

Evaluating Climate Change: Approaches, Challenges and Lessons

UNEG EPE 2025
Tokyo, Japan

Tuesday 11 Feb 13:30-15:00



Session Overview



Objectives:

- Discuss approaches, methodological challenges and lessons learned from evaluation of climate-related interventions
- Identify good practices for mainstreaming climate considerations in evaluations
- Contribute to implementation of new "environmental" norm and the development of UNEG methods guidance



Outline:

- Introductory presentations 45 min
- Group work 30 min
- Plenary 15 min

Facilitators



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Introduction

There is growing recognition that climate change is both a driver and a result of unsustainable practices in a wide spectrum of areas.

An increasing number of UNEG members have gained experience in, and developed guidance for, evaluating climate-related interventions.

Members of the UNEG Methods WG started discussion how this expertise could be shared.



Contributing Agencies



Adaptation Fund is an innovative financing mechanism under the UNFFCC that supports developing countries and their most vulnerable communities in building resilience and adapting to climate change. AF-TERG is in charge of the independent implementation of the Evaluation Policy of the Adaptation Fund through evaluation generation, evaluation utilization and evaluation capacity building.



FAO supports countries to adapt their agrifood systems to climate change and to mitigate climate change by reducing or preventing greenhouse gas emissions, through its projects and programs and a wide range of knowledge products and services.

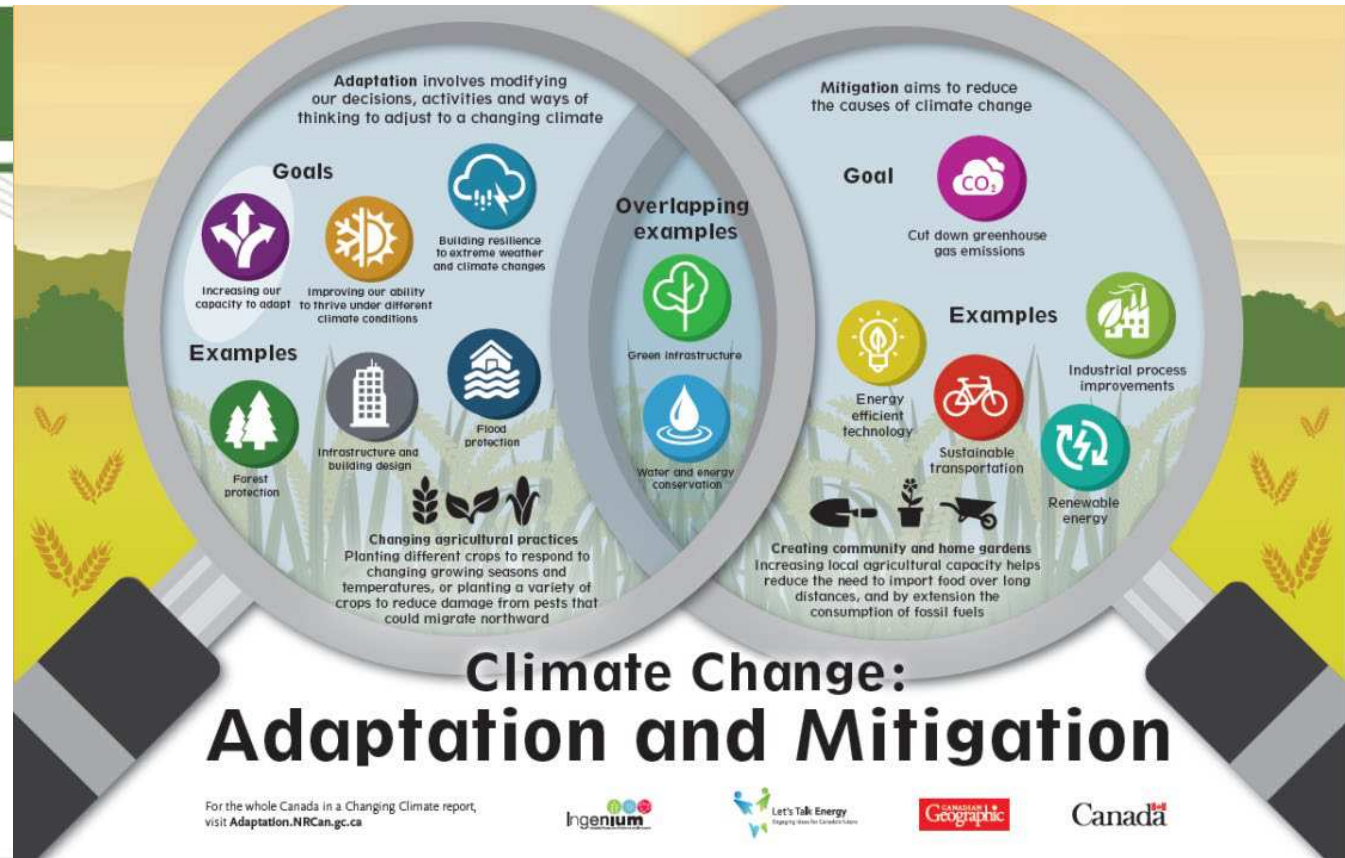
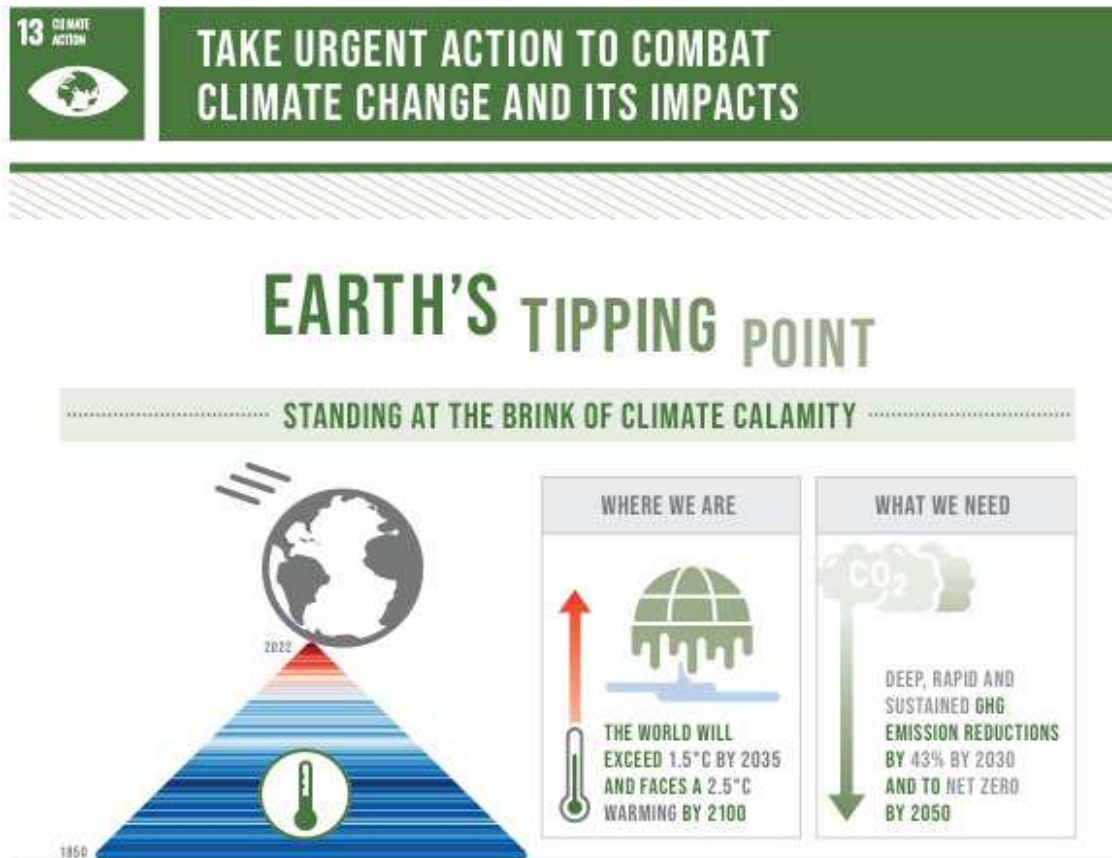


UNEP is the leading global authority on the environment; driving transformational change by drilling down on the root causes of the triple planetary crisis of climate change, nature and biodiversity loss and pollution. UNEP's climate work covers, 1) climate science, data and transparency, 2) sectoral solutions to close the adaptation and emissions gaps, and 3) catalyzing finance to implement climate action.



UNICEF the United Nations agency for children, works to protect the rights of every child, especially the most disadvantaged and those hardest to reach. Across more than 190 countries and territories, we do whatever it takes to help children survive, thrive and fulfil their potential.

UN action in support of climate change mitigation and adaptation



Using space and scale to identify evaluation approaches and methods

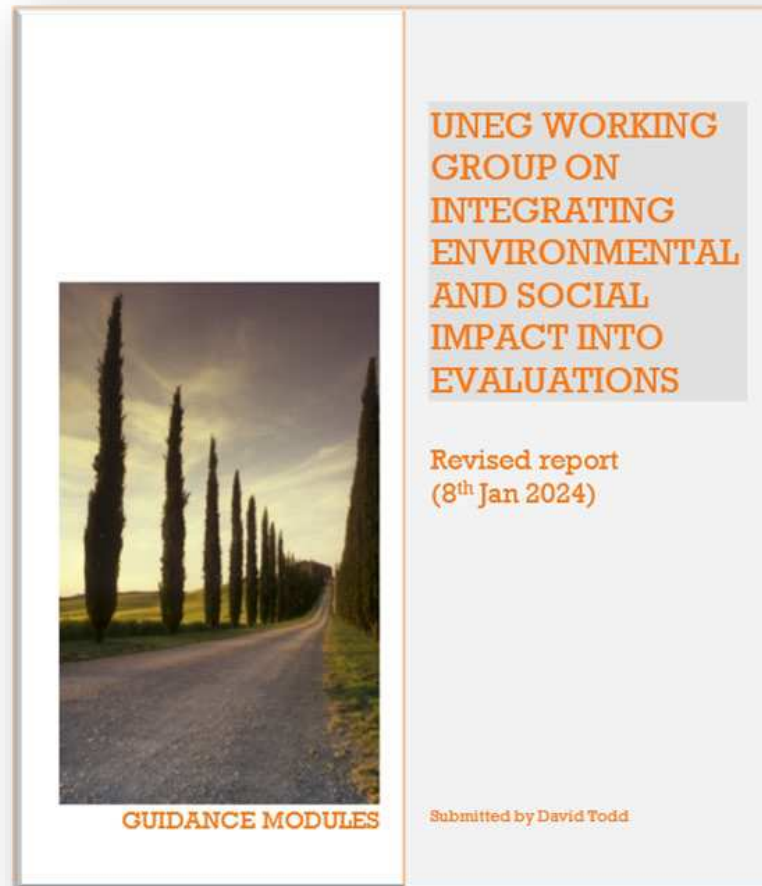
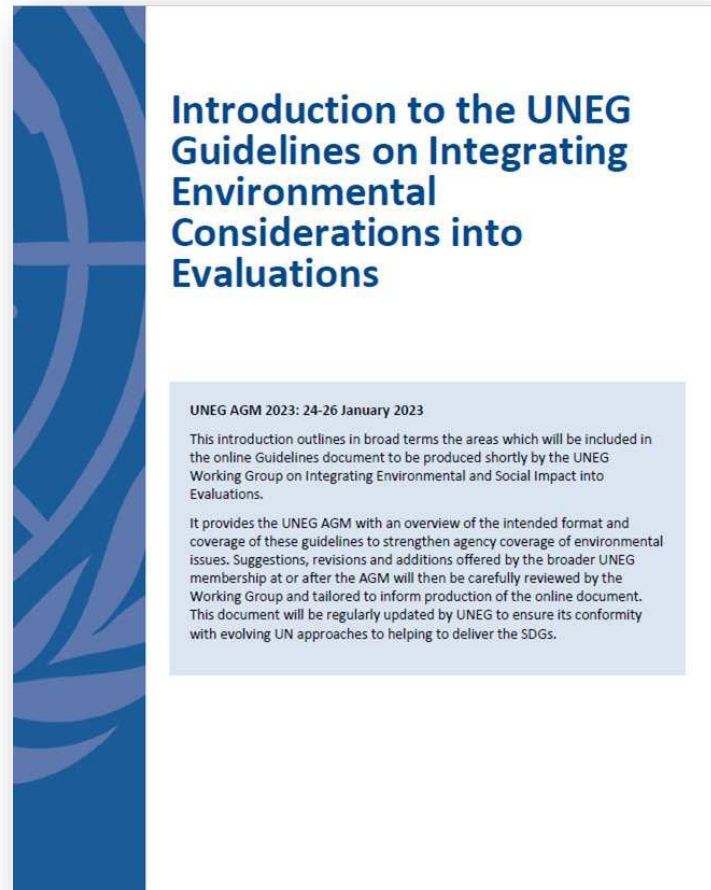
Approaches

