerned systems through project activities;
- *Designing and implementing ad-hoc studies* (such as vulnerability and adaptation assessments), *surveys* (such as baseline and end-of-project surveys), *monitoring systems* (such as those set up for

tracking the implementation and results of field projects) *or other data collection and analysis instruments*, initially intended for project purposes, in such a way that they:

- Link with, and can also serve *other / national purposes* (e.g. informing adaptation planning beyond the project's strict needs, informing the preparation of national communications on adaptation); and/or
- Have *potential for subsequent integration* into national M&E systems through replication (e.g. recurrent organisation of surveys to monitor adaptation outcomes and impacts over time) or scaling up (e.g. extension to other geographical areas or field projects).

In addition, it is of course possible to make support for the strengthening of national M&E systems for adaptation an objective or **core activity** of a project, notably in the context of projects focused on strengthening the institutional framework and enabling environment for adaptation action.

Box 13 illustrates the use of national M&E or statistical systems for GCCA/GCCA+ project implementation and/or M&E purposes – while **Box 14** gives examples of other approaches through which GCCA/GCCA+ projects contributed, on an ad-hoc or more perennial basis, to the development or strengthening of the adaptation M&E systems of GCCA/GCCA+ partner countries.

Box 13: Examples of use of national M&E or statistical systems for GCCA/GCCA+ project purposes

- In **Bhutan**, reporting on project implementation and the achievement of the budget support performance indicators relied entirely on the renewable natural resources (RNR) sector's M&E system – notably livestock statistics and annual RNR sector reports. The sector's M&E system was itself aligned with the key result areas of the 12th Five-Year Plan, and was strengthened with project support.
- In the **Mali** project, the monitoring of some indicators in the project's logframe depends on data available from the national forest information system (SIFOR), the national environmental agency (AEDD) and national forest inventory updates. Also, one of the indicators at specific objective level is "Number of projects that use data originating from Mali's forest or environmental information systems" – reflecting efforts to strengthen national information systems in view of their effective use. The project combines the use of national information systems with a contribution to their strengthening.
- For the **Rwanda** budget support project, the selected performance indicators were all drawn (with adaptations if needed) from the M&E frameworks of the national strategic plans of the environment and natural resources sector and the land sub-sector – signalling a willingness to align with and make use of national M&E systems.
- In **Solomon Islands**, the geographical information system (GIS) developed with project support for the Climate Change Division of the Ministry of Environment, Climate Change, Disaster Management and Meteorology enables the capture of data already available in different sectors (including geographical and natural resource-related features, socio-economic data and disaster-related biophysical data) into a tool that facilitates data integration, analysis and use in support of climate vulnerability assessment and decision making on land use. Queries combining data from these various categories can notably produce detailed information on the exposure and climate-related vulnerabilities of communities, infrastructure and natural assets.

Box 14: Examples of other forms of support for partner countries' adaptation M&E systems

Monitoring of exposure and vulnerability

- In **Belize**, the project financed a detailed vulnerability and adaptation assessment that provides useful information on climate trends and projections, based on downscaled climate models. It also includes detailed information on climate vulnerability across six sectors: coastal development, water, agriculture, tourism, fisheries and health.

M&E of adaptation processes and outputs

- In **Cambodia**, the project supported the development of a comprehensive "national M&E framework for climate change responses" strongly focused on adaptation. By the end of the first phase of the project[21], five scorecard-based process indicators had been agreed, related to the status of climate policy and strategies, climate integration into development planning, coordination mechanisms, climate information systems, and status of integration into development financing mechanisms – with baselines and targets established to monitor institutional strengthening for the response to climate change.

M&E of adaptation outcomes and impacts

- The **Pacific** project supports the development and implementation of a methodology for ex-post assessment of the impacts of completed climate change adaptation interventions, from the perspective of effectiveness, social and behavioural changes achieved, lessons learnt and successful practices, and sustainability aspects. This includes the setting up at national level of impact databases that can be added to existing climate change portals.

Development of adaptation indicators

- In **Niger**, the project facilitated the setting up, at the National Council for Environment and Sustainable Development, of a results framework and a "dashboard of indicators" linked to the implementation of the "Rio conventions", i.e. the UN Framework Convention on Climate Change, the Convention on the Fight against Desertification and the Convention on Biological Diversity. The dashboard includes a total of 107 indicators (97 unique indicators), of which 7 impact, 21 outcome and 79 output indicators, articulated against an appositely developed results framework for the National Plan for Environment and Sustainable Development (PNEDD). Most of these indicators are highly relevant for the purposes of M&E of adaptation.

Strengthening of sector-specific M&E systems with applications for the M&E of adaptation

- In **Uganda**, project activities involve the design and piloting of a basic monitoring system for agricultural activities implemented at district level, aiming to establish "the basis of a locally anchored monitoring, reporting and verification (MRV) system for the agricultural sector which reports on achievements in greenhouse gas (GHG) reduction, in adaptation and on financing of climate action". The focus is on GHG emission monitoring; however, it is assumed that the data collected for the purposes of calculating changes in emissions based on land uses, farming activities and the adoption of practices such as agroforestry and mulching, also have some relevance for monitoring progress towards climate-resilient agriculture.

Step E2: Integrate activities that contribute to the strengthening of national adaptation M&E systems

Support for the strengthening of partner countries' M&E systems can be provided on an **ad-hoc basis**, i.e. as a one-off contribution, or on a more **perennial basis**, i.e. with a view to establishing or enhancing permanent features of M&E systems for adaptation. Without dismissing the first option, the second one is of course to be preferred from a sustainability point of view.

Good practices to ensure that the support provided has a chance of leading to the **permanent strengthening** of national M&E systems for adaptation include:

- *Closely engaging* the organisations and individuals in charge of operating and using the concerned M&E systems, at all relevant levels, *in system design and implementation*;
- Providing support *over long durations*, through activities that extend ideally over the entire project duration, or at least over a few years;

[21] The GCCA+ supported two subsequent phases of the Cambodia Climate Change Alliance initiative.

- Where possible, using and strengthening *existing M&E systems* and *related institutional cooperation processes*, rather than creating new systems and/or processes from scratch;
- Involving the *national statistical office* in the design or enhancement of M&E systems for adaptation, even if it is not to be directly involved in their subsequent operation;
- Developing technical systems for data collection, processing, analysis and sharing that meet essential *technical requirements* (e.g. fast and easy transmission and consolidation of data, geo-referencing and mapping, access to remote sensing applications) but are also *sustainable* – i.e. are to the extent possible affordable (considering acquisition as well as maintenance costs), robust, adapted to local conditions (e.g. climate conditions, technical skills, technological environment), and easily operated and maintained by local staff;
- *Building the capacities* of national stakeholders, at all relevant levels, to operate and maintain the supported M&E systems and also to use their outputs for monitoring, planning and other decision- and policy-making purposes;
- Integrating the *continued operation of the supported M&E systems* in the *strategies and action plans* of the concerned organisations, and where several organisations contribute to the operation of an M&E system, consolidating the underlying *interinstitutional cooperation arrangements* through the signature of formal agreements; and
- To the extent possible, making suitable arrangements for ensuring the *continued availability of resources* for operating the supported M&E systems after the end of the project.

