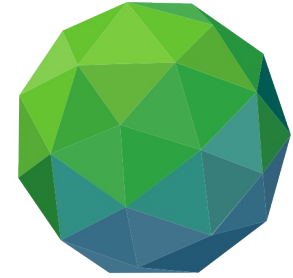


EXPERT MEETING ON THE ROBUSTNESS OF CLIMATE CHANGE INFORMATION FOR DECISIONS



GREEN
CLIMATE
FUND

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THE ADAPTATION CHALLENGE



- **“While our understanding of climate change and its potential impacts has become clearer, the availability of practical guidance on adaptation has not kept pace”** (UNDP Adaptation Policy Framework for Climate Change, 2004)
- This is arguably still true in 2024.
- From the perspectives of policy-makers and planners, and bilateral and multilateral climate finance mechanisms, more capacity is required to place climate information in the user context.
- Only through the effective combination of all relevant information can pragmatic policy be developed, and decision-makers be enabled to identify effective adaptation actions. In this process, climate information is an essential ingredient but not the only one.

GOAL

Developing countries are able to: understand the likely impact of climate change on their development plans; create national climate change strategies and plans as a response; decide mitigation and adaptation priorities; match sources of funding to a long term, adjustable, project pipeline

Outcomes

Climate change mainstreamed into national planning

Capacity exists for effective translation of actionable information between climate service providers and users

???

Outputs

The 2023 UNEP Adaptation Gap Report estimates the adaptation finance gap at USD 194–366 billion

Adaptation interventions are still largely small-scale and incremental

Climate resilient development demands actions based on integrated, multi-sectoral solutions that address social inequities, and cut across these systems (AR6 Syn Rep)