1. Ex-post evaluations of local interventions (**Adaptation Fund**)
2. Providing a framework to assess contributions at national level (**FAO**)
3. Evaluating a global sub-programme on climate action (**UNEP**)
4. Evaluating climate change mainstreaming (**UNICEF**)

<u>Space \ Scale</u>	One intervention	Multiple interventions	Enabling environment	Cross-cutting
Local	Experimental (RCT)		Systematic reviews	
National		Quasi experimental (contribution analysis)		
Regional		Big data / QCA / case study		
Global				

Note: The table includes handwritten annotations. A blue oval highlights the 'Local' row and the 'One intervention' column. A red oval highlights the 'National' and 'Regional' rows and the 'Multiple interventions' column. A green oval highlights the 'Local' row and the 'Enabling environment' column. A vertical blue line is drawn between the 'Local' and 'National' rows, labeled 'Models'.

ESI Norm & Standard, and UNEG Guidance Development



Guidance will be disseminated as a **modular web-based system**, which will become more comprehensive as topic-specific modules are added.



Technical Evaluation
Reference Group
ADAPTATION FUND

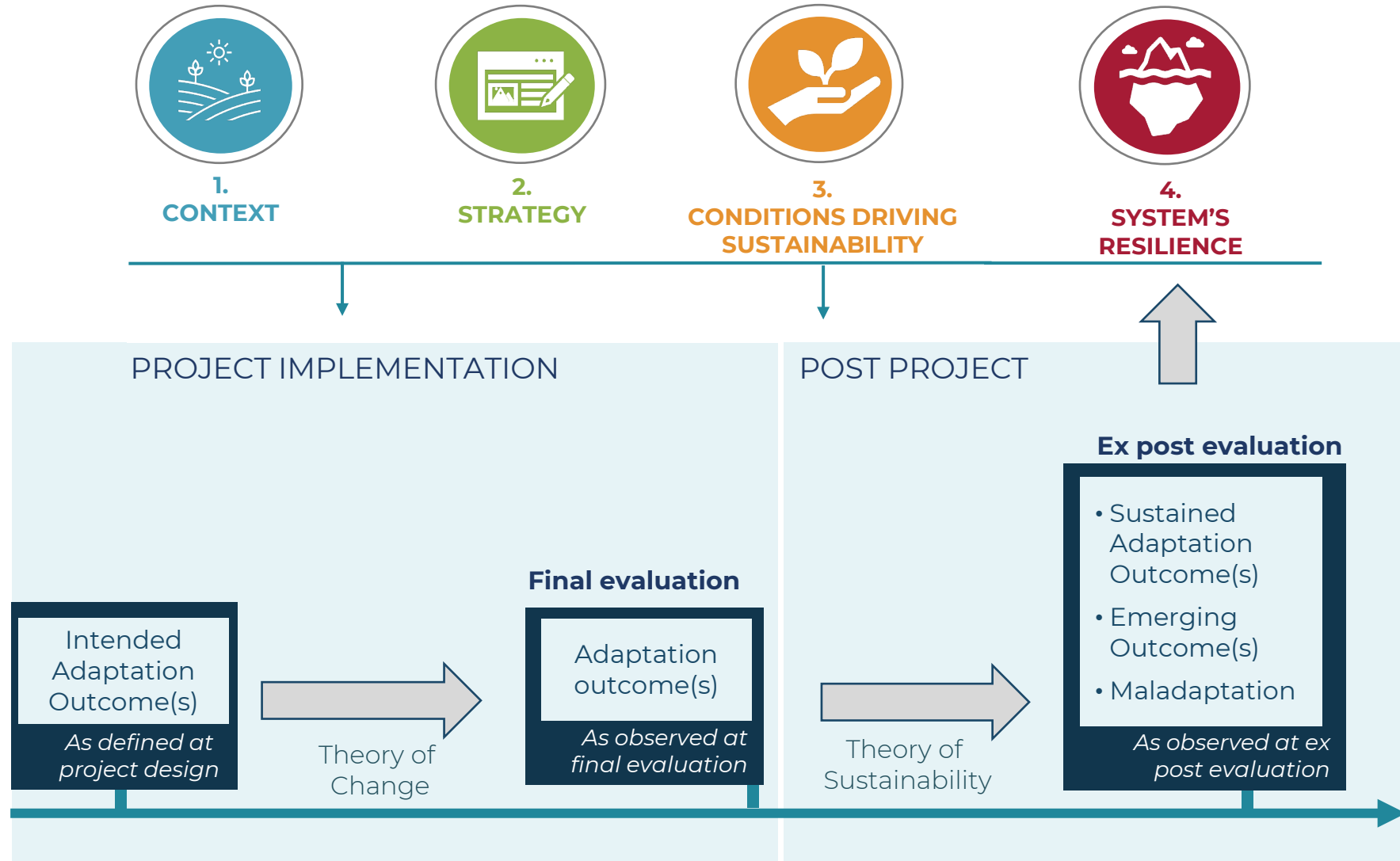
1. Defining ex post evaluation

“Evaluation of a development intervention **after** it has been completed”. (...)

“The intention is to identify the factors of success or failure, to **assess the sustainability of results and impacts**, and to draw conclusions that may inform other interventions”.

OECD DAC (2022)

2. Ex post framework



3. Conditions / Factors contributing to sustainability



01

Stakeholder
Ownership of
project outcomes
and interventions

02

Availability of
Resources
(tangible and
intangible)

03

Development and
maintenance of
Capacities

04

Development and
maintenance of
Partnerships

4. Contribution to resilience¹



Pathways through which the sustained adaptation outcomes are influencing system resilience:

01

The temporal or spatial **scale** needed for systems to maintain or change their functions and/or structures in the face of climate disturbances.

02

Redundancy, i.e. the availability of resources, means, or options, or create new ones, to support resilience to climate risks.

03

Diversity & inclusion, including the variety of actors and inputs interacting towards common goals as well as equity.

04

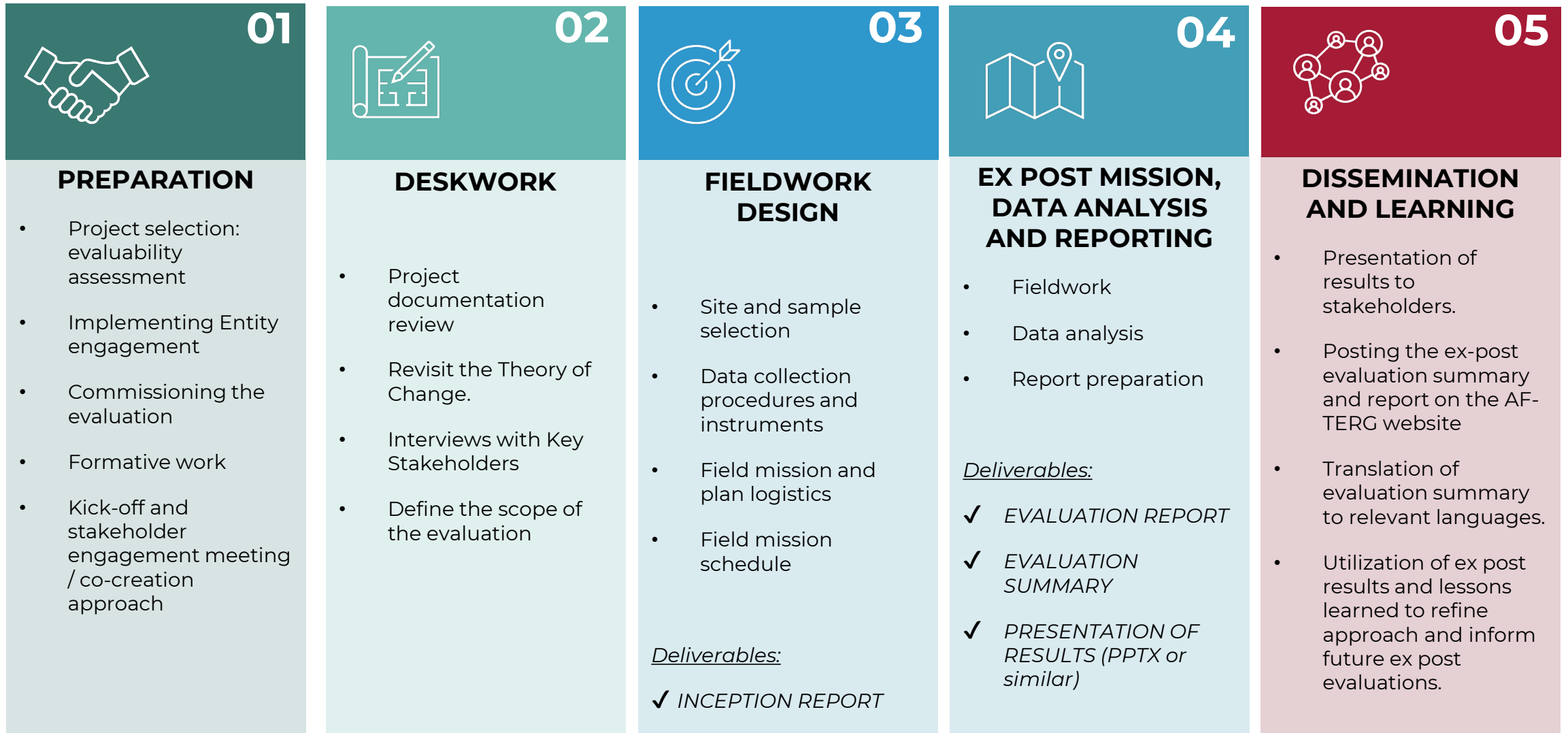
The system's **flexibility** in responding to uncertainty, tackling challenges, and seizing opportunities that may arise from change.