Box 15 illustrates some of these good practices as implemented by the reviewed GCCA/GCCA+ projects.

Box 15: Examples of good practices in supporting the strengthening of adaptation M&E systems

- In the first phase of the **Cambodia** project, analytical work began for the development of a national, hazard-specific climate vulnerability index, combining two key dimensions (loss and damage from climate hazards and underlying social vulnerability), that drew from available data sources including existing social and environmental indicators. (The design of this index, and the development of the country's national M&E framework for climate change, benefited from medium-term support that continued during the second phase of the Cambodia Climate Change Alliance initiative.) Various national stakeholders, including the Ministry of Environment's Department of Climate Change, the Ministry of Planning, the National Institute of Statistics and the Ministry of Public Works and Transport (the latter for piloting sector level application), had a role in the design and subsequent implementation of the index and M&E framework. These developments were complemented by capacity development activities (on the M&E of climate action and other topics) aimed *inter alia* at the Climate Change Department, the National Climate Change Committee and the inter-ministerial Climate Change Technical Team.
- In **Nepal**, the comprehensive M&E system developed for the purpose of monitoring the GCCA-supported project was conceived in such a way that it helped establish systems and develop capacities for the M&E of local adaptation efforts with potential uses beyond the project's lifetime. District, village and municipality development committees were trained on the M&E of adaptation; experience was also built on the organisation of household surveys aimed notably at establishing the status and evolution of vulnerability to climate change. In addition, the setting up of local adaptation funds managed at district level and channelled through national "on-budget, on-treasury" systems provided a basis for tracking at least part of the resources and expenditures dedicated to adaptation at sub-national (district) and local (village, municipality) levels, using national systems.
- In **Niger**, the results framework and "dashboard of indicators" established at the National Council for Environment and Sustainable Development (CNEDD) (see Box 14) were designed with close involvement of the staff of CNEDD and other organisations contributing data to the system. Responsibilities for updating the indicators were clearly established, and an online application was developed to facilitate both the updating process and the consultation of the indicator database. As a

complement, the project delivered training and on-the-job capacity building on the M&E of actions and achievements related to the three "Rio conventions", with a view to supporting reporting to the convention secretariats and facilitating the use of collected data to inform national policy- and decision-making.

- See also the example of **Mali** in Box 8.

Step E3: Help lay the foundations for transformational adaptation and avoidance of maladaptation

To meet the growing challenges associated with adaptation, national M&E systems across the world need to be developed in such a way that they capture the **long-term perspective**. In other words, besides supporting ***incremental adaptation*** – i.e. an approach to adaptation that seeks to preserve or "climate-proof" *existing systems and practices*, current or planned investments and development activities, and existing development models, they should also be equipped to inform ***transformational adaptation*** – i.e. an approach to adaptation that changes the fundamental attributes of socio-ecological systems in anticipation of climate change and its impacts, typically involving the *replacement of systems and practices* that are no longer viable with alternatives that are better suited to new climate and environmental conditions (IIED 2019). This notably requires:

- Consideration of climate hazards and climate change impacts over *long time horizons*, including based on multiple scenarios including some under which the Paris Agreement's objective of limiting global warming to 1.5-2°C is overshot; and
- Assessment of the wider *societal and distributional impacts* of climate change and adaptation measures.

In the same spirit, attention also needs to be paid to the risk of ***maladaptation***, i.e. actions that may lead to increased risk of adverse climate-related outcomes, including via increased GHG emissions, increased or shifted vulnerability to climate change and more inequitable outcomes or diminished welfare, now or in the future – of particular concern being inappropriate responses to climate change that create long-term "lock-in" of vulnerability, exposure and risks (IPCC 2014, 2022a, 2022b). **Box 16** gives an example of maladaptation identified in the context of the GCCA project in Belize.

Box 16: Example of maladaptation identified in the context of a GCCA-funded study

- In the vulnerability and adaptation (V&A) study conducted under the **Belize** project, the chapter on tourism cautions against the risk of maladaptation associated with the construction of "hard" sea defences to protect again beach losses and coastal erosion. The report questions the design of sea walls built in some touristic areas, which are "generally about one meter high or less" and can be "easily overtopped by storm surges". It explains that "these hard structures eventually lead to the loss of beaches (…) because these rigid structures lead to scouring of beach sand through backwash of waves." As an alternative, it proposes "the use of the limbs of Pimento trees that allow for some dissipation of wave energy while at the same time retaining most of the sand during back wash [thereby maintaining] the integrity of the beach". For how long this approach can remain effective is unknown (considering the latest projections of sea level rise) – but at least the report draws attention to an ineffective adaptation measure that should no longer be supported.

Note that the risk of maladaptation has to be appreciated on a case-by-case basis, in the light of local circumstances – so this example does by no means imply that the building of sea walls is necessarily and everywhere a "maladaptive" response.

The experience acquired in relation to support for transformational adaptation and avoidance of maladaptation through the implementation of the reviewed projects is too thin to provide a basis for the development of detailed good practices rooted in GCCA/GCCA+ experience. A few **general good practices**, including some inspired by identified "missed opportunities", can nevertheless be derived

from the review of the sampled projects. These include helping partner countries develop tools and capacities for:

- Prioritising and designing adaptation actions and measures using *long-term (mid-century and beyond) projections of climate change and related hazards*, notably in terms of temperature increases, rainfall patterns and sea level rise: this will help partner countries identify and support measures expected to deliver adaptation benefits not only in the short term, but also in the longer term;
- Investigating and considering the *social and societal impacts* of climate change and response measures (adaptation and mitigation), notably their impacts on livelihoods, on already vulnerable groups and on income distribution, in the near future and the longer term, in the prioritisation and design of adaptation actions: this will help partner countries identify and support adaptation measures that benefit the most vulnerable groups, and have a better chance of preventing or reversing trends towards impoverishment and growing inequality;
- Conducting *cost-benefit analysis of strategic adaptation options*, over long time horizons and integrating key environmental and social dimensions, to inform the prioritisation of adaptation strategies and measures;
- Preparing *well-informed long-term strategies for low-emission, climate-resilient development*: this will help ensure that shorter-term national adaptation plans and the like (e.g. the adaptation components of NDCs) are designed and implemented in such a way that they contribute to the longer-term transformational adaptation pathways that need to be anticipated and prepared right now;
- In the evaluation of past and ongoing adaptation actions, identifying and documenting *cases of maladaptation* alongside good adaptation practices: without such information, ineffective, inequitable and/or "short-termist" adaptation measures will continue to be implemented for longer than needed, resulting at best in a waste of resources and at worst in undesirable outcomes.

