www.gcca.eu | www.[illegible] www.[illegible]

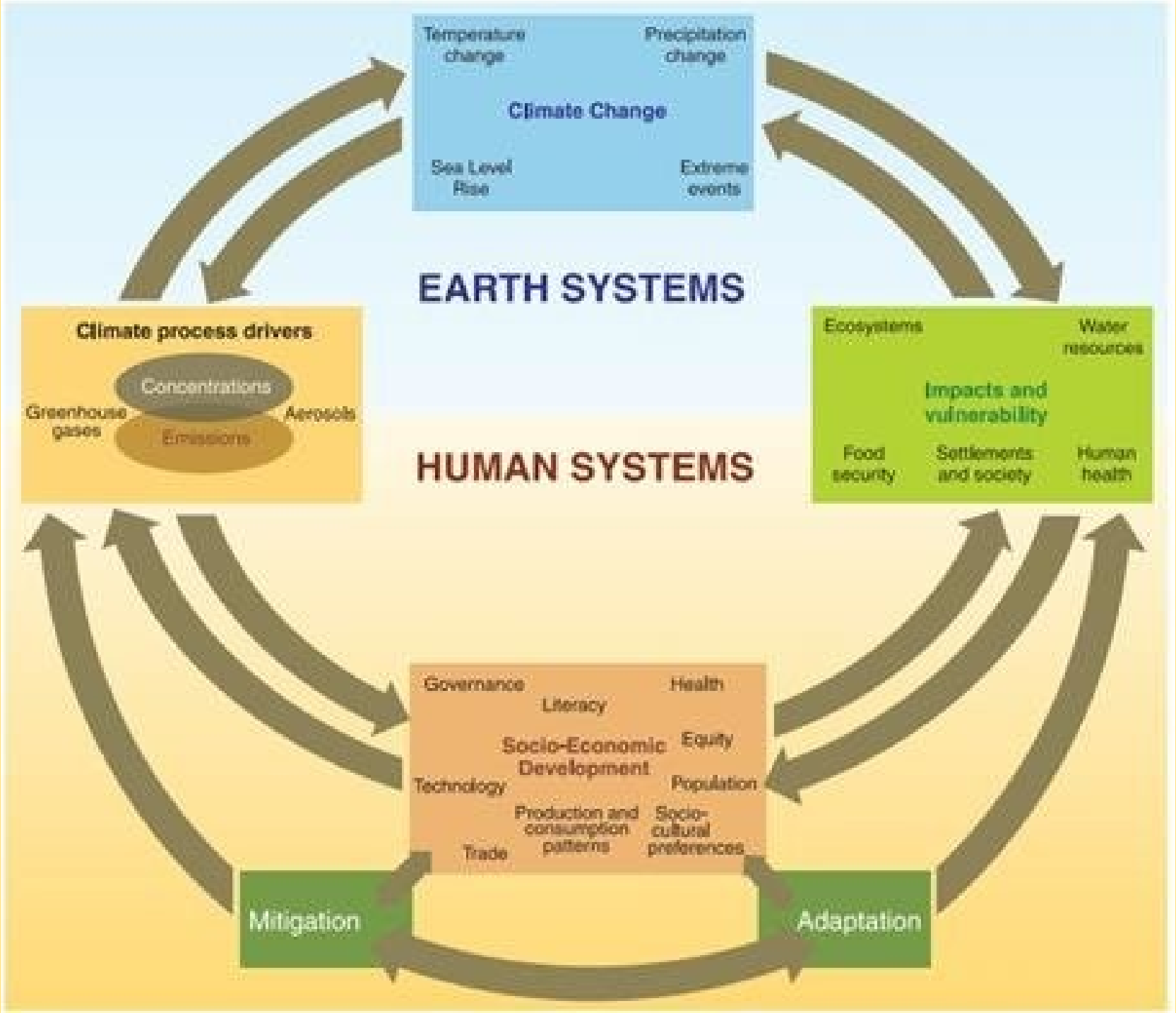
Understanding and building climate resilience