05

Supports **connectedness (feedback loops)** for access to information and partnerships to respond or adapt to shocks.

¹ Adapted from Ospina & Kumari Rigaud, 2021

5. How to do it: Stages of ex-post



6. Some challenges

**Data quality and
availability**

Project Selection bias

Time Lag in Outcomes

**Stakeholder
engagement**

**Attribution of
adaptation benefits**

Changes in context

Limited funding

7. Reflections: relevance of ex post evaluations

- ✓ Relevance to understanding various aspects of adaptation
 - How is the project contributing to building long-term adaptation goals?
 - What works and in what context?
 - Ambition
 - Adaptation limits
- ✓ Relevance to deepening country-level understanding of project sustainability and resilience, and for reporting to the UNFCCC.
- ✓ Relevance for designing next phases of programmes / scale up.
- ✓ Relevance for evaluation community on one potential ex-post methodology.



Principles

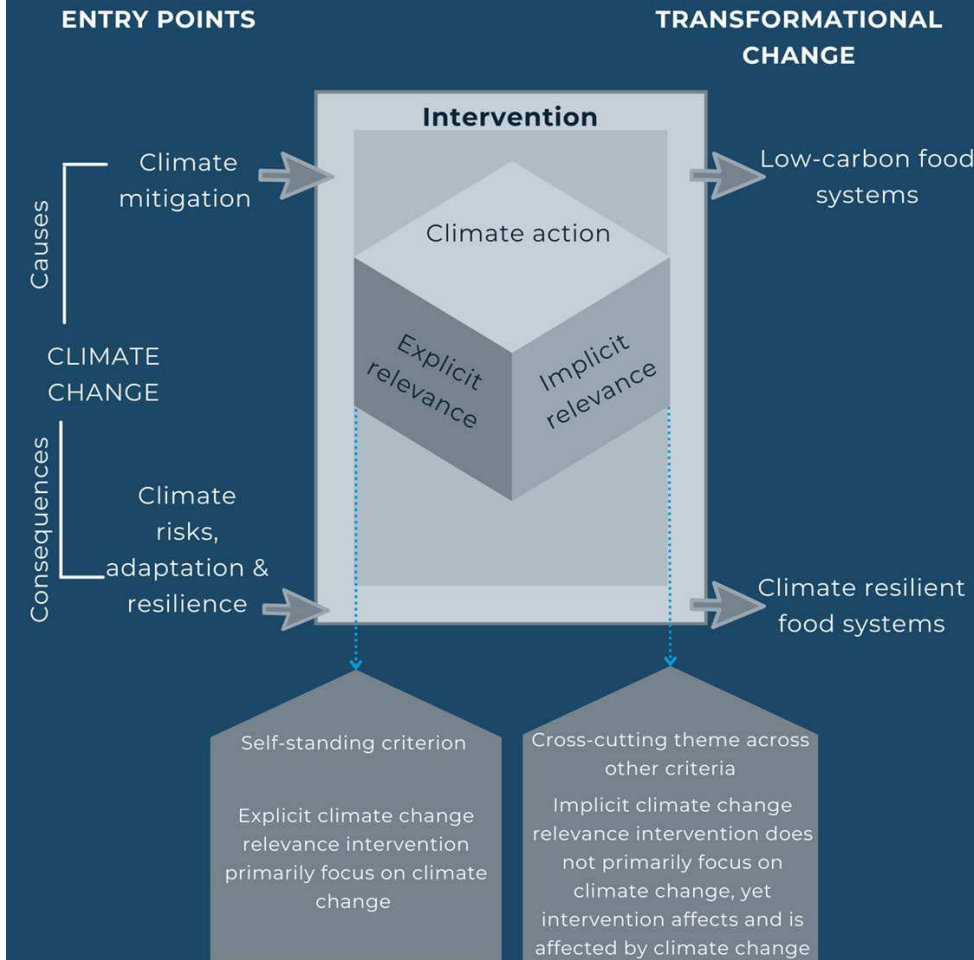
1. All interventions on food, agriculture, and nutrition affect and are affected by climate change.
2. Interventions should pave the way for transformational change in agri-food systems by developing low-carbon pathways in agriculture and building resilient food systems.

Key steps

1. Defining the climate change relevance
2. Understanding the two dimensions of i) mitigation and ii) risk, adaptation and resilience.
3. Decide whether CC is a self-standing evaluation criterion or a cross-cutting theme

Framework for Evaluating Climate Change

Climate change impacts upon food, agriculture and nutrition, therefore, affects directly or indirectly all interventions

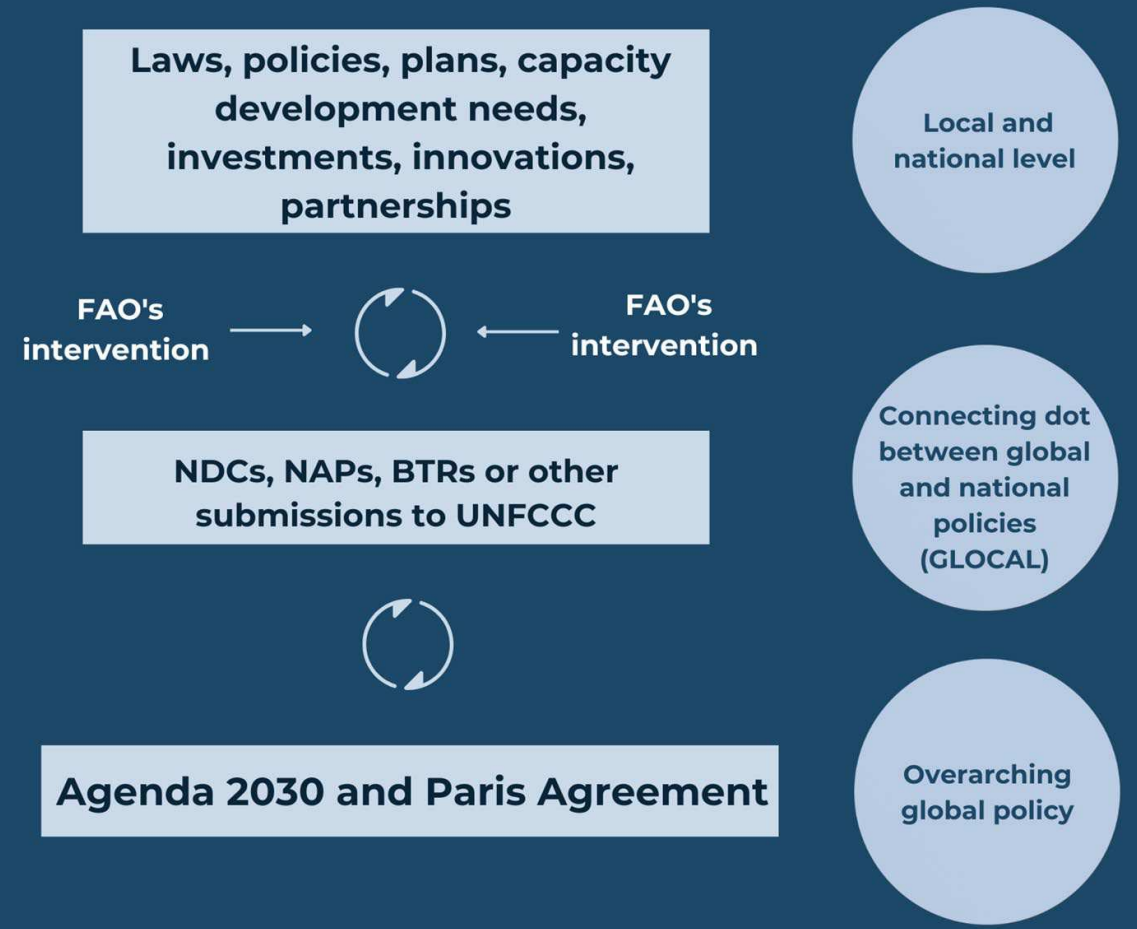


UNFCCC instruments to guide the evaluation

Integration of **UNFCCC instruments** as a key pillar to guide the evaluation of any intervention.

Alignment with and contribution to UNFCCC instruments.

Alignment of the intervention to UNFCCC instruments and the global context



Example from Nigeria Country Programme Evaluation

Objective: Assess alignment of FAO's support with Nigeria's priorities for climate mitigation and adaptation as per Nationally determined contributions (NDC).

Random sample of 21 (out of 69) projects analyzed

- **10 projects (47.6%)** contributed to at least one NDC priority (7 adaptation, 6 mitigation).

Findings:

- Adaptation priorities were less visible than mitigation in Nigeria's NDCs
- Two key actions (aeration of rice paddy fields and reduction of crop residues burnt) were not addressed

Conclusion: climate action was not systematically undertaken despite the country's vulnerability



Framework's Opportunities, Challenges and Lessons Learned

OPPORTUNITIES

- Structured analysis to flag FAO's relevance of project portfolio to CC, through projects' alignment with NDCs and NAPs
- Guides flagging main gaps in FAO's programmes and can help framing forward-looking recommendations

CHALLENGES

- Time and resources limited the sample size
- Adaptation priorities were less visible than mitigation in Nigeria's NDCs