Box 17 illustrates how the above-mentioned Belize V&A study, although not explicitly intended at informing transformational adaptation, actually included a few elements aligned with these good practices.

Box 17: Integration of elements supportive of transformational adaptation in a V&A study

- The **Belize** V&A study includes projections of climate change (for maximum and minimum near-surface air temperature, rainfall, solar radiation and evaporation) for the 2060-2069 period, for all districts and all seasons. These *long-term climate projections*, which notably anticipate local increases in seasonal temperature by 2 to 4 °C compared to the baseline, are used to inform the assessment of future vulnerability in six sectors.
- The same study considers *climate change impacts on the livelihoods* of poor communities, in particular in the fisheries sector. A concern for the *social costs* of climate change, although not much developed, is also apparent in the chapters dedicated to the agricultural and health sectors, and the need for adaptation action to address the social determinants of health is stressed.

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5. Annexes

5.1. Annex 1: List of GCCA/GCCA+ projects reviewed for the purposes of the study

Country or region	Project title *(CRIS code)*	Impl. period
Belize	Enhancing Belize's resilience to adapt to the effects of climate change *(ENV/2010/022-636)*	2011-2014
Bhutan (Phase II)	Rural development and climate change response programme – *aka* Renewable natural resources sector programme 2 (RNRSP 2) *(DCI-ENV/2016/039-054)*	2017-2022
Cambodia (Ph. I)	Cambodia Climate Change Alliance (CCCA) *(DCI-ENV/2009/021-476)*	2010-2014
DR Congo	Climate change integration in DRC by GCCA: support to training and reforestation *(DCI-ENV/2011/023-162)*	2012-2017
Eastern Caribbean	GCCA project on climate change adaptation and sustainable land management in the Eastern Caribbean *(DCI-ENV/2012/024-114)*	2013-2019
Haiti (Ph. I)	Support to climate change integration into Haiti's national development ("AP3C") *(DCI-ENV/2012/024-368)*	2014-2020
Lesotho	Support to the climate change response strategy, Kingdom of Lesotho *(DCI-ENV/2012/023-850)*	2013-2017
Mali (Ph. II)	Global Climate Change Alliance in Mali - Phase II *(DCI-ENV/2016/039-468)*	2017-2023
Mauritius (Ph. II)	GCCA+ flagship initiative supporting climate-smart agriculture for smallholders in Mauritius *(DCI-ENV/2016/034-221)*	2017-2023
Nepal	Nepal Climate Change Support Programme (NCCSP) *(DCI-ENV/2010/022-504)*	2012-2016
Niger	Sustainable agricultural development for climate resilience (PARC-DAD project) *(DCI-ENV/2014/034-243)*	2015-2020
Pacific	GCCA+ Scaling-up Pacific adaptation (SUPA) *(DCI-ENV/2017/040-482)*	2018-2023
Rwanda (Ph. II)	Sector reform contract to promote climate-proof investments by farmers through improved land administration & land use monitoring capacities at central & local government level *(DCI-ENV/2014/037-416)*	2015-2018
Solomon Islands	Solomon Islands Climate Assistance Programme (SICAP) *(DCI-ENV/2010/022-483)*	2011-2014
Uganda (Ph. III)	Support to Uganda in the sectoral implementation of its NDC through climate-smart agriculture *(DCI-ENV/2017/040-543)*	2018-2023

5.2. Annex 2: Examples of adaptation indicators linked to DG INTPA's results chains

In the tables that follow, examples of indicators are drawn both from the lists of indicators associated with *DG INTPA's Results and Indicators for Development*[22], and from the reviewed GCCA/GCCA+ projects (the latest being shown in blue).

In the examples below, we have prioritised:

- Indicators that are **specific** to climate change adaptation and disaster risk reduction;
- Indicators that are not necessarily specific, but can be **relevant** to adaptation if they have a clear and explicit link with proposed adaptation pathways: such indicators should preferably be *"clima-fied"* i.e. made specific to adaptation by the addition of extra specifications connecting them with the pursued adaptation logic – which preserves the option of feeding into a more generic indicator for purposes of results consolidation. Possible adjustments to pre-defined indicators to make them more specific to adaptation are proposed [between hooks and marked in green].

In practice, **the choice of indicators of adaptation at the level of an individual project or action is highly context-specific**. It is the provision of contextual information on climate-related vulnerabilities and risks, combined with the setting of objectives in the context of an adaptation-oriented theory of change, that determines the extent to which an indicator is adaptation-relevant.

The indicators proposed below are thus just examples, and more / different ones can be used depending on the objectives and circumstances of individual interventions.

Food, nutrition and sustainable agriculture (FNSA)

Key results	Examples of adaptation-specific indicators
Impact	
A sustainable, climate-resilient agriculture	• Proportion of agricultural area under productive and sustainable [/ climate-resilient / climate-smart agriculture] agriculture (%) *(SDG 2.4.1)*
To foster inclusive, climate-resilient growth (with a focus on rural areas)	• Average income of small-scale food producers [whose livelihoods are threatened by climate change], by sex and indigenous status (annual, currency) *(GERF 1.1 / SDG 2.3.2) (OPSYS core indicator)* • Number of farmers' / breeders' / pastoralists' households with improved livelihoods thanks to the implementation of sustainable land management techniques and climate-resilient productive systems (resulting in diversification, improved yields and increased income compared with the baseline) *(GCCA+ Niger)*
To increase (systemic) resilience to food crises and climate change	• Prevalence [in regions prone to climate-induced shocks affecting food security] of moderate or severe food insecurity in the population based on the Food Insecurity Experience Scale (FIES) *(SDG 2.1.2 / OPSYS core indicator)* • Number of months of self-reported food insecurity (food gap) [in regions prone to climate-induced shocks affecting food security]

[22] https://europa.eu/capacity4dev/results-and-indicators. Among indicators proposed by DG INTPA, "GERF" refers to indicators included in the *Global Europe Results Framework* (2022), "SDG" to indicators associated with the *Global indicator framework for the Sustainable Development Goals*, and "Sendai" to indicators associated with the *Sendai Framework for Disaster Risk Reduction* 2015-2030. The table also identifies those indicators retained as core OPSYS indicators. (OPSYS is the integrated information management system used by DG INTPA to manage its external cooperation portfolio).