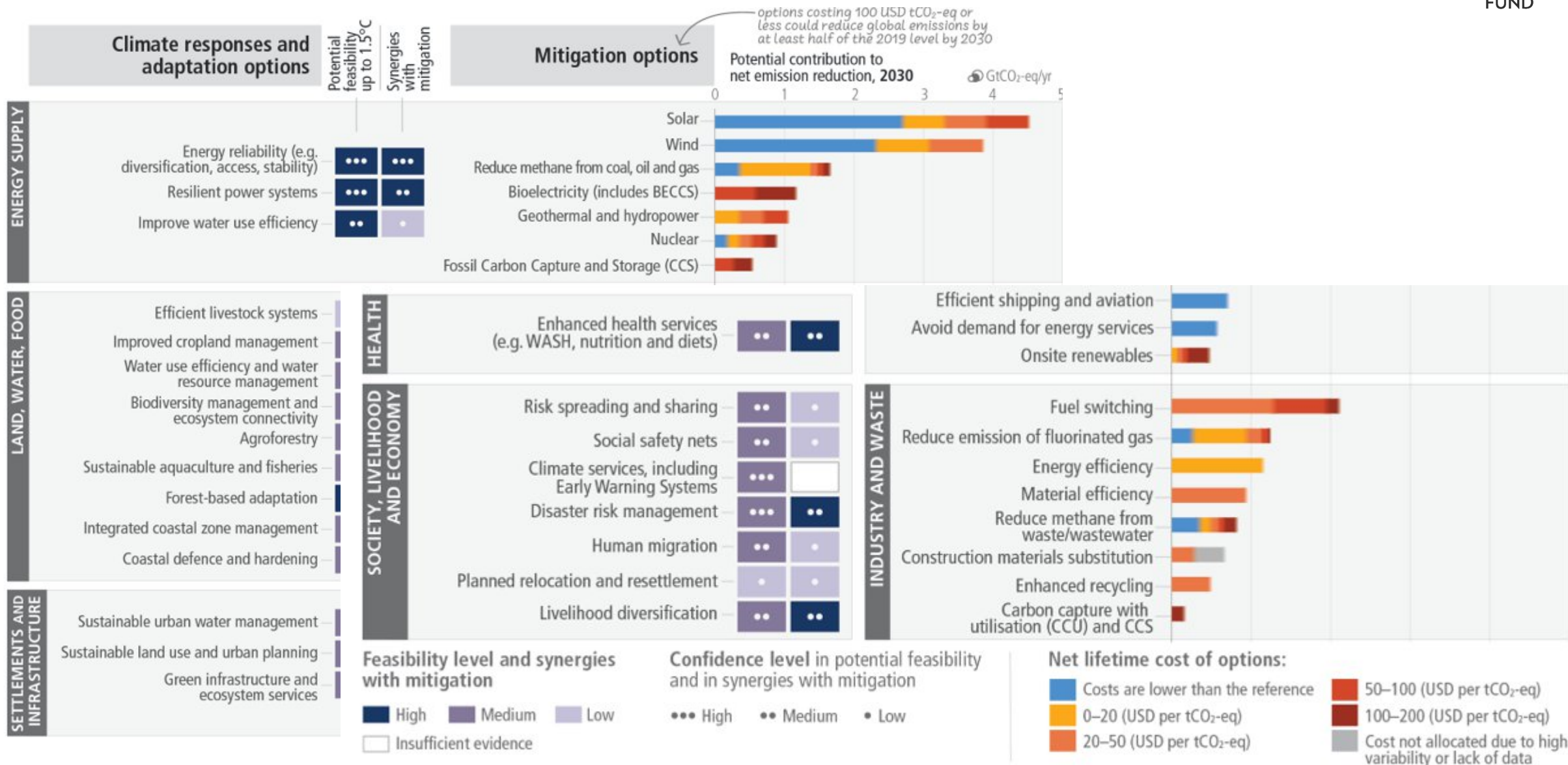
Project activities

Barriers, risks

Assumptions

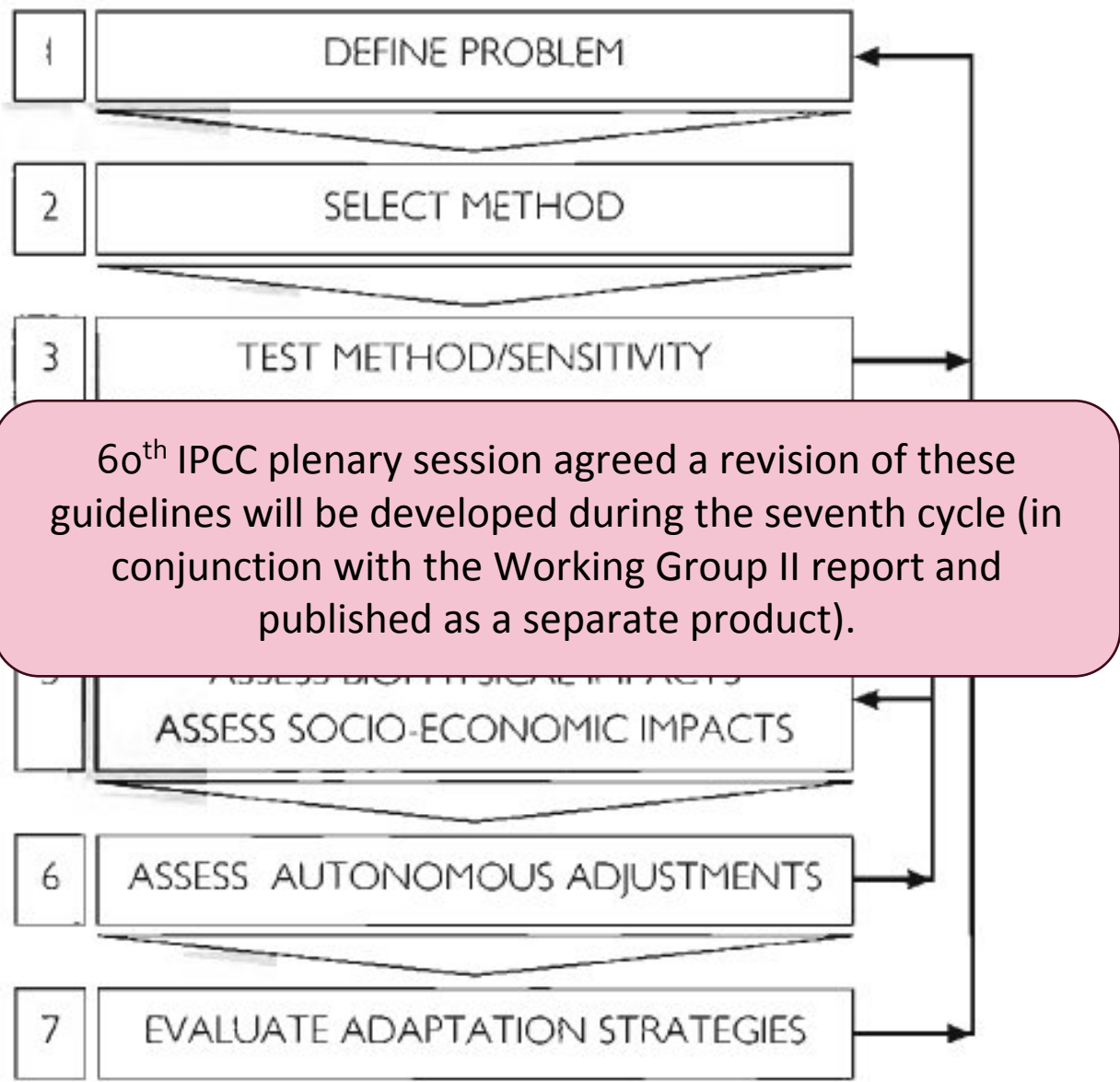
Countries are motivated and incentivized to act; are government agnostic in the long term; etc.

Feasible adaptation options (AR6 Syn. Rep. SPM.7)



- The assessment of the feasibility of adaptation options is a good starting point but is not a sufficient tool for selection and implementation.
- There is no single approach to adaptation option selection. User needs and decision-making contexts are diverse – probably unique - and there is no “one size fits all” solution.
- Selection and prioritization of adaptation options is a wicked problem. Not all options can be realized (due to limitations of resources, capacity, or policy). In many cases, political and economic conditions may be a more significant driver of outcomes than climate change (Noble et al., 2014).
- There are many generic recommendations for a step-wise approach steps to conducting a climate change impact and adaptation assessment (IPCC/Carter et al., 1994; UNDP (2004) Adaptation Policy Frameworks for Climate Change, PROVIA (2013) Guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change, etc., etc.).