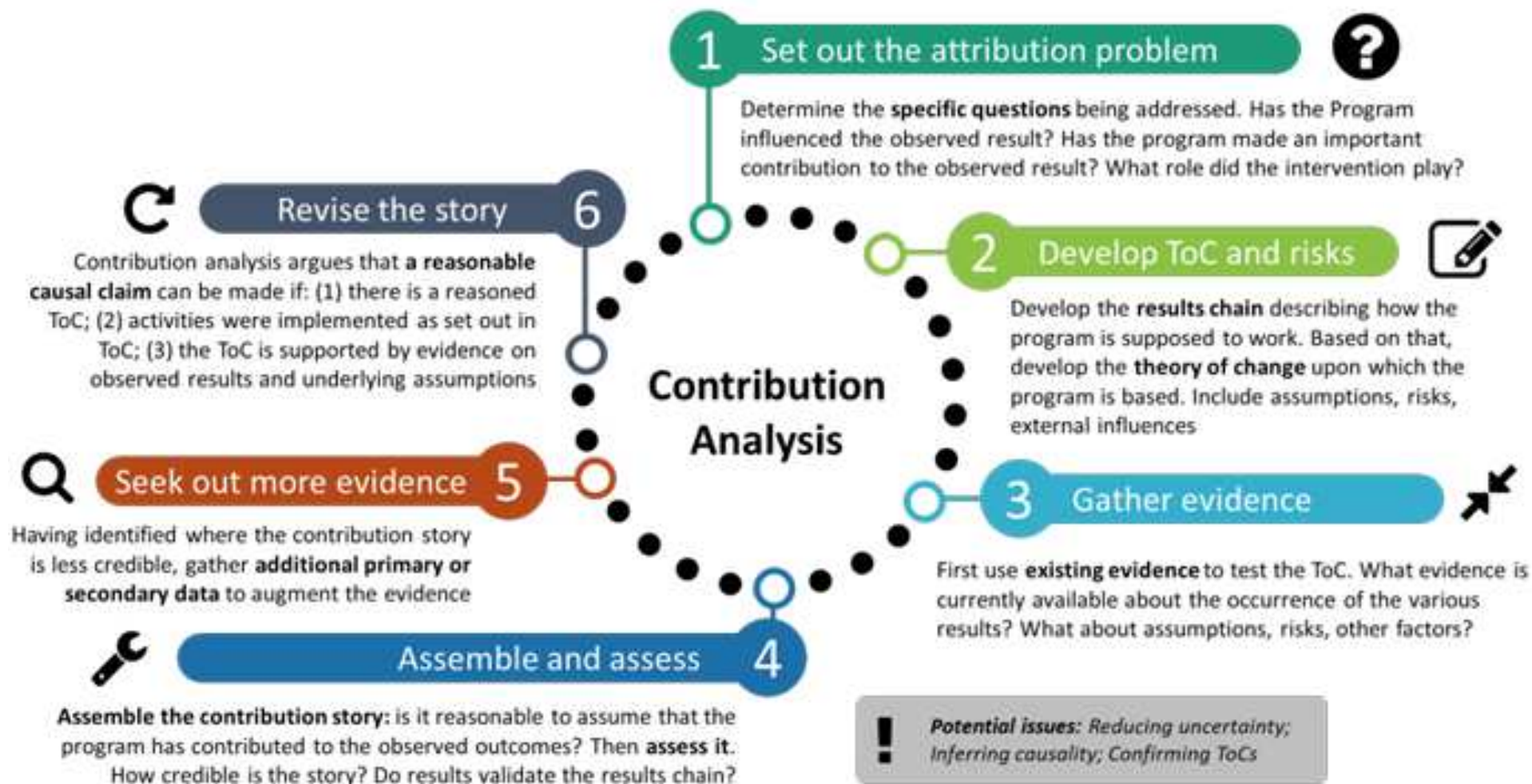
LESSONS LEARNED

- Contextualize the analysis with a forward-looking approach, as analyzed projects may predate the latest NDC updates
- Allocate adequate time and resources for the analysis
- Engage a sector-level expert to guide or inform the study

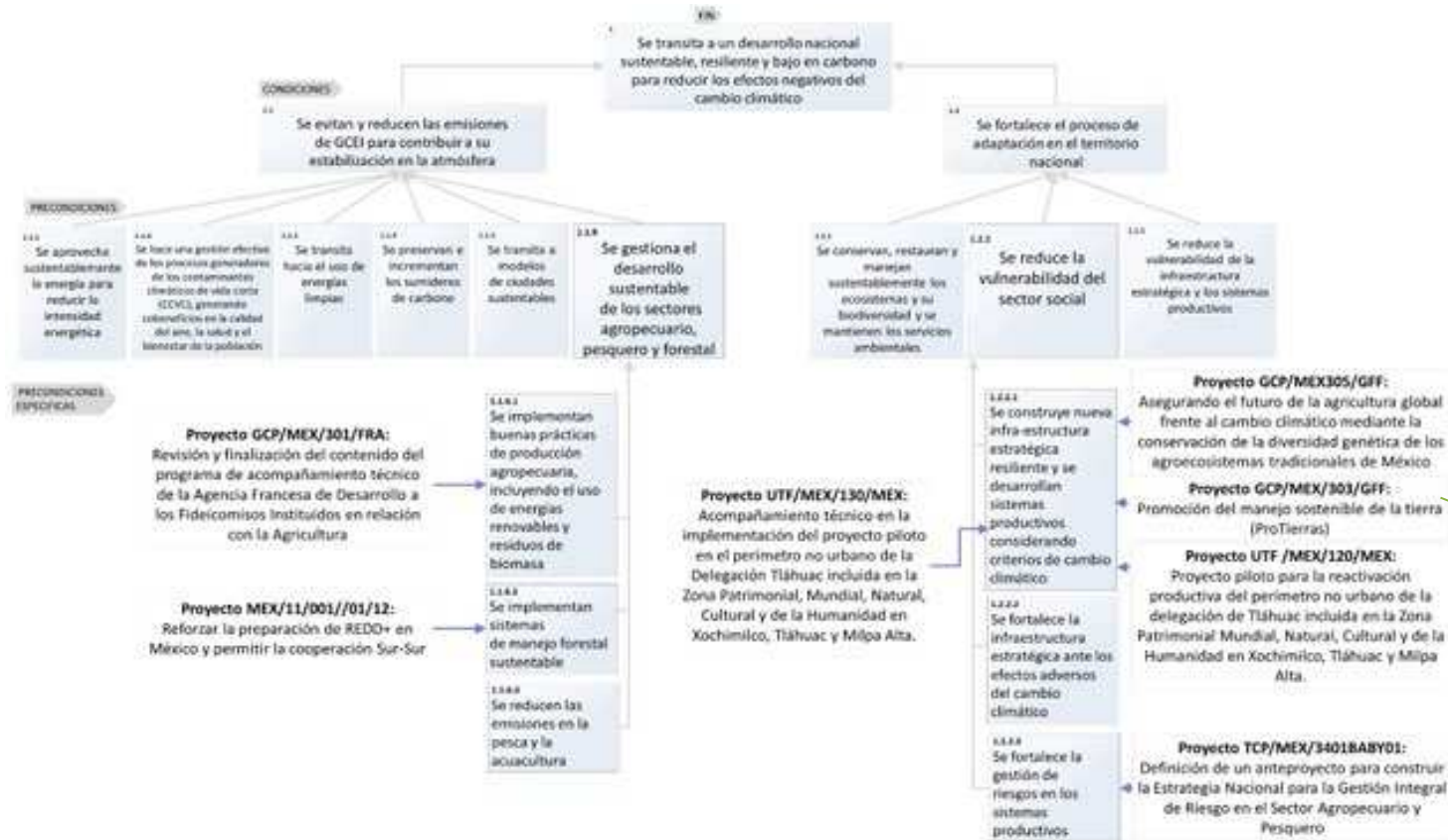


Contribution analysis at national level

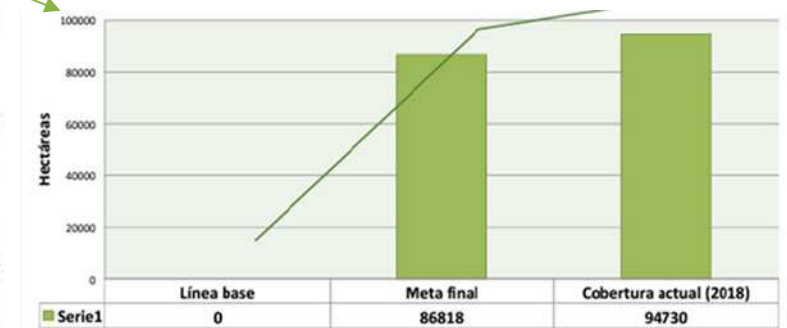
- Mexico's inclusive and sustainable green growth
- Kyrgyzstan's improved resilience in responding to climate change, crisis and disasters



Challenges in contribution analysis



- Identifying the results chain(s)
- Availability of rigorous evidence
- Making reasonable causal claims



Lessons learnt in contribution analysis

- Result chain(s) are key to refine questions and formulate appropriate methodologies for data gathering and analysis
- They help in developing a common understanding of the “evaluand” and the limits of the assessment
- Designing an evaluation at an early stage allows for the timely identification of evidence needs and gaps, as well as potential limitations of the exercise

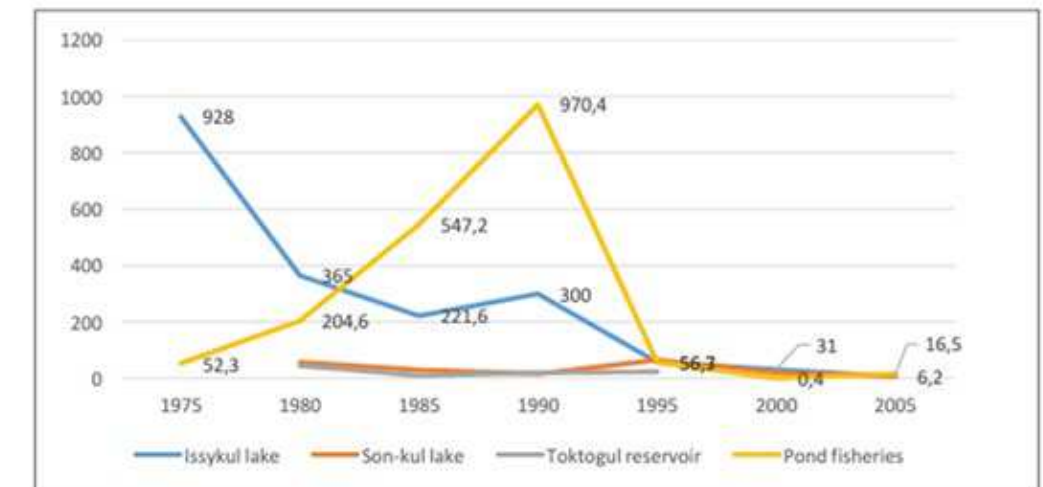
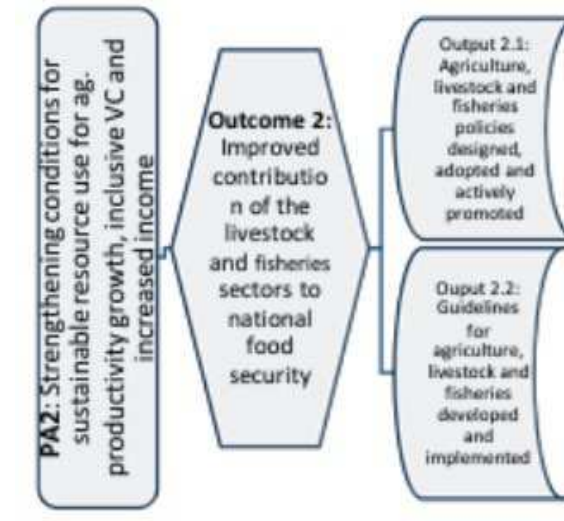