Key results	Examples of adaptation-specific indicators
	• Reduction of loss in agricultural production in targeted areas (% of households reporting a reduction in agricultural production loss following the adoption of coastal agricultural practices adapted to climate change) *(GCCA Cambodia)* • Proportion of households that rely on security food stocks to survive (% change against baseline) *(GCCA+ Niger)*
Outcome	
Enhanced rural diversification as a strategy for adapting to climate change	• Perceived change in the livelihoods of climate-vulnerable coastal communities as a result of implementing alternative livelihood activities (% of households reporting improved livelihoods) *(GCCA Cambodia)*
Increased sustainable, climate-resilient production and productivity of agriculture, husbandry and fisheries	• Number of smallholders reached with EU-supported interventions aimed to increase their sustainable[, climate-resilient / climate-smart] production, access to markets and/or security of land [in the context of adaptation action] *(GERF 2.1 / OPSYS core indicator)* • Area of agricultural and pastoral ecosystems where sustainable[, climate-resilient / climate-smart] management practices have been introduced with EU support (hectares) *(GERF 2.2 / OPSYS core indicator)* • Land area under sustainable climate-smart agricultural measures (acres) *(GCCA+ Mauritius)* • Number and proportion (%) of smallholders practising sustainable agriculture (e.g. conservation agriculture, climate-smart agriculture (CSA) approaches, etc.) *(OPSYS core indicator)* • Change in yield of specific agro-silvo-pastoral productions achieved from the implementation of environment-friendly, climate-resilient production techniques (% change against baseline) *(GCCA+Niger)*
Increased application of learning, innovation and improved technologies for climate-resilient / climate-smart agriculture and food processing	• Change in the level of awareness of climate change and sustainable land management issues among residents of Eastern Caribbean States (measured by means of a repeated knowledge, attitudes and practices [KAP] survey) *(GCCA Eastern Caribbean)* • Proportion of the population (and of men and women) in targeted areas having adopted field-tested practices [notably sustainable agricultural practices, improved [or drought-resilient] varieties, [more resilient cropping and livestock breeding techniques, improved and more resource-efficient] processing techniques] that increase their resilience to climate change / climate-related risks (%) *(GCCA Haiti)*
Output	
Increased access to productive inputs / tools / equipment contributing to increased climate resilience	• Surface of arable land under irrigation with EU support (hectares) *(GCCA+ Niger, Bhutan)* • Number and proportion (%) of smallholders with access to appropriate, climate-resilient storage facilities constructed with EU support • Number of households or productive units with access to climate-smart innovative options promoted by the intervention (e.g. energy- or water-saving technologies, drought-resistant local breeds of livestock, pest- [or salinity-tolerant crop varieties, ….), disaggregated by location (urban/rural) and type of option • Quantity of improved / climate-resilient seeds of cereals and vegetables supplied per year (metric tonnes) *(GCCA+ Bhutan)*

Key results	Examples of adaptation-specific indicators
Capacities of [beneficiaries] for topic related to climate resilience, e.g. climate-smart agriculture, sustainable natural resources management developed	• Number of beneficiaries [e.g. people, staff] trained on financial management / new agricultural practices and technologies / climate-smart techniques and technologies / processing techniques / food conservation and preservation / sustainable land and water management practices / animal health nutrition-related topics / disaster risk reduction, disaggregated by sex, age and ethnicity where relevant • Number of functioning community learning and farm-level demonstration centres used for demonstration of and learning on promoted climate-smart agriculture practices *(GCCA+ Uganda)*
Policies, legislation, regulations and action plans contributing to climate change adaptation efforts.	• Number of FNSA policies / strategies / laws / regulations [integrating climate change adaptation] revised / elaborated with EU support • Number of district development plans 2021-2025 where climate-smart agriculture is systematically mainstreamed *(GCCA+ Uganda)*
Up-to-date information, data and statistics available to support climate change adaptation efforts in FNSA.	• Status of market information systems / information systems for nutrition / food security early warning systems / information system for land management (e.g. cadastre, land registry) / unified or single database of social transfers beneficiaries (established in the context of adaptation action and operational, yes / no) • Existence of a validated and operational "dashboard" of indicators supporting the monitoring of national policies in the field of climate change, fight against desertification and biodiversity management *(GCCA+ Niger)*
Increased access to food and capacities for diversified food production, climate-sensitive and inclusive agriculture, based on secure land tenure, in the context of adaptation action	• Number of food insecure people [as a result of climate-induced shocks] receiving EU assistance *(GERF 2.32 / OPSYS core indicator)* • Number of smallholders reached with EU-supported interventions aimed to increase their sustainable[, climate-resilient / climate-smart] production, access to markets and/or security of land [in the context of adaptation action] *(GERF 2.1 / OPSYS core indicator)* • Number of people trained who increased their knowledge of and/or skills in using new, climate-resilient / climate-smart agricultural practices / technologies (e.g. dryland farming initiatives, seed multiplication, [conservation agriculture, agroforestry]), disaggregated by sex, age and ethnicity • Number of trained district officials / farmers who increased their knowledge and/or skills for integrated crop management, crop rotation systems and practices, organic farming, integrated agriculture systems and agroforestry etc. in the context of climate change adaptation efforts, by sex • Number of staff of the Ministry of Agriculture capacitated through on-the-job training and participation in short courses on agro-meteorology, cost-benefit analysis and economics of climate change adaptation, disaggregated by sex *(GCCA+ Mauritius)*

Ecosystems, natural resources management

Key results	Examples of adaptation-specific indicators
Impact	
To build sustainable development	• Proportion of degraded [ecosystem] over total area (%) *(SDG 15.3.1/OPSYS core indicator)*
Outcome	
More gender-responsive, inclusive, climate- and conflict-sensitive and sustainable management of land, natural resources and ecosystems	• Areas of terrestrial and freshwater ecosystems under (a) protection (b) sustainable[, climate-resilient] management with EU support (square kilometres) *(GERF 2.9 / OPSYS core indicator)* • Surface area (hectares) and proportion (%) of agricultural and pastoral ecosystems where sustainable[, climate-resilient / climate-smart] land [and water] management practices have been introduced with EU support (hectares) *(GERF 2.2 / OPSYS core indicator)* • Marine areas under a) protection and b) sustainable management with EU support [for the purpose of increasing the climate resilience of fisheries] (square kilometres) *(GERF 2.8 / OPSYS core indicator)* • Proportion of fish stocks within biologically sustainable levels [as a result of support for climate-resilient communities] (%) *(SDG 14.4.1 / OPSYS core indicator)* • Degree of integrated water resources management (IWRM) implementation [in the context of adaptation action] (0 to 100 score) *(SDG 6.5.1 / OPSYS core indicator)* • Proportion of destroyed mangrove forests in targeted areas restored for coastline protection purposes and in good health *(GCCA Cambodia)*
Outputs	
Diversification as a strategy for adapting to climate change	• Perceived change in the livelihoods of climate-vulnerable coastal communities as a result of implementing alternative livelihood activities (% of households reporting improved livelihoods) *(GCCA Cambodia)*
Increased awareness of climate change adaptation and disaster risk reduction (DRR)	• Number of public awareness campaigns on climate change and sustainable land management conducted in mass media *(GCCA Eastern Caribbean)* • Number of people with increased environmental and climate change awareness / awareness of DRR thanks to EU support, by sex, age and ethnicity
Strengthened capacities of government authorities and communities for inclusive, transparent and sustainable / climate-resilient management of natural resources (including conflict sensitive and rights-based land management and use)	• Number of women and men receiving payments for environmental services for protecting watersheds or areas of high biodiversity thanks to EU support • Number of trained government officials / community representatives with increased skills and/or knowledge in relation to sustainable and climate-resilient management of natural resources, by sex and ethnicity • Number of people trained who increased their knowledge of and/or skills on agroforestry, sustainable land and water management practices [in the context of adaptation action] (disaggregated by sex, age and population group) *(OPSYS core indicator)* • Number of staff trained in integrating climate risks into IWRM *(GCCA Belize)* • Number of people / communities / agencies with improved knowledge of good practices on increasing resilience to climate-related risks affecting