Figure 4. Seven steps of climate impact assessment



60th IPCC plenary session agreed a revision of these guidelines will be developed during the seventh cycle (in conjunction with the Working Group II report and published as a separate product).

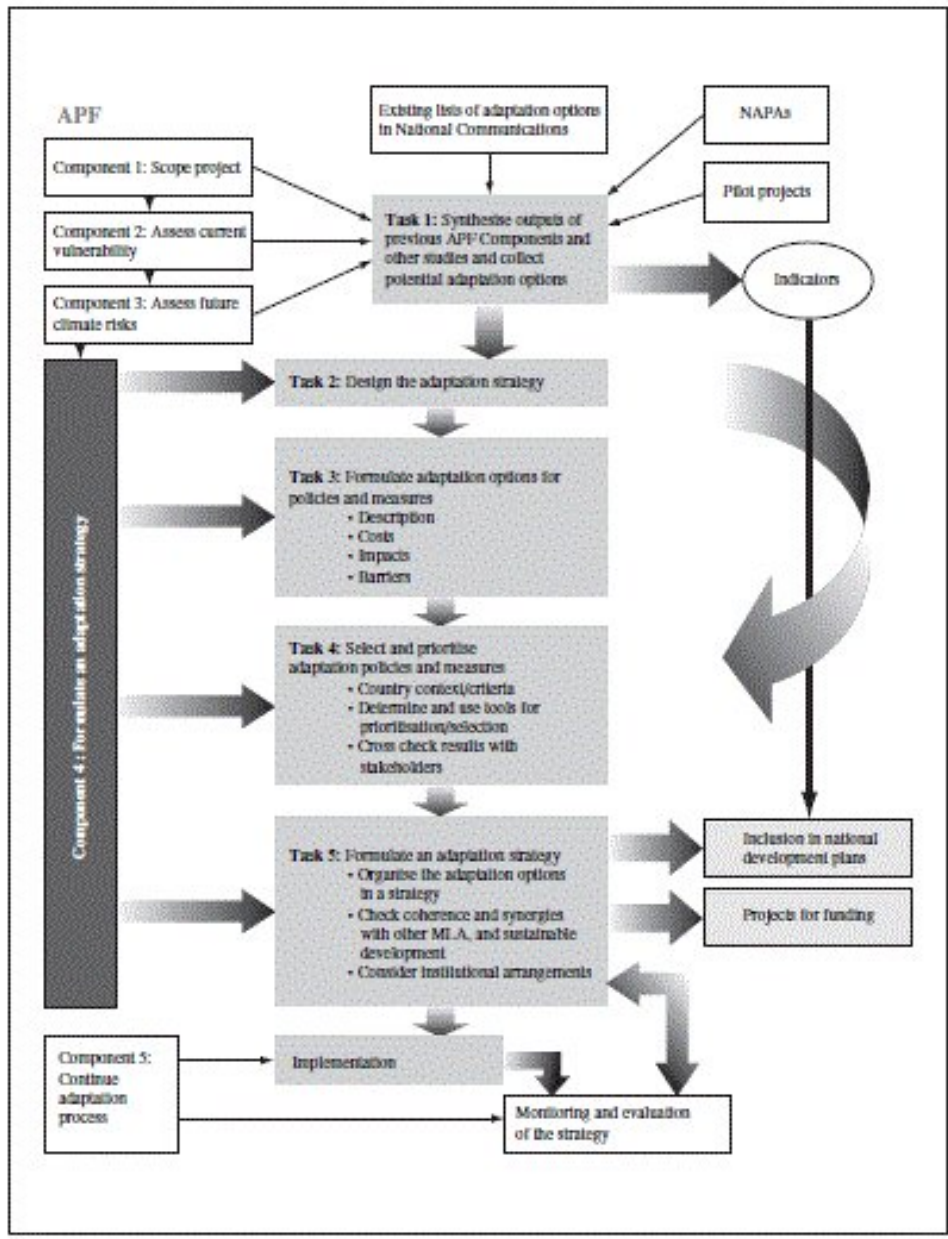
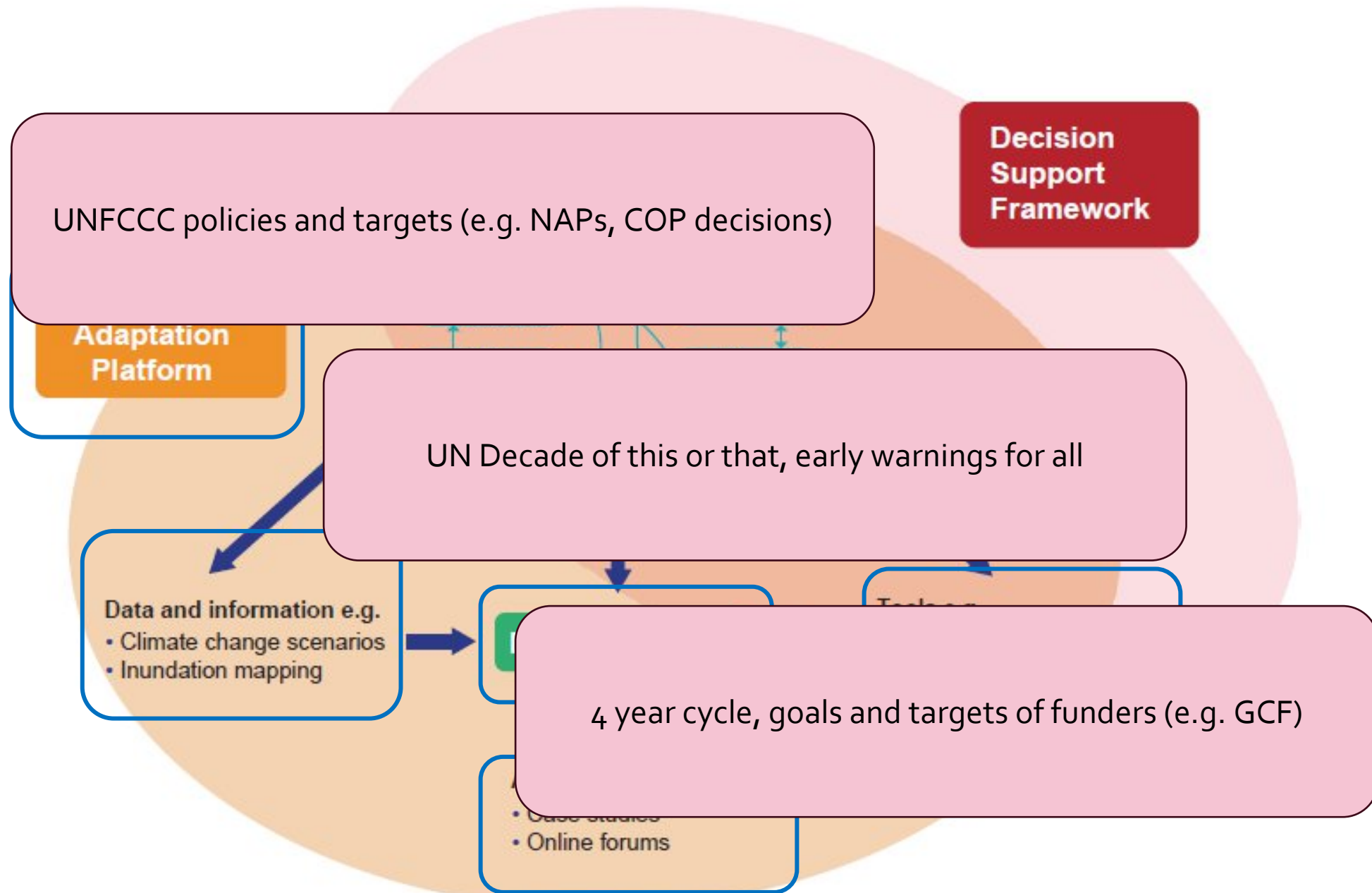
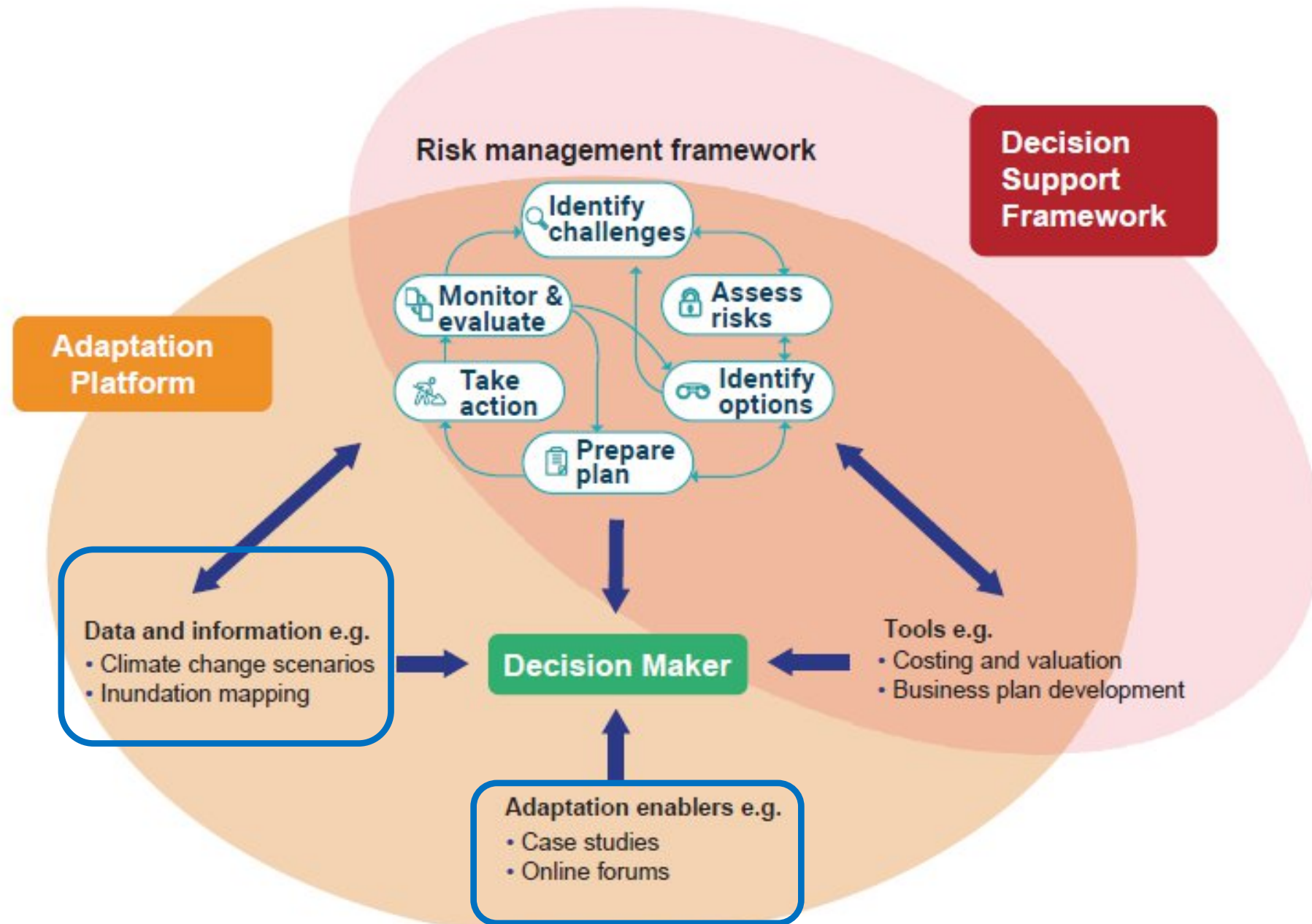