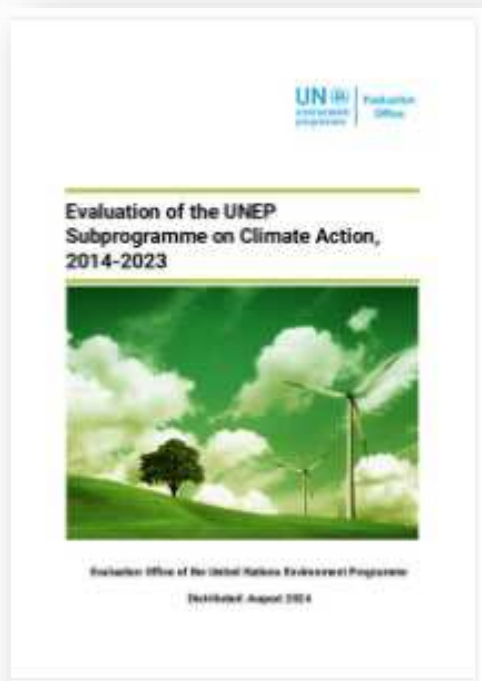
Figure 1: Dynamics of Fish Captures in Kyrgyzstan (metric tons), 1975-2005

Source: Website of the Department of Fisheries under the MoAM¹²



**Evaluation
Office**

UNEP: Two Subprogramme Evaluations of Climate Action (SP-CA)



- UNEP's mandate provides for environmental objectives to be mainstreamed in all of UNEP's work.
- Main types of evaluations conducted in UNEP are subprogramme, project and strategic evaluations.
- UN Secretariat requirement – each subprogramme evaluated every 6 years.
- About 1/3 of project evaluations conducted in UNEP are related to SP-CA.

Table 3. UNEP Climate MTS statements mirrored against the Articles of the Paris Agreement

Mandate from Paris Agreement (Article)	MTS 2014-2017	MTS 2018-2021	MTS 2022-2025
Stabilizing temperature increase, domestic mitigation measures, <u>Non-market</u> approaches (Art 2.1a, 4, 6.8, 6.9)	Low Emission Approaches (energy efficiency, renewable energy)	REDD+, energy efficiency, low-GHG development plans, increase in investments in clean energy (PoW ind.)	Climate stability as an objective, EA 1.A
Voluntary cooperative approaches to transfer mitigation outcomes (Art 6)	<u>"carbon assets"</u> projects from past periods	(Projects)	(Projects)
Carbon sinks (Art 5.1), reducing emissions from forest stock (Art 5.2)	REDD+	REDD+ (EA), increase in countries that have secured financing for REDD	
Increasing the ability to adapt to climate change, Global Goal on Adaptation (Art 7, 2.1.b)	Ecosystem-based and supporting adaptation approaches	NAPs, EbA,	Climate stability as an objective, EA 1.A
International cooperation on adaptation efforts, Cancun Framework (Art 7.6 – 7.8)		(Projects)	(Projects)
Making financial flows consistent with a pathway towards these goals (Art 2.1.c)	(Projects)	(Projects)	Indicators under EA 1.C
Climate Finance (Art 9)	Access to finance mentioned	access to climate finance (is a PoW ind. in all three fields)	Indicators under EA 1.C
Loss and Damage, incl. Early Warning Systems, climate risks and emergencies, Warsaw Mechanism (Art 8)	(Projects)	(Projects)	(Projects)
Technology Mechanism (Art 10)	CTCN, (TNA)	CTCN, (TNA)	(CTCN) (TNA)
Capacity Building (Art 11)	Planning and legislative advice; overall objective ²	(Projects, CBIT)	EA 1.B, (CBIT)
Climate change education and awareness (Art 12)	Mentioned	Projects, other divisions/subprogrammes	Indicator iv under EA 1.B
Enhanced transparency framework, national communications, Global Stocktake (Art 13, 14)	(Enabling Activities)	(Enabling Activities, CBIT)	EA 1.C, (CBIT)
nationally determined contributions	promoting integration of better approaches in national development planning processes		EA 1.A
Observing and representing at the CMAs (Art 16.8)	x	x	x

Legend: Red: not mentioned and not implemented. Orange: not mentioned for the programming period but implemented.

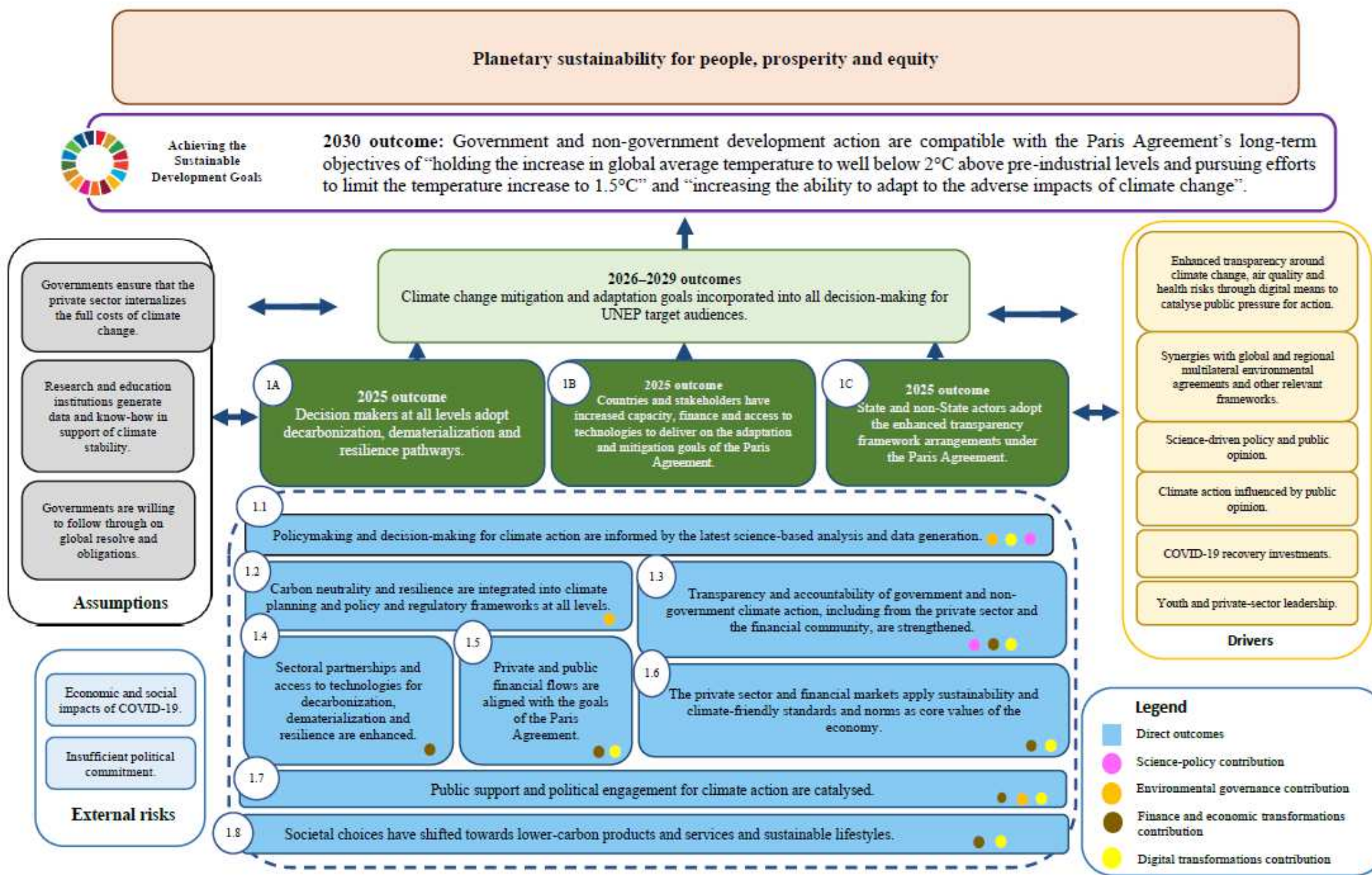
UNEP MTS SP-CA and the Paris Agreement

Finding on Strategic Relevance:

“ The subprogramme addresses decarbonization, dematerialization and resilience efforts in a comprehensive way and covers the adaptation as well as the mitigation goals of the Paris Agreement including the transparency framework.

In fact, UNEP is much more important for the climate conversation in general and the evolution and implementation of the Paris Agreement in particular than its own narratives imply.” (2024)

TOC SP-CA (2024)



Purpose/Scope of Subprogramme Evaluations

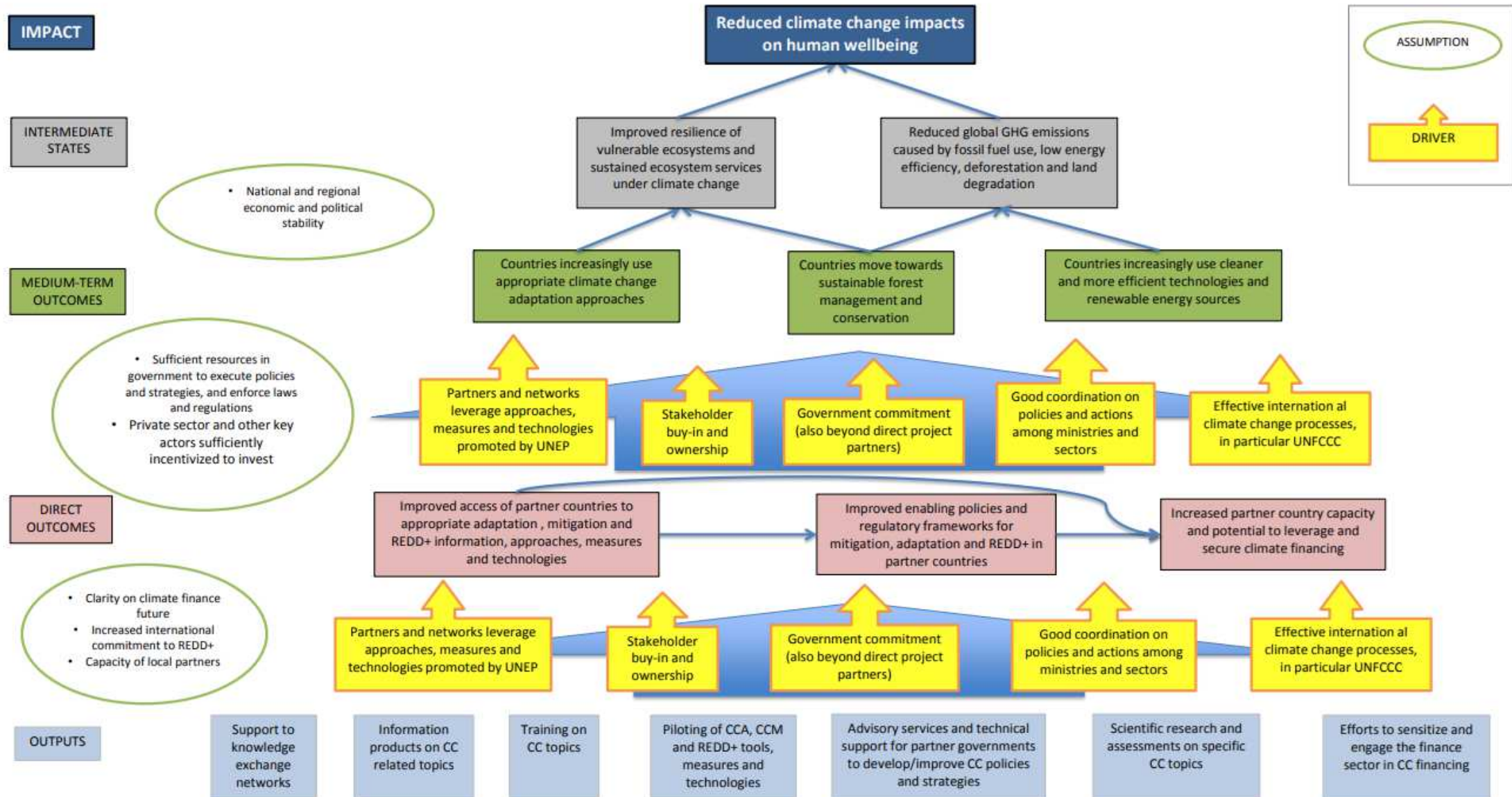
- Institutional learning and Member State accountability
- Future strategic direction
- Development of projects and portfolios