Key results	Examples of adaptation-specific indicators
	the water sector, through engagement in adaptation activities in the field of water resources and watershed management *(GCCA Belize)*

Disaster risk reduction[23]

Key results	Examples of adaptation-specific indicators
Impact	
To build, sustain and restore advancement towards inclusive and sustainable development and peace – in the context of shocks and instability due to, or exacerbated by climate-related impacts	• Number of people whose dwellings were damaged / livelihoods were disrupted or destroyed attributed to [climate-related] disasters, disaggregated by sex, age, disability status, income, hazard, administrative sub-region, location (urban / peri-urban / rural) *(Sendai B3/B5)* • Direct economic loss attributed to [climate-related] disasters (% of GDP) *(SDG 11.5.2 / OPSYS core indicator)* • Number of deaths, missing persons and directly affected persons attributed to [climate-related] disasters (per 100 000 population per year) *(SDG 11.5.1 / SDG 13.1.1 / OPSYS core indicator)*
Outcome	
Improved effectiveness of prevention, preparedness and response to natural and man-made disasters	• Number of countries that adopt and implement national disaster risk reduction (DRR) strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 *(SDG 1.5.3 / Sendai E1)* • Proportion of local governments that adopt and implement local DRR strategies in line with national DRR strategies (%) *(SDG 1.5.4)* • Proportion of national / local budget available / dedicated to climate and DRR institutions / initiatives (%) • Existence of clear institutional and policy arrangements for climate [change adaptation] and DRR at national and local level (qualitative) *(OPSYS core indicator)*
Output	
Strengthened capacities of communities and civil society to prevent, mitigate and manage risks, including those related to conflicts, natural hazards, climate change, etc.	• Number of cities with climate change and/or DRR strategies: (a) developed, (b) under implementation with EU support *(GERF 2.5 / OPSYS core indicator)* • Number of district development committees delivering effective adaptation benefits with the integration of adaptation priorities into district-level planning and budgeting processes *(GCCA Nepal)* • Number of people equipped with disaster and/or conflict early warning mechanisms with EU support, disaggregated by sex, age, ethnicity, type of actor (civil society, private sector, local and national representatives), country, region and social / ethnic group, as relevant • Number of local stakeholders [sub-national and community levels] trained in climate change, disaster risk management and resilient development *(GCCA+ Pacific)*

[23] The Sendai framework proposes international references for DRR indicators, not repeated in this list.

Key results	Examples of adaptation-specific indicators
	• Proportion of communities networked and sharing experiences on a regular basis through the Locally Managed Climate Change Adaptation (LMCCA) network (%) *(GCCA+ Pacific)*
Strengthened human and institutional capacities to provide more equitable, inclusive, accountable and sustainable services contributing to climate resilience	• Number of people with access to an improved[, climate-resilient] drinking water source and/or sanitation facility with EU support *(GERF 2.38 / OPSYS core indicator)* • Number of people in climate-vulnerable rural areas who live within two kilometres of an all-season road constructed with EU support • Number and proportion (%) of households in rural areas enjoying the benefits of a secure [and climate-resilient] water source *(GCCA Belize)* • Number of people with access to health / sanitation / justice / education / social protection / transport services provided with EU support in the context of adaptation action, disaggregated by sex, age, ethnicity, type of service received, location (urban / peri-urban / rural)
Strengthened institutional capacities at central and local level to respond to economic shocks linked to climate change, natural disasters, conflicts and other crises, and to promote inclusive and accountable recovery and reconstruction	• Number of countries with new or revised sector plans that address climate and disaster risks endorsed and being implemented *(GCCA+ Pacific)* • Number of countries with revised local development plans that integrate climate and disaster risk resilience *(GCCA+ Pacific)* • Number of plans / strategies on recovery and reconstruction / anticipatory recovery planning measures / recovery frameworks / disaster preparedness plans / contingency plans developed with EU support • Number of central and local institution representatives trained who increased their knowledge and/or skills in DRR-related topics, disaggregated by sex, role, type of institution • Number of countries: (a) with a database on impacts of past climate and disaster risk interventions, and (b) using this impacts database to inform decision making *(GCCA+ Pacific)*
Strengthened capacities and support for sustainable, climate-resilient livelihoods in rural and urban areas, including by skills development and job creation initiatives	• Number of households reporting new income sources thanks to EU support *(OPSYS core indicator)* • Number of people from targeted coastal areas trained on climate change and alternative livelihoods / coastal agricultural practices adapted to climate change, disaggregated by sex *(GCCA Cambodia)* • Number of vulnerable men and women trained on different aspects of climate change adaptation [of which climate-resilient agriculture, food security, sustainable forest and biodiversity management] and able to apply training to improve their livelihoods *(GCCA Nepal)*
Social, environmental, climate and disaster risk assessments promoted in the public and private sector, as well as risk reduction and management strategies, including the integration of key information into early warning systems (related to disasters, conflicts, etc.)	• Number of community-managed drought response and resilience committees established with EU support • Proportion of early warning systems based on information deriving from climate vulnerability and risk assessments (%) • Number of vulnerability, environmental, climate and disaster risk assessments conducted with EU support • Number of sectors having conducted a strategic environmental assessment covering *inter alia* climate change-related aspects *(GCCA Haiti)* • Status of food security early warning systems supported by the EU *(OPSYS core indicator)*

Green and circular economy[24]