Figure 8-2: Component four in the Adaptation Policy Framework context







Climate Information Gateway

Welcome to the Climate Information Gateway. This resource is being developed by the Green Climate Fund (GCF) with a range of partners on behalf of the climate action community to improve access to climate change and vulnerability information that is needed for planning, policy, and funding proposals. By assembling all information relevant to climate hazards and potential responses in a free Wiki-style resource, the Climate Information Gateway seeks to reduce barriers to the incorporation of climate change information into national policies, plans and investments.

Contributors to this site include international climate change experts, multilateral climate funds, the World Meteorological Organization (WMO), National Meteorological and Hydrological Services (NMHS), and various other technical partners.

The Gateway is a Wiki-style resource offering:

- online training materials and capacity support
- practical detailed guidance for writing proposals for climate finance
- open-source information platforms and tools (e.g. for climate model projections, or sector-specific modeling tools)
- country and sector level risk and vulnerability analyses
- TBD
-

This beta version of the Gateway was launched at the Second Global Forum on Climate Science Information (10-12 October 2023 in Abu Dhabi) and will evolve rapidly as the editor community increases

Answers to [FAQ](#) can be found here

Platforms for accessing climate projections and observational climate data



When developing proposals (e.g. to a funding agency such as the GCF) developers should make use of the best available data, which may come from a variety of sources, and be adapted to data availability, context and capacities for a specific country or region. Recognizing the significant variation in data availability across countries and contexts, it is clear that funding bodies should not be prescriptive regarding the use of any specific data source.

For modelled future climate, a number of community tools and information platforms exist to assist in the retrieval and analysis of climate model projections. Planners and proposal developers should use the information platforms and future climate data specific to the risk and hazard of their proposal, and should seek consensus amongst different data sources where possible. The IPCC stresses the value of developing an analysis using multiple lines of evidence and this approach ("distillation") is strongly endorsed here, including the use of local, traditional, and Indigenous Peoples' knowledge in the articulation of the climate risks.

The [IPCC WGI Interactive Atlas](#) is a novel tool for flexible spatial and temporal analyses of much of the observed and projected climate change information underpinning the Working Group I contribution to the Sixth Assessment Report. The Interactive Atlas has two components. The first (regional information) includes the ability to generate global maps and a number of regionally aggregated products for observed and projected climate change for time periods, emissions scenarios or global warming levels of interest. The second component (regional synthesis) provides qualitative information about changes in climatic impact-drivers (CIDs) in several categories such as heat and cold, wet and dry, or coastal and oceanic.

The [Climate Information Portal](#) is a user-friendly resource developed by the Swedish Meteorological and Hydrological Institute (SMHI), on behalf of the World Meteorological Organization (WMO), World Climate Research Programme (WCRP) and the Green Climate Fund (GCF). This platform provides easy access to many pre-calculated climate indicators (both weather and water variables), derived from CMIP6 and CORDEX climate models. The platform also provides a good [introduction to climate models and methods](#) for non-specialists.

The [Copernicus Climate Change Service \(C3S\)](#) supports society by providing authoritative information about the past, present and future climate in Europe and the rest of the World. It offers free and open access to climate data and tools based on the best available science. C3S provides climate data and information on impacts on a range of topics and sectoral areas through its Climate Data Store (CDS). The CDS is designed to enable users to tailor services to more specific public or commercial needs.