- **Strategic perspective:** SP design, structure, coherence, relevance, added value, etc.
- **Meta-analysis:** performance of projects; factors that affect performance.
- **Management:** coordination, efficiency, financial perspectives etc.

Mixed Methods Approach

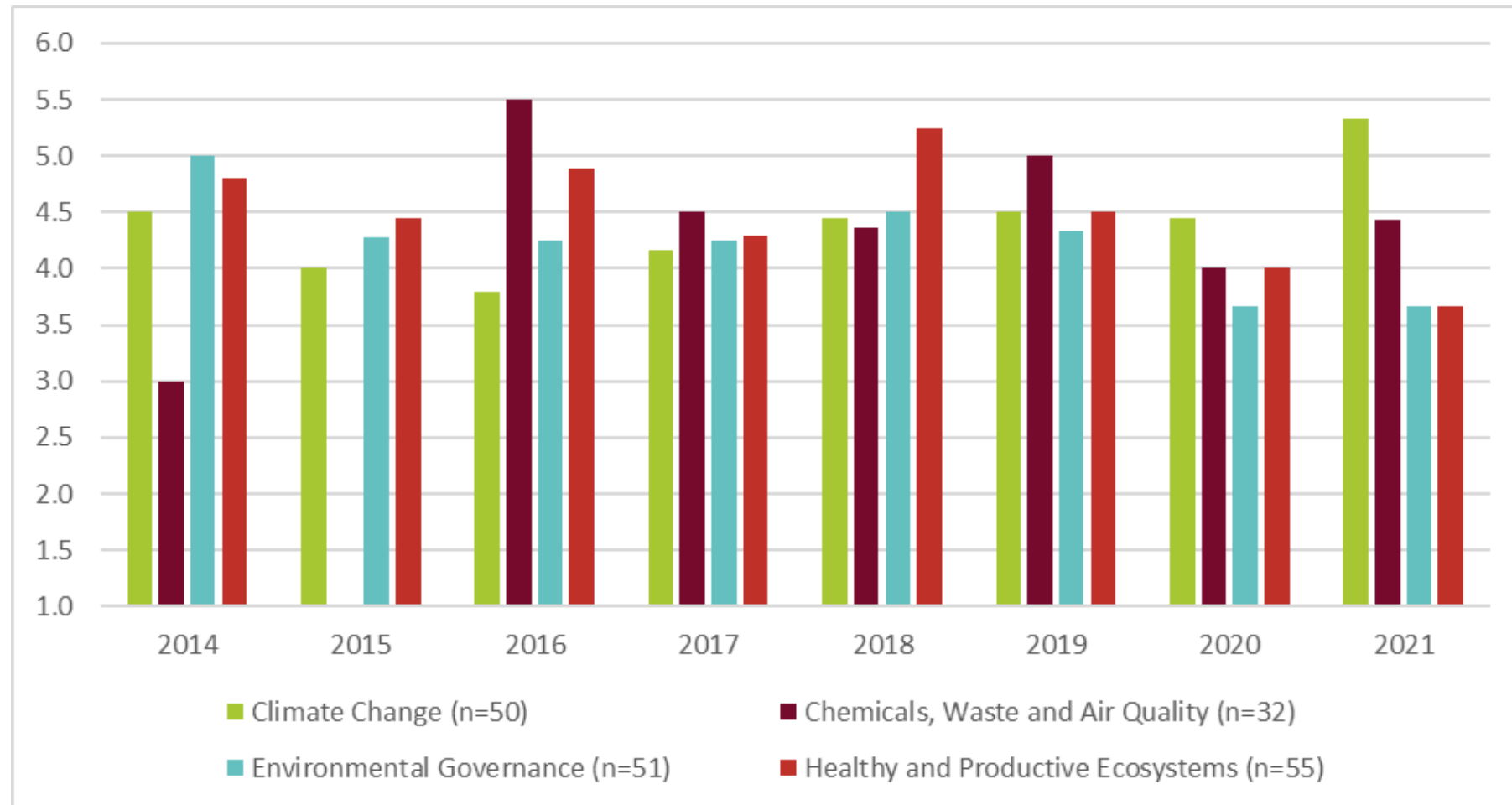
- Reconstructed the SP Theories of Change/Causal Pathways (over 6 - 10 year period)
- Contribution and process analysis
- Country case studies (2015): Albania, Bangladesh, China, Ghana, Montenegro, Peru, Tanzania, and Tunisia
- Deep dives (2024):
 - 1) *UNEP and ecosystem-based adaptation* – UNEP as leader on a specific issue globally and how it has translated expertise into tangible impact;
 - 2) *Science to policy* (emission gap,) science-based report series provides vital high-level context for the global response to climate change and fulfills UNEP's vision is to link science and policy to benefit the environment.
- Desk-based review of documents: project evaluations, SP monitoring reports (PPR), scientific publications, etc.
- Semi-structured interviews (UNEP staff and partners/stakeholders)
- Survey (UNEP staff and limited external stakeholders) (2015)

Theory of Change SP-CA (2015)



Evaluation Findings

Average project ratings for "Effectiveness" per year of project Completion (2014-2021)



Challenges

- How then to set high-level results? Reflecting UNEP's mandate and comparative advantage (science into policy; environmental governance) or environmental benefits, when its difficult to identify specific contributions to global advancement.
- Leads to indicators that express 'reach' rather than UNEP's contribution towards 'closing the gap' or having an effect at a country level.
- How to set effective boundaries of the evaluand as effective response to climate change is synergistic (not just in one subprogramme) and SP changes over time with the institutional strategy (4-year MTS)
- Information of the SP-CA is fragmented and does not allow a fully systematic analysis and limited budget for SP evaluation (Environment Fund).
- Micro-macro paradox: Adding projects together may not equal social change or global environmental impact.
- SP Outcome indicator reporting seems to be transparent, but the spot check of the evaluation team was unable to reproduce the indicator counts or validate them with country level information.
- Coordinating the timing of SP evaluation with strategic design and planning processes is challenging

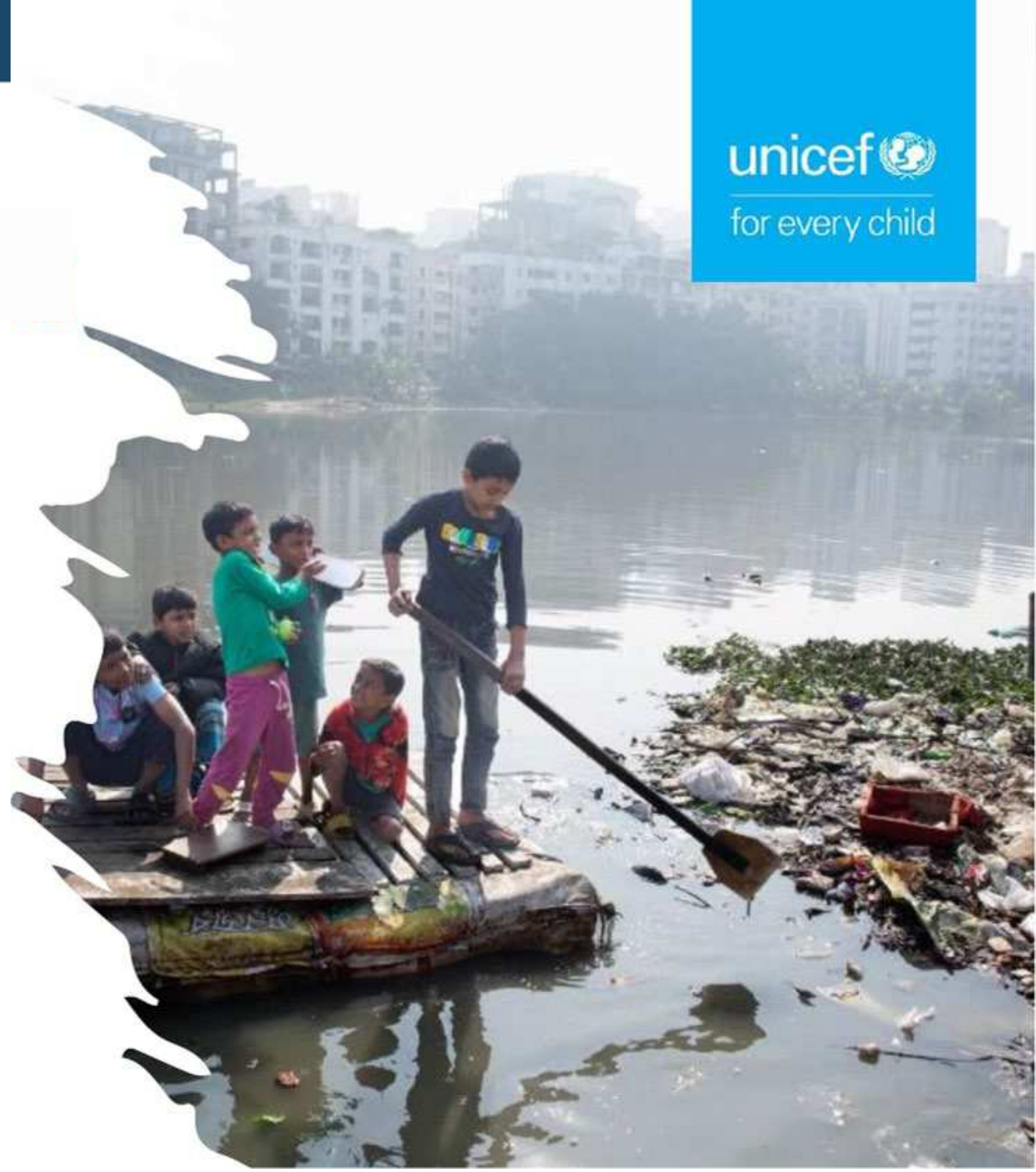
Lessons Learnt

- Identify and articulate causal pathways underpinning the Subprogramme's Theory/ies of Change rather than reconstructing the SP Theory of Change.
- Analyse the 'contribution' made by the subprogramme to high level sectoral or global change (using causal narratives, timelines, TOCs, stakeholder analysis, 'mirror analysis' (MTS SP-CA statement and global agreement/ Paris Agreement).
- Make credible association (intentionality + causality) between UNEP's work and its contribution towards impact, sustainability and up-scaling with flagships and understanding leverage in the environmental space (does not allow this contribution to be (fully) quantified).
- Overcome lack of project generated data by use of academic literature e.g. fuel study.
- Moving forwards to more use of AI (MaxQDA) where there is a strong case that a meta analysis will answer the questions we want to address.