Global Climate Change Alliance+ Training Course

Module 2

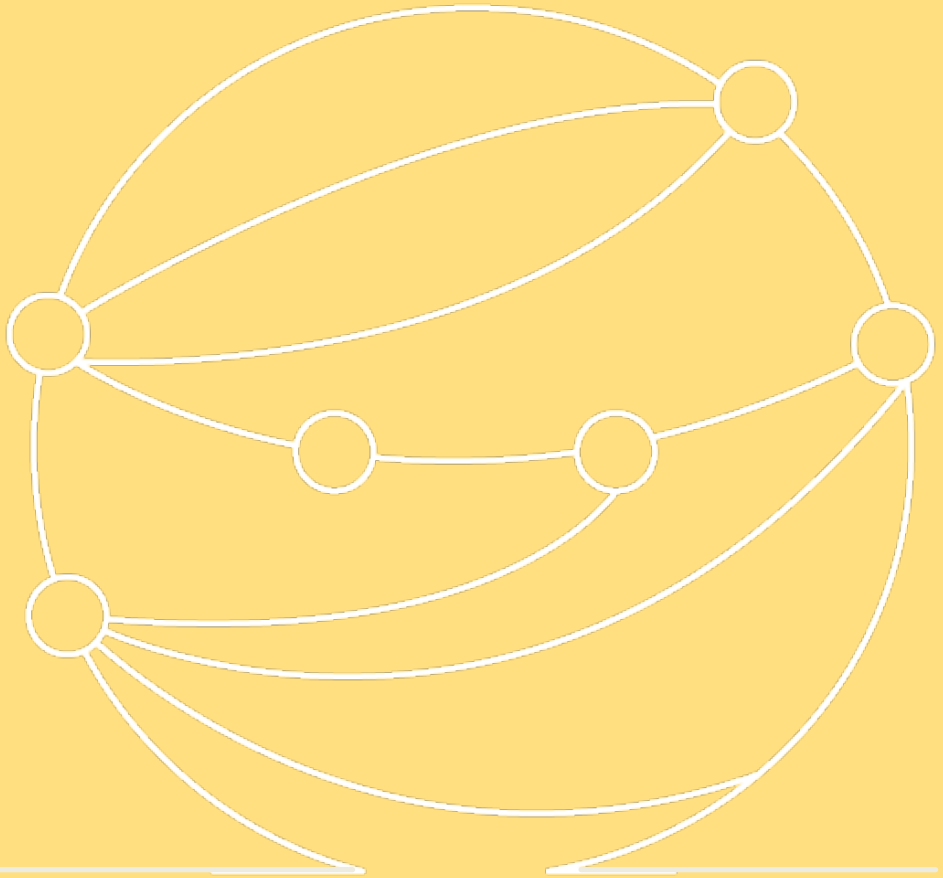
IMPACTS OF CLIMATE CHANGE

- For biological systems, it can be change in productivity, quality, population, or range;
- For societal systems, it can be a change in income, morbidity, mortality, or other measure of well-being.