The [Climate Data Guide](#) from the National Center for Atmospheric Research (NCAR) provides concise and reliable information on the strengths and limitations of the key observational data sets, tools and methods used to evaluate (or initialize or force) Earth system models and to understand the climate system. Citable expert commentaries are authored by experienced data users and developers, enabling a diverse user community to access and understand the data that underpin climate science.

The [NASA Sea Level Projection Tool](#) allows users to visualize and download the sea level projection data from the IPCC 6th Assessment Report (AR6). The goal of this tool is to provide easy and improved access and visualization to the consensus projections found in the report. The target audience is intended to be broad, allowing a general audience and scientists alike to interact with the information contained in the AR6. The tool allows users to view both global and regional sea level projections from 2020 to 2150, along with how these projections differ depending on future scenario. Users can click on a point anywhere in the ocean to obtain the IPCC projection of sea level for that individual location.

Here are some expert commentaries (left) and recent applications (right)

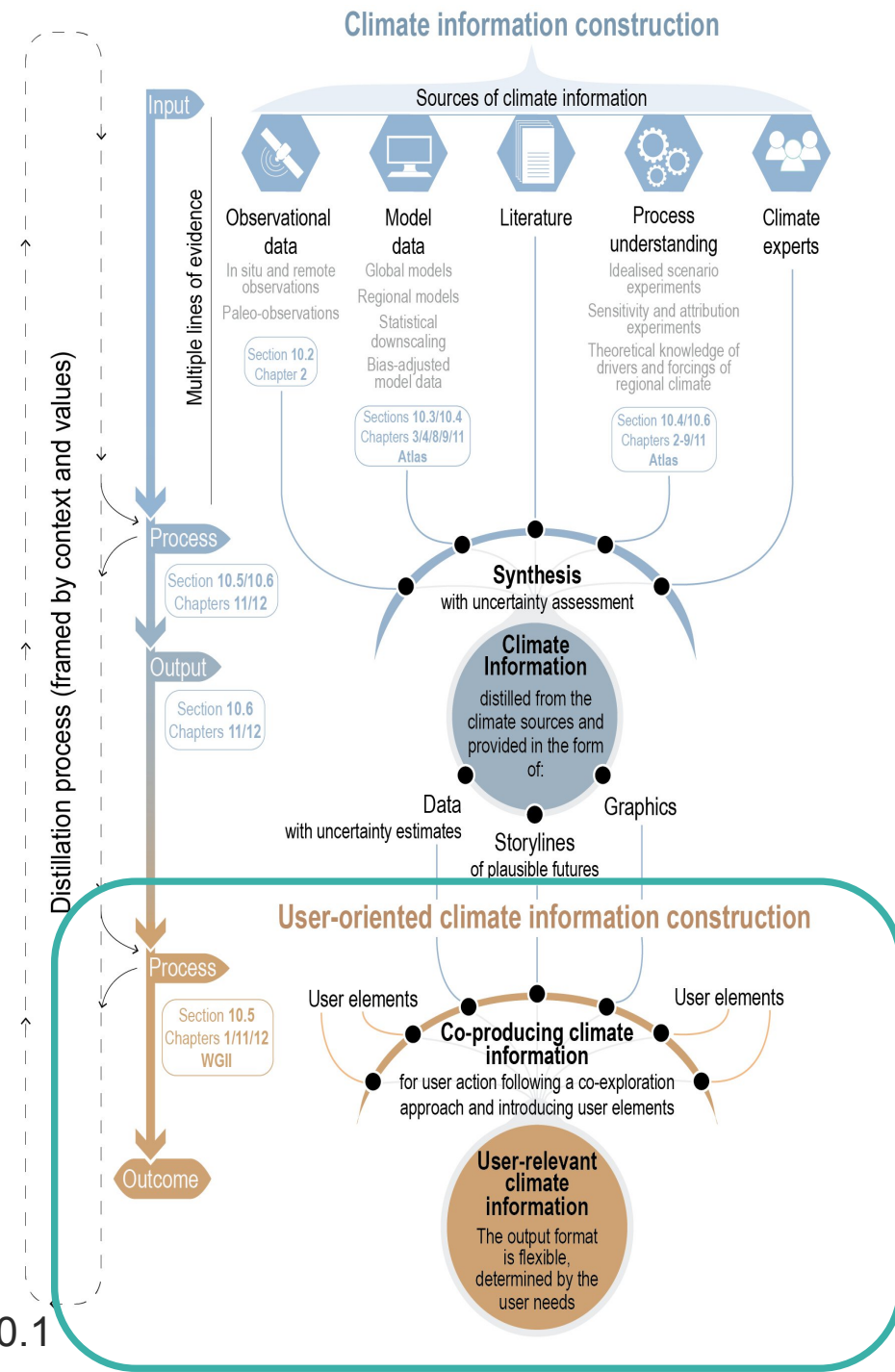
Expert views on the climate model projection resources

This section can act as a blog or a Q&A section for the resources

Here are some recent applications of the materials (e.g. in funding proposals or in national plans and strategies such as NAPs)

Translation at geographic or sectoral levels

- “While the role of IPCC is clearly felt as a reference, authoritative, starting point, there is a need for complementary information to translate the assessments at the national, local or sectoral level” (IPCC AR6 WG1)
- Is there a role for an expert community of practice? Or resources that describe and promote good practice in the translation and integration of climate information?