Approaches

- UNICEF is conducting the following climate-related evaluations:
 1. Global thematic evaluations
 2. Programme/project evaluations
 3. Evaluation syntheses
- Impact evaluations are envisioned/
planned
- Specific activities in 2024-25 include:
 1. Development of UNICEF Guidance on Climate Integration in Evaluation (2024)
 2. Impact Feasibility Assessment of Climate Resilient WASH Interventions (2024)
 3. Global Evaluation of UNICEF Work in Disaster Risk Reduction & Climate (2025)



UNICEF Guidance on Climate Integration in Evaluation

- The purpose of this document is to offer a 'how-to' for evaluating UNICEF-supported climate actions. These climate actions can relate to both mitigating and adapting to the effects of climate change.
- The guidance offers practical advice for the evaluation planning, implementation, and reporting phases, along with useful tools included in the annex.



GUIDANCE ON CLIMATE INTEGRATION IN EVALUATION

DRAFT FOR EVALUATION OFFICE

Final Draft – 25 January, 2025

UNICEF Guidance on Climate Integration in Evaluation (Draft)

Principle 1: Risk reduction

Place climate risk reduction at the heart of the evaluation process, focusing on the extent to which climate actions contribute to reducing climate risks, while recognizing the inherent challenges in measuring such outcomes.

Principle 2: Child-sensitive and gender-responsive, social inclusion

Ensure that evaluations assess the extent to which climate actions are child-sensitive and gender-responsive, recognizing that climate change exacerbates existing vulnerabilities, especially of disadvantaged groups.

Principle 3: Learning and complexity

Prioritize learning from its climate actions to enable adaptive management to maximizing results for children, especially in programs that adapt essential social services for the most vulnerable populations. Given the complexity in measuring risk reduction and in determining attribution, evaluation should help to understand what works, under what conditions, and why (or why not) for both retrospective and forward-looking evaluations.

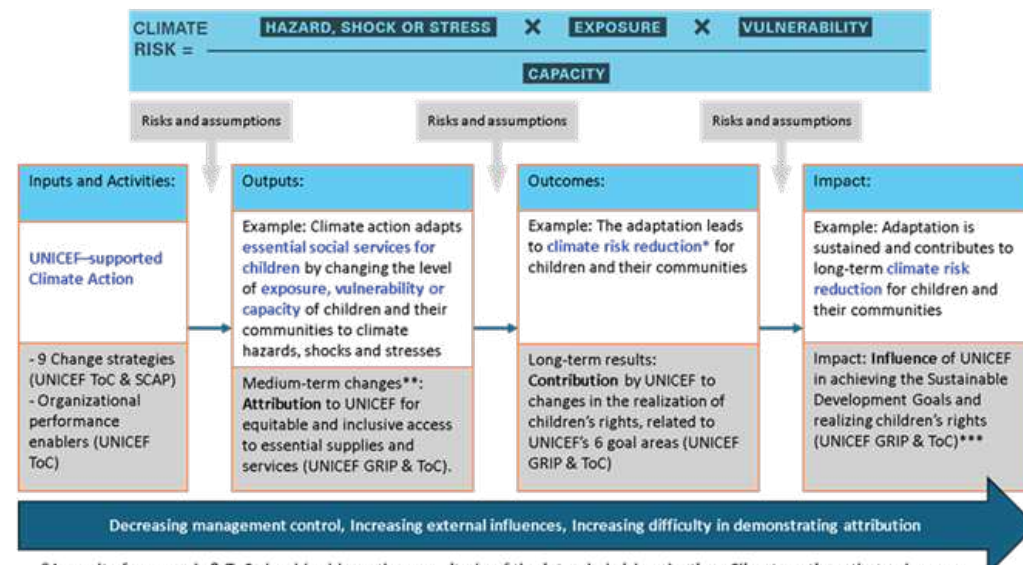
Principle 4: Unintended consequences

Consider potential unintended consequences, including adverse environmental or social impacts that may arise from climate actions.

Principle 5: Local alignment challenges

Evaluate the extent to which risk-reduction initiatives are informed by local risk-information and aligned with local capacities, plans and services.

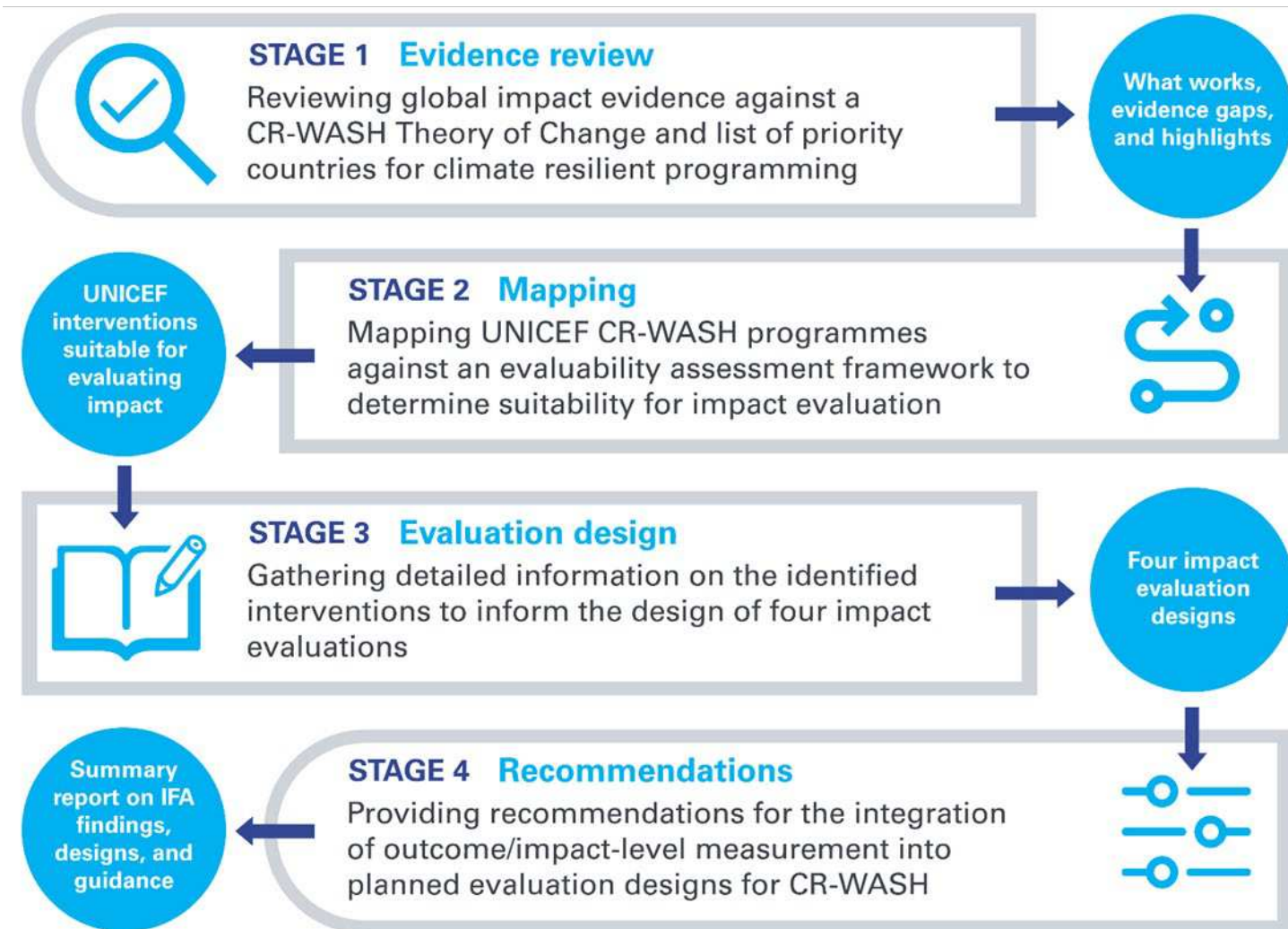
Generic risk-informed ToC using the climate action “adaptation of essential services for children” as an example



*A results-framework & ToC should address the magnitude of the intended risk reduction. Climate actions that enhance a component score by 50% (in exposure, vulnerability or capacity) represent a considerable risk reduction (corresponding with as at least a 0.5 point drop in Children's Climate Risk Index). (See UNICEF CCRI)

**This is an example; UNICEF has identified 9 additional types of medium-term changes (see UNICEF ToC)

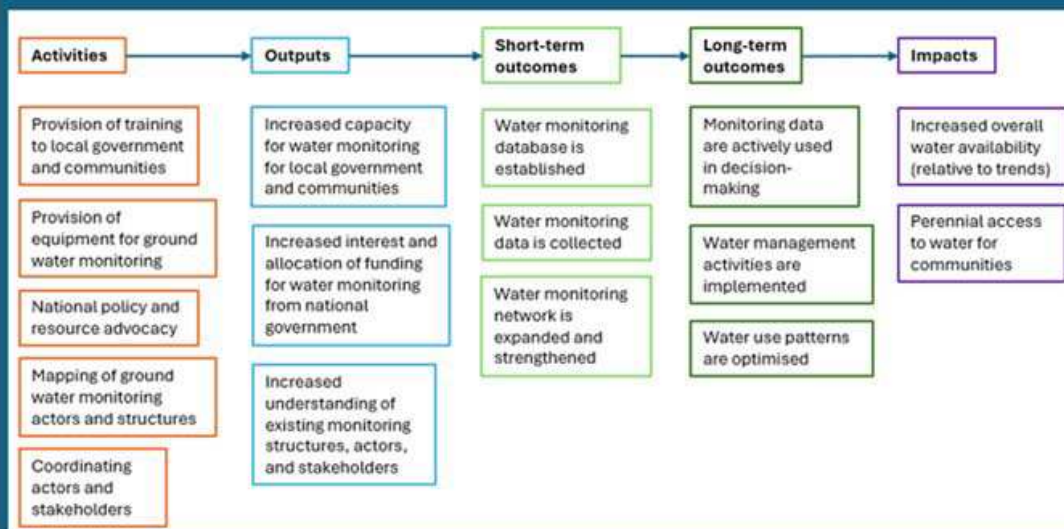
Impact Feasibility Assessment of Climate-Resilient WASH Interventions



Building Resilience in the Sahel (BRS)

- Programme aimed at supporting 14.2 million people by increasing their resilience across several thematic areas.
- As part of its water and sanitation work, the programme will support communities with the monitoring of water resources using a community-based integrated water resource management approach.