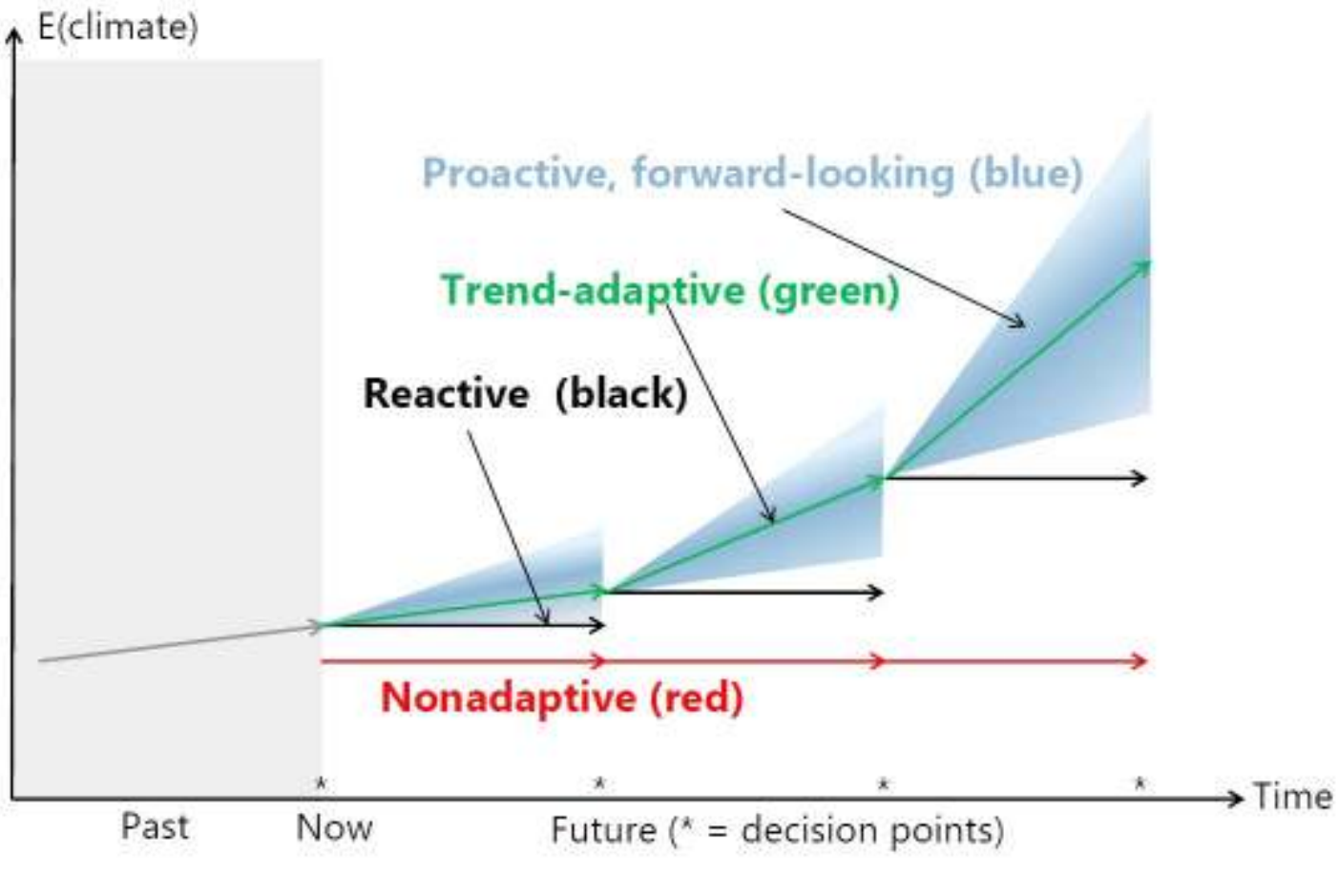


ADAPTATION

- Adaptation refers to initiatives and measures to reduce the vulnerability of natural and human systems, against actual or expected climate change effects.
- Various types of adaptation exist, e.g. anticipatory and reactive, and autonomous and planned.
- Examples include: raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc. (IPCC, 2007)
- This may not include “actual” (realized) or “expected” (future) changes in climate .