Climate Risk Profile Wajir County

Highlights

Adapting agriculture to changes and variabilities in climate: strategies across major value chain commodities

	Provision of seeds and other inputs	On-Farm production	Harvesting storage and processing	Product marketing
Changes in rainy seasons (onset and duration)	Browse and pasture scarcity. Reduced quantity and quality of pasture. Difficulty in accessing extension and veterinary services due to the need to move long distances for pasture, feed and fodder. Higher electricity costs for cold storage of vaccinations	Reduced milk production. More time spent on tracking animals which have moved in search of fodder. Difficulty in managing livestock health	Reduced milk quantity and quality. Difficulty in collecting milk for bulking. High cost and time for transportation of milk. Greater chances of milk spoilage	Reduced availability of market and supply information. Lower income for farmers. Reduced volumes for value addition. Reduced market access
Magnitude of impact	Major	Major	Severe	Major
Farmers' current strategies to cope with the risks	Border point disease monitoring by farmers. Farmer-to-farmer sharing of information on browse and pasture availability	General livestock health management – deworming and hoof trimming)	Awareness raising on milk hygiene	Group sales and marketing. Using motorbikes to transport milk
Other potential options to increase farmers' adaptive capacity	Recruitment of more extension staff. Training of community paravets. Out scaling of formal disease surveillance mechanisms. Finalising and local level application of national Livestock Policy	Training on improved herd health management	Farmer training on milk hygiene & processing (attachment of trainers to producers' groups). Introduction of improved milk handling and storage equipment. Introduce solar cold storage equipment. Establish decentralised processing plants	Establish designated milk selling stalls at agricultural marketing centres. Introduce large vehicles with cold storage systems for milk transportation

	Provision of seeds and other inputs	On-farm production	Harvesting storage and processing	Product marketing
Changes in seasons (onset and duration)	Unpredictable supply and availability of seed, fertiliser and other inputs due to uncertainty in season start. Delayed extension advice. Farmers delay to buy inputs – affects the incomes of agro-dealers	High costs of land preparation – sometimes have to plough twice. Emergence of weeds results in additional weeding costs. Reduced harvests. Uncertainty in planning farm operations	Unpredictability in timing of harvest period. Reduced and inconsistent business and income for transporters and processors	Higher on-farm consumption and reduced sales in markets. Higher prices due to inconsistent supply
Magnitude of impact	Moderate	Major	Major	Major
Farmers' current strategies to cope with the risks	Variety selection	Intercropping, staggered planting. Early weeding. Use of indigenous knowledge to inform seasonal activities	Use of on farm storage facilities. Local processing (store grinding)	Sales to middle men. Individual sales. Local consumption
Other potential options to increase farmers' adaptive capacity	Capacity building on seed conservation and bulking. Capacity building on appropriate seed selection (short season and early)	Scaling up conservation agriculture. Training on mulching for weed suppression. Water harvesting and small scale	Improved extension capacity on pre- and post-harvest management. Capacity building on value addition, processing and	Collective marketing through cooperatives. Enforce harmonized producer pricing mechanisms

	Provision of seeds and other inputs	On-Farm production	Harvesting storage and processing	Product marketing
Changes in seasons (onset and duration)	Limited seed availability. Farmers delay buying seeds and may divert funds previously reserved for water melon seed to other uses	Delayed land preparation. Untimely planting leading to reduced yield. Uncertainty in pesticide application – sometimes resulting in increased chemical residues in harvested crop	Reduced quantity and quality of crop. Reduced storage and processing	Irregular/ inadequate supply to markets. Low prices for low volumes and lower quality produce. Difficulty in securing constant market
Magnitude of impact	Major	Major	Major	Moderate
Farmers' current strategies to cope with the risks	Sharing weather and input information from farmer to farmer. Variety selection (drought tolerant – crimson sweet, sugar bay)	Use of shallow wells and generators for irrigation. Use of organic pest control methods. Late planting with onset of rains	Storage under trees for shade. Use of metal storage sheds to protect from heat	Individual sales at local market, roadsides or to vendors and processors. Sales based on size
Other potential options to increase farmers' adaptive capacity	Training of farmers on use of drought tolerant, early maturing hybrid varieties (Sukari F1, Asali F1)	Promotion of solar powered irrigation. Scaling up farmers' field schools for shared learning. Capacity building on IPM (neem and garlic seeds). Capacity building on early planting	Construction of storage facilities (cool warehouses) or shade facilities. Capacity building on value addition	Organise group marketing through cooperatives. Capacity building on sales by weight