Inferred Theory of Change for water monitoring intervention in BRS



Proposed Evaluation Design



With changes in water resources likely to be affected by a range of anthropogenic and climate-related confounding factors, the best option might be a mixed methods approach.

Various design options could be considered, with a hybrid approach also a possibility:

- **Difference in Differences (DiD) analysis:**
 - The most viable quasi-experimental design, however, given control/treatment selection challenges, it is unlikely that it would be possible to establish levels of water monitoring in a treatment and control catchment that could show relative changes in water availability.
- **Longitudinal study:**
 - In lieu of a control catchment, reviewing the water resource monitoring data trends over several years presents a viable method for assessing trends in water availability over time.
- **Theory-based evaluation:**
 - In addition to the options above, it is recommended that a theory-based evaluation be undertaken to understand how the water monitoring and water management components of the programme design are performing.

Climate Resilient Infrastructure for Basic Services (CRIBS)

- Programme seeks to increase the climate resilience of 1,000 public healthcare centres and schools in northwest Nigeria.

Theory of Change for CRIBS programme

Outcome: Children and women in vulnerable communities of Northern Nigeria will have access to the services and safety of climate resilient and sustainable basic health, education and WASH facilities which support them to survive, thrive, learn and grow.

Output 1.1: Renovation and improvements of primary health care and education facilities in zero-dose and high out of school LGAs

Output 1.2: Health and education systems are strengthened for enhanced sustainability and provision of services.

Output 1.3: PHC and schools facilities assessed for vulnerability to, and sustainability in the face of, environmental and climate change issues.

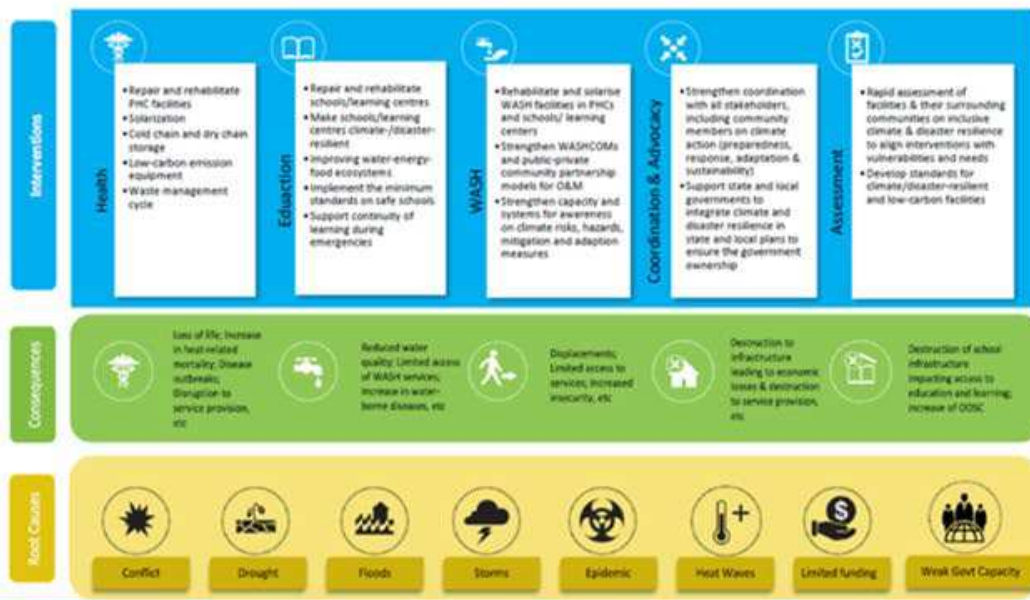
STRATEGIC APPROACHES

SUSTAINABILITY
SYSTEMS STRENGTHENING

INFLUENCING LEGISLATION AND POLICIES
SOCIAL & BEHAVIOURAL CHANGE

DATA AND EVIDENCE
INCLUSION

COMMUNICATION AND ADVOCACY
COMMUNITY ENGAGEMENT & PARTNERSHIPS



Proposed Evaluation Design

unicef
for every child

IMPACT

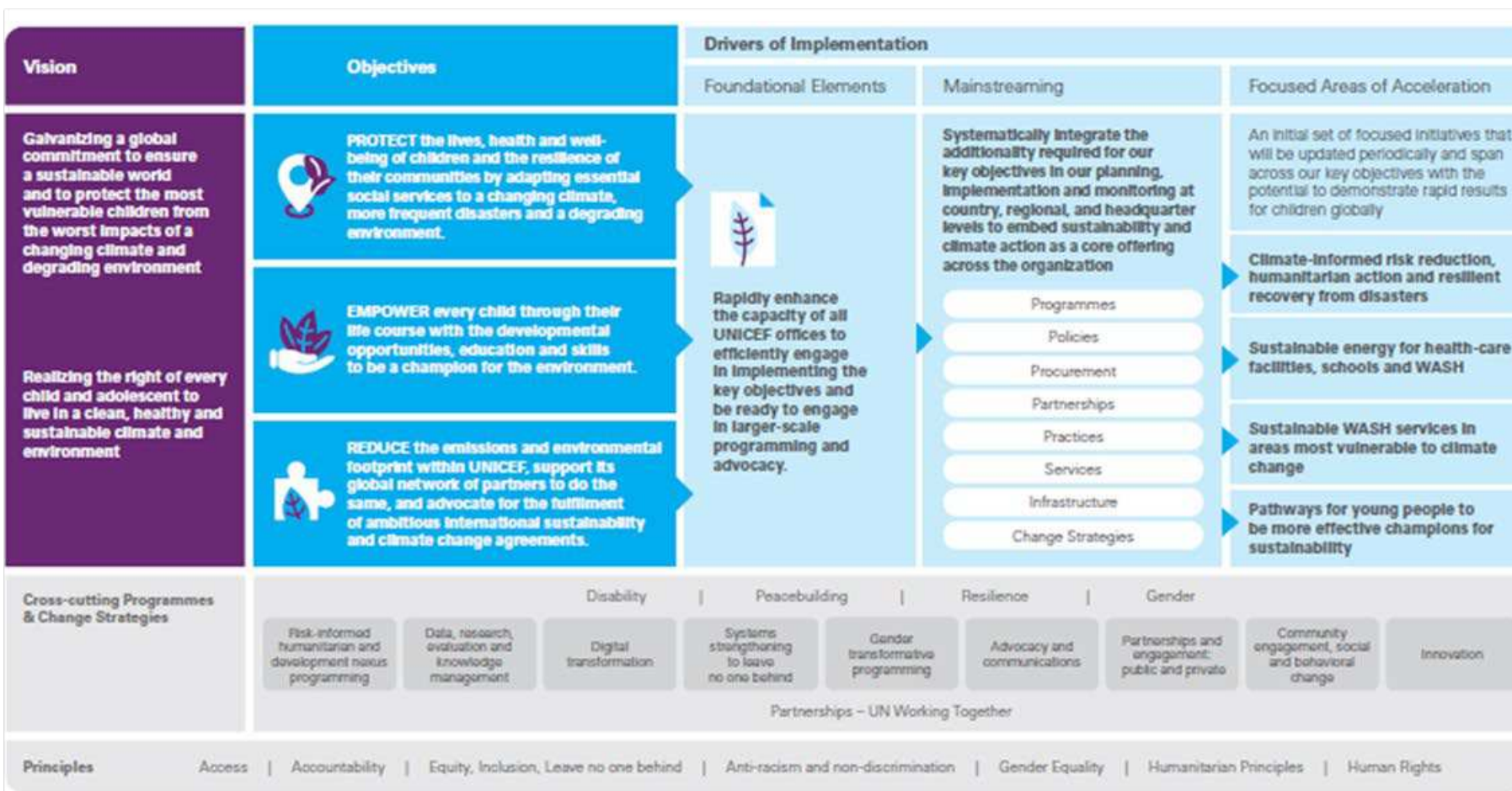
Strong scope for an experimental or quasi-experimental approach to impact evaluation:

- **Randomized controlled trial with matching:**
 - Experimental approach matching schools/PHCs with similar characteristics between the treatment group and facilities outside of the programme to create a control group.
 - Students/patients across both groups could then be randomized based on observable characteristics allowing for intervention impacts at the level of the individual to be measured over time.
- **Difference in Differences (DiD) analysis:**
 - Quasi-experimental approach that involves creating a control group using similar characteristics to the schools/PHCs receiving the treatment and comparing the differences in key outcome and impact results after the intervention.
 - Approach would focus on results produced at the facility-level, and additional data collection protocols would need to be introduced to collect data at the individual level.
- Both approaches would require pre-programme baselines, with data collection repeated periodically throughout and after programme completion.

Global Evaluation of UNICEF Work in Disaster Risk Reduction & Climate

- First global evaluation of UNICEF Work in Disaster Risk Reduction & Climate and first global application of new climate evaluation guidance.
- Mixed methods evaluation targeted at providing a baseline and supporting the organization with building its programmes, accelerating its investments, understanding outcomes and closing data gaps.

UNICEF's Sustainability and Climate Change Action Plan (2023)



Challenges & Lessons

- **Increase UNICEF's evidence on climate-related outcomes and impact** including information available on the costs and benefits of different types of climate-related interventions.
- **Build capacity of UNICEF staff and consultants** with evaluating the climate-related outcomes and impact of interventions. UNICEF interventions often have many objectives, with climate being one of several expected benefits and often not the main focus.
- **Openness to explore options** and awareness of the need to show evidence of climate outcomes and impact.
- The **complexity and costs** of measuring climate outcomes and impact, including the required timeframe, are constraints.

Best Practices & Next Steps

- Need for **flexibility and a variety of approaches to assess climate impact** including outcome/impact evaluation but also enhanced programme and thematic evaluations.
- UNICEF is **investing in evidence on climate outcomes and impact**. This includes applied research and changes to monitoring, the upcoming global climate evaluation and efforts towards evaluation of climate impact.
- With the SP 2026-2029, UNICEF is expected to significantly **scale its climate programming**, offering both the opportunity, and further increasing the **need for robust evaluation data on climate**.

Group work



Discussion questions:

1. Are (or can) these approaches be applied by your agency, and what other approaches do you use?
2. What are the challenges and lessons learned?
3. How can UNEG promote joint work and wider application of these approaches?

Thank you!