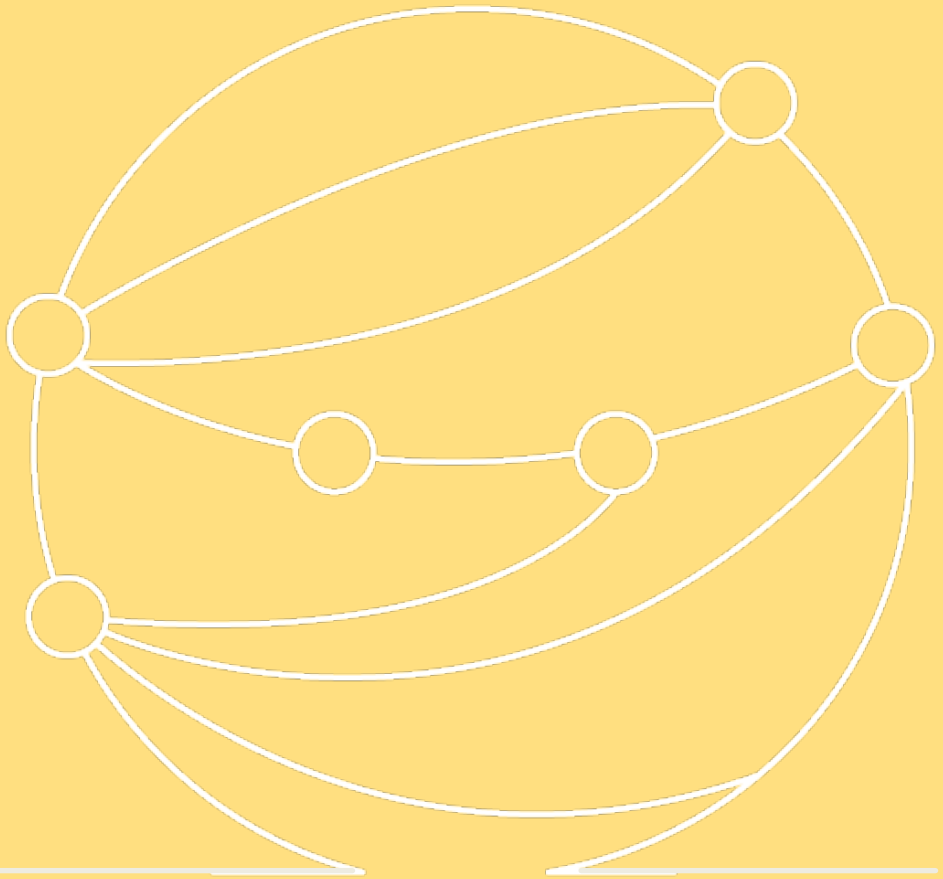
TYPE OF ADAPTATION



- Autonomous adaptation (or reactive adaptation) tends to be what people and systems do as impacts of climate change become apparent;
- Anticipatory (or proactive or planned) adaptation are measures taken to reduce potential risks of future climate change.

CONSIDERATIONS ON ADAPTATION

- Adaptation has the potential to reduce the adverse effects of climate change and can produce ancillary benefits, but cannot prevent all damage
- Numerous adaptation options have been identified (sector strategies)
- Greater or more rapid climate change would pose greater challenges for adaptation
- Weak investments in adaptation today mean more costs tomorrow (investment/remedy costs ratio is up to 1:8)
- Neither adaptation nor mitigation can avoid all impacts, but they can complement each other and together significantly reduce risks.