Key results	Examples of adaptation-specific indicators
Impact	
Decoupling of economic growth from excessive reliance on resources made scarcer by climate change	• Water productivity in countries / regions subject to water stress induced or aggravated by climate change (GDP expressed in constant USD/cubic meter total freshwater withdrawal) • Mean nominal monthly earnings of workers in micro, small and medium enterprises (MSMEs) supported to increase their climate resilience and/or offer services in this field, disaggregated by sex, age group, economic activity (currency)
Outcome	
Uptake of sustainable, climate-resilient consumption and production by MSMEs / Resource efficiency and sustainable consumption and production in the context of adaptation action increased throughout the entire supply chain*	• Number of EU-supported MSMEs reporting the adoption of sustainable consumption and production (SCP) practices [contributing to climate resilience], in general and specifically in the context of circular economy models*, disaggregated by sex and age group of the owner, and enterprise size *(OPSYS core indicator)* • Proportion of households in targeted areas applying the demonstrated adaptation measures [in: agriculture, water and sanitation, fisheries, forestry, disaster risk reduction, renewable energy, ecosystem restoration and management] (%) *(GCCA Cambodia)* • Number and proportion (%) of (smallholder) farmers who adopted sustainable and climate-smart measures, disaggregated by sex *(GCCA+ Mauritius)*
Improved business performance of MSMEs supported to increase their climate resilience and/or offer services in this field	• Number of (b) green jobs [associated with climate change adaptation] supported / sustained by the EU *(GERF 2.13 / OPSYS core indicator)* • Number of MSMEs involved in climate resilience activities reporting increased turnover as a direct result of EU support received, disaggregated by sex and age group of the owner, and enterprise size
Increased investments contributing to climate resilience in green sectors / circular economy*	• Number of firms – more specifically MSMEs with circular economy business models* or investing in SCP [for climate resilience purposes] – with access to financial services with EU support *(GERF 2.17a / OPSYS core indicator* • Amount of green and circular economy investments [contributing to climate resilience] in targeted sectors / value chains, disaggregated by sector* (currency) *(OPSYS core indicator)* • Amount of circular economy investments [contributing to climate resilience] in targeted regions and cities* (currency)*)*
Output	
Improved awareness and capacities of policy makers and	• Number of inclusive, climate-resilient green economy knowledge products and tools developed with EU support

[24] The "green economy" is understood here as encompassing economic activities contributing to climate resilience – with sustainable consumption and production and resource efficiency deemed relevant to the extent that they help address the resource scarcity that may be induced or aggravated by climate change. The table is based on the "green economy" results chain, with the addition of a few elements (marked with an asterisk*) from the "circular economy" results chain.

Key results	Examples of adaptation-specific indicators
stakeholders on inclusive, climate-resilient green economy issues	• Number of trained policy makers and other stakeholders with increased knowledge and/or skills on inclusive[, climate-resilient] green economy issues, disaggregated by sex and sector *(OPSYS core indicator)* • Number of staff of targeted local governments and other relevant stakeholders (e.g. farmer organisations, civil society, development partners) equipped with knowledge and skills on technical aspects of climate-smart agriculture (CSA) and on mainstreaming CSA in planning processes *(GCCA+ Uganda)*
Improved institutional coordination on economic, business and environmental /climate-related policies	• Number of institutional coordination mechanisms on inclusive, climate-resilient green economy established with EU support • Number of regional and departmental [multi-stakeholder] consultation meetings held for coordinating, accompanying and managing the development of climate-smart agriculture *(GCCA+ Niger)* • Number of representatives of institutions, organisations and companies engaged in institutional coordination mechanisms on inclusive[, climate-resilient] green economy established with EU support, disaggregated by sex and sector *(OPSYS core indicator)*
Improved capacities of workers in green sectors contributing to climate resilience	• Number of trained individuals with increased knowledge and/or skills on SCP practices [contributing to climate resilience], disaggregated by sex, age group and sector *(OPSYS core indicator)* • Number of agents from deconcentrated services trained in climate-smart agriculture / geo-referencing techniques for restored and rehabilitated sites / geographical information systems (GIS) and mapping *(GCCA+ Niger)* • Number of training schemes / programmes on green and climate-resilient economy developed with EU support • Number of courses developed / training sessions organised on topics relevant to climate-smart agriculture (e.g. smart agricultural techniques, innovative irrigation technology, sheltered farming, agro-meteorology, cost-benefit analysis, and economics of climate change adaptation) *(GCCA+ Mauritius)*
Improved capacities of financial institutions to assess green projects contributing to climate resilience	• Number of trained people from financial institutions with increased knowledge and/or skills on inclusive[, climate-resilient] green economy, disaggregated by sex *(OPSYS core indicator)*
Increased availability of green financial products and services for supporting investment in climate resilience by MSMEs	• Number of inclusive green economy financial schemes [supportive of investment in climate resilience] established with EU support *(OPSYS core indicator)*

Gender equality

Key results	Examples of adaptation-specific indicators
Impact	
Women influence decision-making	• Proportion of women in managerial positions in sectors related to climate action (e.g. environment, civil protection, electricity authorities, energy

Key results	Examples of adaptation-specific indicators
processes on climate change policies and actions	boards, regulating authorities, utilities, renewable energy agencies, etc. (%) • Proportion of women in managerial positions in enterprises in the [climate-resilient] green and circular economy (%) *(OPSYS core indicator*)
Outcome and output	
Increased participation of women and girls in all their diversity in decision-making processes on climate change issues	• Number of women, men, girls and boys, in all their diversity, activists and environmental rights defenders acting as agents of change on fighting climate change and pursuing environmental justice, at local, national and regional level, disaggregated at least by sex *(OPSYS core indicator)* • Proportion of households in which women are engaged in joint decision making on climate-smart agricultural practices (%) *(GCCA+ Uganda)*
Women, men, girls and boys, in all their diversity, addressing climate change in their daily lives and preserving the natural environment are supported	• Extent to which women and girls exercise choice and control over opportunities and resources in disaster risk reduction, recovery and reconstruction contexts *(OPSYS core indicator)* • Number of women with increased training, financial resources, technology or other resources for sustainable and safe food production, sustainable energy, sustainable transport and clean water sources for family consumption or for productive uses [in the context of adaptation action] *(OPSYS core indicator)* • Proportion of women who participate in decisions about use of productive resources (choice of crops, inputs, timing of cropping, sale / transfer of land) [in the context of support for climate change adaptation] (%) *(OPSYS core indicator)* • Proportion of the promoted climate resilience practices / techniques that are accessible to women (%) *(GCCA Haiti)* • Surface area dedicated to agroforestry / new small irrigation schemes with project support (hectares) – of which area exploited by women *(GCCA+ Niger)* • Number of final beneficiaries of climate adaptation measures supported by the GCCA+ project, with a specific target (50%) for women *(GCCA+ Uganda)* • Number of women and girls reached by programmes aimed at strengthening individual resilience and safety in the face of disasters (e.g. swimming lessons, emergency drills and exercises)
Climate related strategies are more gender-responsive, at local, national, regional and international level	• Number of proposed-for-adoption climate change adaptation and mitigation policies (including nationally determined contributions) and environmental protection strategies and plans (including energy policies / strategies) that include gender equality objectives, in line with the United Nations framework convention on climate change *(OPSYS core indicator)*