USAID Mekong ARCC Climate Change Impact and Adaptation Study

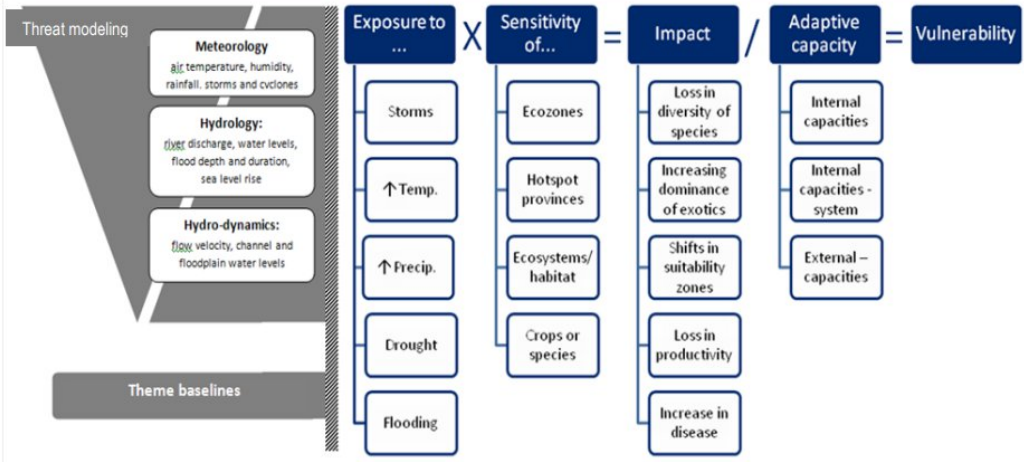


Figure 2. Climate change impact and vulnerability assessment process

Table 4. LMB Livestock Systems Vulnerability

Livestock category	Impact	Adaptive capacity	Vulnerability
Smallholder cattle/buffalo	Low	Low	Medium
Dairy/large commercial	Very high	High	High
Small commercial pig	High	Medium	High
Smallholder low input pig	Low	Low	Medium
Small commercial chicken	Very high	Low	
Scavenging chicken	Low	Low	
Field running layer duck	Very low	Low	
Wild species vulnerability			
Banteng (esp. Mondul Kiri)	High	Very low	
Eld's Deer (esp. Mondul Kiri)	High	Very low	
Sus Scrofa	Low	Very low	
Wild Poultry	Medium	Very low	

Table 3: High vulnerability of crops to changes in temperature and precipitation in the eight hotspots

Provinces	Rainfed rice	Irrigated rice	Cassava	Maize	Soya	Sugar-cane	Coffee	Rubber
Chiang Rai	High (temp)			Medium	Medium			High (temp)
Sakon Nakhon	High (temp)		High (rain, flood)			Medium		High (temp)
Kham-mouane	High (temp, storm)	Medium	High (rain, storm)	High (rain, storm)		High (rain, storm)		Medium
Cham-pasak	High (temp, storm)	High (temp)	High (rain, storm)	High (rain)			High (temp, rain, storm)	Medium
Mondulkiri	High (Storm)		High (storm)		High (rain, storm)			Medium
Kampong Thom	High (temp, flood)	High (temp, flood)	High (flood)		High (lower water, temp, flood)			Medium
Gia Lai	High (temp)	High (temp)	High (flood, flash flood)	High (storm, flash flood)		Medium	High (temp)	Medium
Kien Giang	High (SLR, salinity)	Medium-High (SLR, salinity, temp)						

Capture fisheries		
Species	Threat	Vulnerability
1. Tor tambroides UPLAND FISH, SOME MIGRATION, IMPORTANT FOR FOOD SECURITY IN SOME AREAS	Increase in temperature	very high
	Increase in precipitation	medium
	Decrease in precipitation	high
	Decrease in water availability	medium-
	increase in water availability	-
	Drought	medium
	Flooding	-
	Storms and Flash floods	high
	sea level rise	-
	increasing salinity	-

Aquaculture		
System & species	Threat	Vulnerability
INTENSIVE POND MONOCULTURE OF CLARIAS CATFISH	Increase in temperature	high
	Increase in precipitation	low
	Decrease in precipitation	medium
	Decrease in water availability	very high
	Increase in water availability	-
	Drought	very high
	Flooding	very high
	Storms and Flash floods	high
	sea level rise	-
	increasing salinity	-

Decision Tools



- Once a range of potential adaptation options has been identified, the hardest part of the adaptation process is arguably the prioritization and final selection of projects to be implemented.
- This is also where there is the most obvious gap in the existing literature and knowledge products.
- The final stage in the adaptation selection journey involves a comparison of options. This often draws on the economic toolkit: Barrier Analysis, Cost Benefit Analysis (CBA) or Multi-Criteria Analysis (MCA), etc.
- Resources exist that offer decision support in a sectoral context (e.g. IFAD Adaptation Framework Tool), but few offer generic decision support (an exception is the prototype weADAPT Climate Adaptation Options Explorer)

FINAL REMARKS



- In the complex challenge of adapting to climate change, is the biggest knowledge gap is around good practices for selecting and prioritizing adaptation options?
- Finance for adaptation needs to be stepped up urgently for countries to meet their adaptation goals. However, finance can only increase and flow if there is trusted guidance on how to select and implement adaptation projects
- The next few years provides a unique opportunity for all relevant stakeholders to engage with the scoping and delivery of these updated guidelines, and to ensure that global efforts to enhance adaptation guidance are aligned.
- Hopefully we can make a start at this workshop! It is essential that all perspectives are heard.
- Listen!