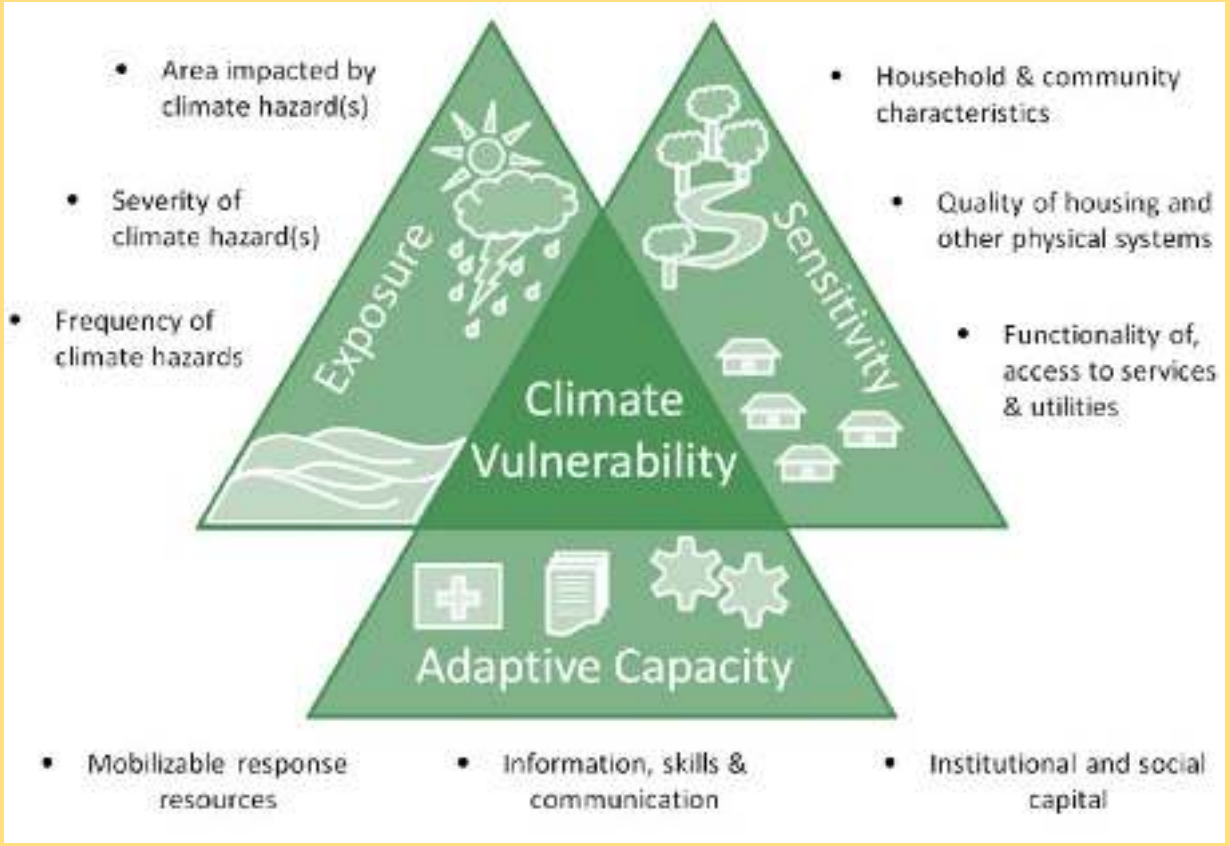


ADAPTATION

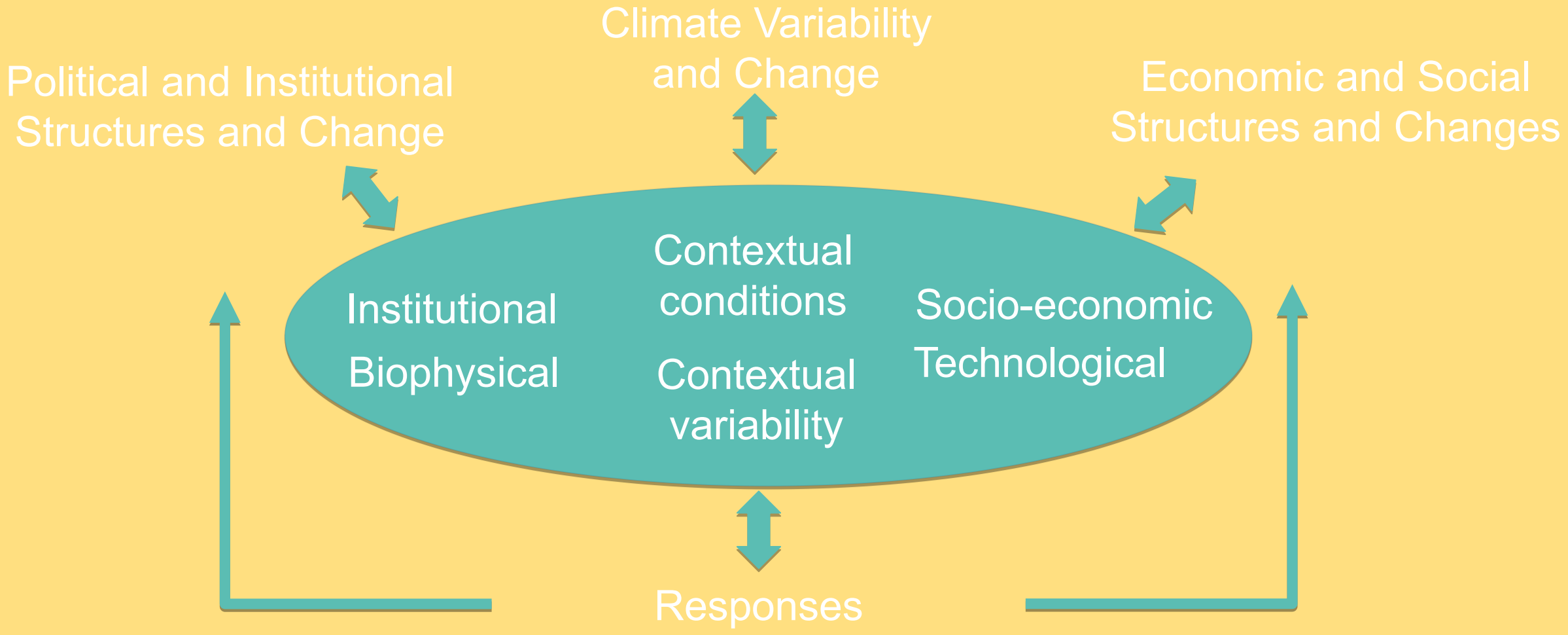
Example: Farming in Ethiopia

THE 3 COMPONENTS OF VULNERABILITY

Vulnerability is ”the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt".