Sustainable cities[25]

Key results	Examples of adaptation-specific indicators
Impact	
Make cities and human settlements safe, inclusive, resilient and sustainable	• Proportion of urban population living in slums, informal settlements or [other] inadequate housing [particularly vulnerable to climate-related disasters] in the targeted city/ies (%) *(SDG 11.1.1 / OPSYS core indicator)* • Number of deaths, missing persons and directly affected persons attributed to [climate-related] disasters in the targeted city/ies (per 100 000 population per year) *(SDG 11.5.1 / SDG 13.1.1)*
Outcome	
Improved environmental management and climate mitigation and adaptation by targeted cities	• Number of cities with climate change and/or DRR strategies: (a) developed, (b) under implementation with EU support (GERF 2.5 / OPSYS core indicator) • Average daily consumption of water per capita in countries / regions subject to water stress induced or aggravated by climate change • Annual energy savings as a result of energy efficiency measures [in the context of adaptation action], disaggregated by location (urban / rural) (gigawatt hour) *(OPSYS core indicator)* • City area comprised of natural or semi-natural areas [contributing to climate resilience[26] and/or disaster risk reduction[27]] (square meters) • Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies (%) *(SDG 11.b.2 / OPSYS core indicator)*
Enhanced delivery of accessible municipal services that contribute inter alia to climate resilience	• Number of people with access to an improved[, climate-resilient] drinking water source and/or sanitation facility with EU support, disaggregated by sex and location (urban / rural)[28] *(GERF 2.38 / OPSYS core indicator)* • Proportion of population using safely managed drinking water services (%) *(GERF 1.30 / SDG 6.1.1 / OPSYS core indicator)* • Number of people with access to electricity with EU support through: (a) new access, (b) improved access[29] *(GERF 2.3)* • Proportion of population with access to electricity (%)*(GERF 1.2 / SDG 7.1.1)*
Access to decent, climate resilient and affordable housing	• Number of people benefitting from improved housing conditions [contributing to reduced vulnerability to climate and disaster risks] in urban areas, disaggregated by sex *(OPSYS core indicator)*

[25] The table below does not include indicators drawn from the logical frameworks of GCCA/GCCA+ projects, as none of the projects reviewed for the purposes of the study had any specific focus on urban areas. All proposed indicators are thus drawn from DG INTPA's results and indicators for development. It should be noted that many of the indicators below, and notably those related to access to services and assets and to improved capacities, are also (with the necessary adjustments) relevant to adaptation in rural areas.

[26] e.g. by reducing the urban heat island effect.

[27] e.g. by reducing runoff and thus reducing flood risk in surrounding areas.

[28] See output "Improved capacities and facilities for the provision of water and sanitation services", EU results and indicators.

[29] Linked to outcome "Strengthened urban resilience to natural and man-made disasters", EU results and indicators document.

Key results	Examples of adaptation-specific indicators
Output	
Improved capacities of cities to design and implement urban climate change mitigation and adaptation strategies	• Number of beneficiaries trained by EU-funded interventions with increased knowledge of climate change mitigation and adaptation strategies, by sex • Number of trained beneficiaries with increased knowledge and/or skills in smart city solutions contributing to increased climate resilience, by sex • Number of cities with climate change and/or disaster risk reduction strategies: (a) developed (b) under implementation with EU support *(GERF 2.5 / OPSYS core indicator)*
Improved capacities of city authorities for integrated, climate- and disaster-resilient urban planning	• Number of measures promoting integrated[, climate- and disaster-resilient] urban planning that were designed / implemented by the government with EU support *(OPSYS core indicators)* • Number of trained beneficiaries with increased knowledge and/or skills in integrated[, climate- and disaster-resilient] urban planning, disaggregated by sex *(OPSYS core indicators)*
Improved capacities and facilities for the provision of climate-resilient water and sanitation services	• Number of trained beneficiaries with increased knowledge and/or skills in climate-resilient water and sanitation management, disaggregated by sex • Additional wastewater daily treatment capacity in urban areas [in the context of adaptation action] (cubic metres) *(OPSYS core indicator)* • Daily volume of improved urban water treatment process capacity [in the context of adaptation action] (cubic metres) *(OPSYS core indicator)* • Number of new connections to water supply in urban areas [in the context of adaptation action] *(OPSYS core indicator)*
Improved capacities and facilities for decent, climate- and disaster-resilient and affordable housing provision	• Number of new and/or refurbished social and affordable housing units [contributing to improved climate and disaster resilience] in urban areas *(OPSYS core indicator)* • Number of housing units built / refurbished with EU support integrating climate and disaster resilience considerations
Improved capacity and facilities for a more efficient and sustainable use of energy in cities, contributing inter alia to increased climate resilience	• Number of beneficiaries trained by the EU-funded intervention with increased knowledge and/or skills in energy efficiency and sustainability in the context of adaptation action[30], disaggregated by sex • Renewable energy generation capacity installed with EU support [in the context of adaptation action[31]] *(GERF 2.4 / OPSYS core indicator)* • Length of transmission / distribution lines constructed or upgraded with EU support [in the context of adaptation action[32]] (km) *(OPSYS core indicators)*
Increased green areas for enhanced climate resilience	• Urban green area provided or restored with EU support [in the context of adaptation action] (square kilometres) *(OPSYS core indicator)*

[30] e.g. as part of capacity building efforts to promote the adoption of energy-efficient cooling systems.
[31] e.g. for the purpose of increasing access to electricity to enhance climate resilience and adaptive capacity.
[32] e.g. for the purpose of increasing access to electricity as part of a wider strategy for enhancing climate resilience and adaptive capacity, and/or increasing the resilience of power systems to extreme climate events.