VULNERABILITY : A DYNAMIC CONCEPT… HIGHLY DEPENDENT ON CONTEXT



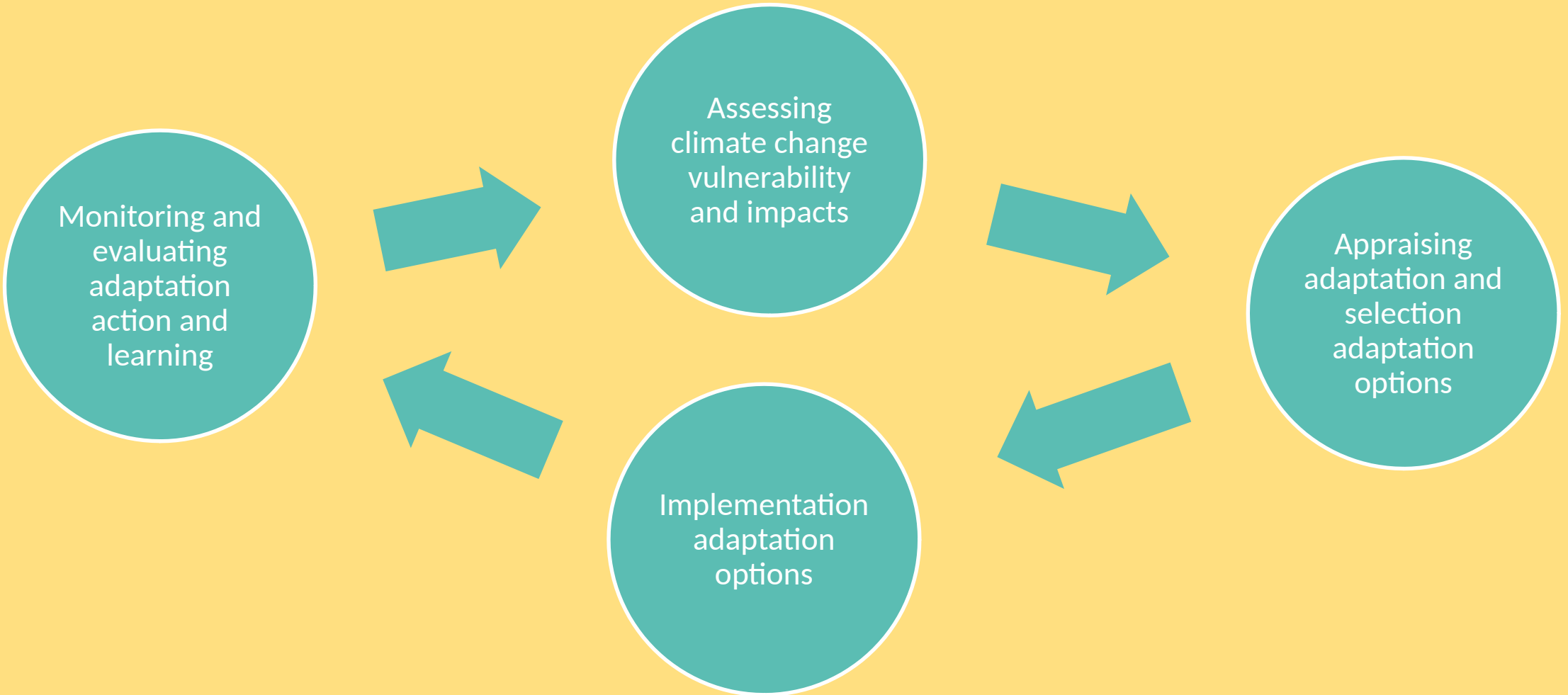
VULNERABILITY/RESILIENCE:
Benefits of ecosystem based approaches

EbA interventions	Benefits
• Restoring fragmented or degraded natural areas • Protecting groundwater recharge zones & restoring floodplains • Connecting expanses of forests, grasslands, reefs & other habitats • Protecting and restoring natural infrastructure such as barrier islands, dunes, mangroves, coral reefs, wetlands & forests.	• Enhances critical ecosystem services, such as provision of water, food & fisheries • Secures water resources to assist communities in coping with drought & flooding • Enables people, flora & fauna to migrate as climate changes • Protects communities & infrastructure from sea level rise, natural hazards, erosion & flooding

EbA: “the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change” (Convention on Biodiversity).

ADAPTATION LEARNING CYCLE

Four broad iterative tasks of an adaptation learning cycle:

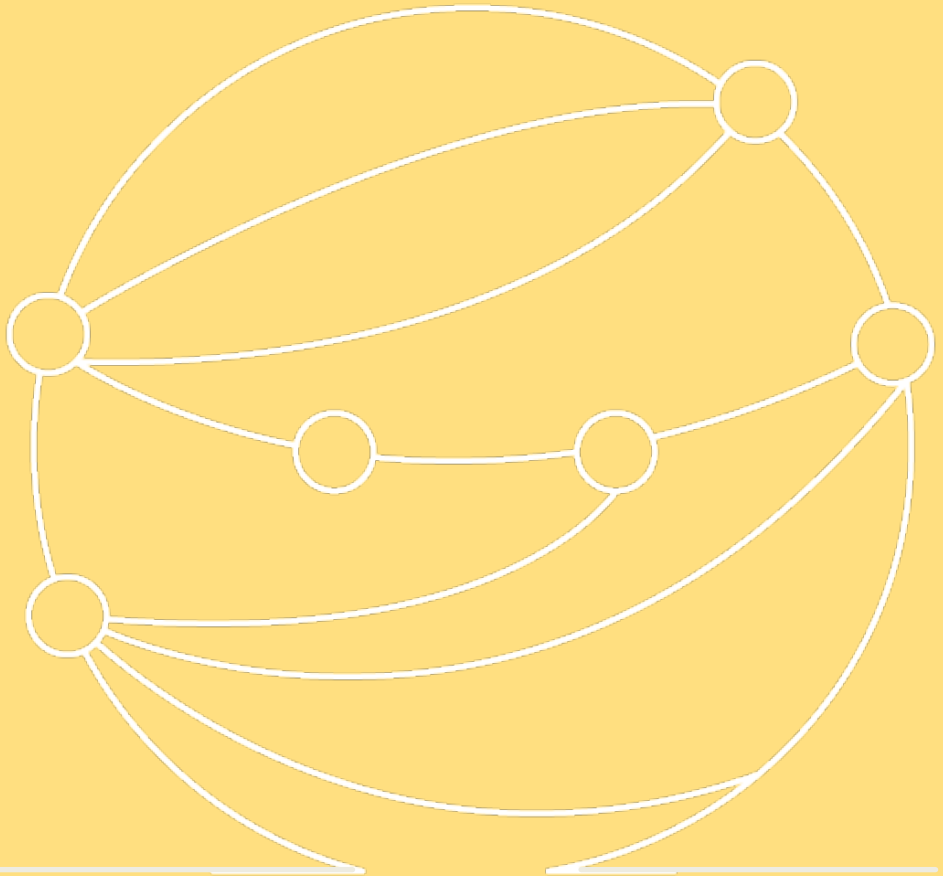


ADAPTATION IS A CONTINUUM

Vulnerability focus

Impacts focus

Addressing the drivers of vulnerability Activities seek to reduce poverty and other non-climatic stressors that make people vulnerable	Building response capacity Activities seek to build robust systems for problem solving	Managing climate risks Activities seek to incorporate climate information into decision-making	Confronting climate change Activities seek to address impacts associated exclusively with climate change



1 Addressing Drivers of Vulnerability

UGANDA: Providing women with crossbred goats and instruction in graze-free feeding *(Karamoja Agropastoral Development Programme)*

BANGLADESH: Diversification of livelihood strategies in areas vulnerable to flooding *(SouthSouthNorth)*

CUBA: Vaccination program to eradicate diseases in low-income areas *(Cuban Ministry of Health)*

2 Building Response Capacity

BRAZIL: Paricipatory reforestation in Rio de Janeiro's hillside favelas to combat flood-induced landslides *(City of Rio de Janeiro)*

MONGOLIA: Reinstating pastoral networks to foster appropriate rangeland management practices in arid regions *(National University of Mongolia)*

TANZANIA: Reviving traditional enclosures to encourage vegetation regeneration and reduce land degradation *(Ministry of Natural Resources and Tourism, Tanzania)*

3 Managing Climate Risk

TANZANIA: Monitoring salinization of drinking water and drilling new wells to replace those that are no longer usable *(SouthSouthNorth)*

MALI: Teaching farmers to collect climate data and integrate it into their planting decisions *(Government of Mali / Swiss Agency for Development and Cooperation)*

BANGLADESH: Using nationally standardized risk assessment procedures to develop a community adaptation plan of action *(local government)*