Social protection[33]

Key results	Examples of adaptation-specific indicators
Outcome	
Adaptive / shock-responsive social protection systems developed that can be rapidly scaled up to address recurrent natural / climate-related disasters and/or can function in fragile states and post-conflict situations	• Extent of use of social protection systems and instruments to prepare for and deliver shock responses in the face of climate-induced shocks and disasters (qualitative) • Extent to which a mechanism is in place for rapid resource mobilisation / release of contingency funds to scale up provision at time of [climate-induced] shock (qualitative) *(OPSYS core indicator)*
Social protection promotes structural transformation towards greener, more resilient economies and societies, actively addressing climate change	• Extent of collaboration between the ministries responsible for social protection, environment and finance on the design and implementation of social protection that contributes to the national climate change adaptation strategy (qualitative) • Extent to which public works programmes directly mitigate the effects of climate change, related shocks and disasters (qualitative)
Output	
Strengthened government and civil society capacities for using social protection to promote a greener, more resilient economy and society and address climate change	• Number of trained participants who increased their knowledge of social protection programmes linked to green economy and climate change, disaggregated by sex and age • Number of people benefitting from EU-funded social protection programmes that mitigate risks related to climate change and support a greener,climate-resilient economy, by sex and age • Number of CSOs participating in the formulation of social protection programmes covering climate-related risk and supporting a greener, more climate-resilient economy with EU support • Extent to which the EU-funded intervention supported the integration of national climate change objectives in the national social protection policy (qualitative) *(OPSYS core indicator)*
Increased knowledge of effective strategies for integrating nutrition, climate change, urban settings, economic resilience, e-services, gender and pro-poor focus into social protection design and delivery (i.e. by piloting different options in the local context)	• Extent to which the EU-funded intervention supported the piloting of different options to integrate nutrition, climate change [adaptation], urban settings, economic resilience, e-services, gender and pro-poor focus into social protection design and delivery in the local context (qualitative) *(OPSYS core indicator)* • Number of EU-trained policy makers who increased their knowledge and/or skills for integrating nutrition, climate change adaptation, urban settings, economic resilience, e-services, gender and pro-poor focus into social protection design and delivery based on local pilots

[33] This table does not include indicators drawn from the logical frameworks of GCCA/GCCA+ projects, as none of the projects reviewed for the purposes of the study had any specific focus on social protection. All proposed indicators are thus drawn from DG INTPA's results and indicators for development.

Digitalisation

Key results	Examples of adaptation-specific indicators
Outcome	
Improved access to public and private services improving climate resilience	• Number of people using e-governance systems and services [contributing to climate and disaster resilience[34]] established and/or improved through investment support, disaggregated by sex and age *(OPSYS core indicator)* • Number of people with access to e-services contributing to climate and disaster resilience established and/or improved with support
Output	
Strengthened e-governance systems and solutions (e.g. civil registration systems, eID) including climate services, disaster risk management and other adaptation-relevant services	• Number of e-governance systems and services [contributing to climate and disaster resilience] established and/or improved with support of the EU-funded intervention *(OPSYS core indicator)* • Status of the national environmental information management system and forest information system [developed inter alia to support sustainable natural resources management in the context of adaptation action], in terms of integration, functionality and accessibility *(GCCA+ Mali)* • Number of staff employed at district and sector level who have received training in the use of at least three land administration modules [integrating climate change adaptation considerations] *(GCCA+ Rwanda)*
Improved technologies and services for the collection, processing and storage of data on environment, climate, agriculture and food security, health (or other … with relevance to adaptation action)	• Number of documents downloaded from / visits to the e-platform on climate change established with project support, per month *(GCCA Cambodia)* • Number of agronomy and science faculties of Eastern Congo universities equipped with VSAT (i.e. ground stations equipped with a dish antenna for transmitting and receiving data from satellites) for the purposes of research on integrated landscape and climate change management *(GCCA DR Congo)* • Number of agencies involved in sustainable land management with technology upgrades (e.g. surveying and monitoring equipment, geographical information systems [GIS], computer-aided design software, stream flow monitoring tools and equipment, cartography equipment) *(GCCA Eastern Caribbean)* • Existence of a validated and operational "dashboard" of indicators [digitalised and accessible through an on-line interface] supporting the monitoring of national policies in the field of climate change, fight against desertification and biodiversity management *(GCCA+ Niger)*

Governance

Key results	Examples of adaptation-specific indicators
Outcome	
Increased participation of CSOs in tackling climate change issues	• Number of countries with climate change adaptation strategies (a) developed and/or (b) implemented with civil society organisations (CSOs) supported by the EU

[34] e.g. hydro-meteorological services for farmers, early warning systems for climate-related disasters.

Key results	Examples of adaptation-specific indicators
Output	
Strengthened CSO capacities and engagement opportunities in good governance including climate issues (among others)	• Number of CSO representatives trained on climate change [adaptation] / youth inclusion / irregular migration / forced displacement / addressing and/or mitigating risks and vulnerabilities in fragile and conflict affected countries, disaggregated by sex • Collaboration platform including *inter alia* NGOs, and related participatory mechanisms for decision-action, established and operational in support of [climate resilience] around protected areas *(GCCA DR Congo)* • Number of grants awarded *inter alia* to CSOs for the implementation of climate-smart agriculture projects at community level *(GCCA+ Mauritius)*
Strengthened capacities of communities and civil society to prevent, mitigate and manage risks, including those related to conflicts, natural hazards, climate change, etc.	• Number of district development committees delivering effective adaptation benefits with the integration of adaptation priorities into district-level planning and budgeting processes *(GCCA Nepal)* • Number of CSOs [involved in climate change adaptation and/or disaster risk reduction] benefitting from EU support *(GERF 2.28 / OPSYS core indicator)* • Number of people trained on or equipped with disaster and/or conflict early warning mechanisms with EU support, disaggregated by sex, age, ethnicity, type of actor (civil society, private sector, local and national representatives), country, region and social / ethnic group, as relevant
Strengthened government capacity for effective public finance management supportive of climate change adaptation efforts, including transparent and competitive public procurement, effective fight against corruption, and improved accountability at different institutional and societal levels	• Number of countries supported by the EU to strengthen revenue mobilisation, public financial management and/or budget transparency [in the context of adaptation action] *(GERF 2.19)* • Number of administrative areas where climate-related capacity building results in more effective use of existing budgets for activities that reduce disaster risk and enhance adaptive capacity *(GCCA Belize)* • Mechanism for providing financial resources through the Cambodia Climate Change Alliance (CCCA) Trust Fund established, involving (a) the development of an operations manual and guidelines for grant applicants, (b) the establishment of a Trust Fund Secretariat, and (c) the establishment of a grant proposal appraisal mechanism *(GCCA Cambodia)* • Climate change fund flow mechanism for adaptation projects operating at national level with appropriate financial safeguards in place *(GCCA Nepal)* • Number of people with access to e-governance systems and services [contributing to increased climate resilience] established and/or improved with EU support *(OPSYS core indicator)* • Number of e-governance systems and services [contributing to increased climate resilience[35]] established and/or improved with EU support *(OPSYS core indicator)*

[35] e.g. early warning system for urban flooding, with electronic alerts automatically sent to registered users.

Tanzania – Growing drought-resistant crops such as sorghum and millet – EcoAct project
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[cover]
Micronesia
Villagers of Pulusuk receiving one of the 26 rainwater tanks.
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Monitoring and evaluation of climate adaptation action

A Review of GCCA/GCCA+ experience

Strong monitoring & evaluation systems support our understanding of what works and what could be improved in the field of adaptation, and facilitate the replication and scaling up of successful approaches to adaptation, while averting the risk of "maladaptation".

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