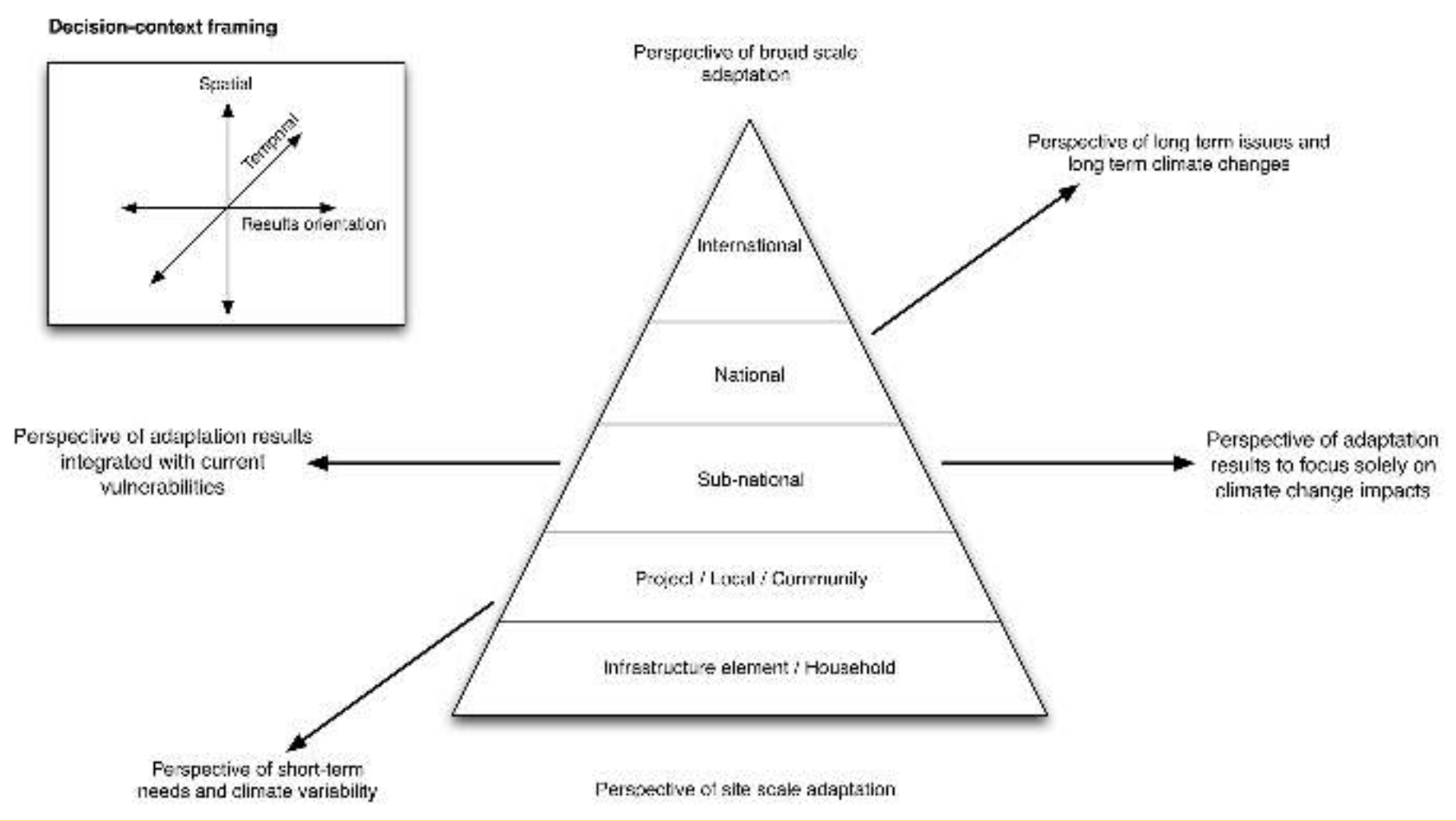
4 Confronting Climate Change

INDONESIA: Managing coral reefs in response to widespread coral bleaching *(WWF)*

NEPAL: Reducing the risk of glacial lake outburst floods from Tsho Rolpa Lake *(Government of Nepal)*

VULNERABILITY FOCUS — IMPACTS FOCUS

ADAPTATION DIMENSION



A KEY OBJECTIVE OF ADAPTATION IS BUILDING RESILIENCE

How?

- Using knowledge of climate science
- Studying and anticipating direct and indirect impacts
- Linking with development action (mainstreaming)
- Boosting financial, technical and human resource capacity
- Increasing access to funding mechanisms
- Using M&E for lessons learned and improvements
- Participating in international dialogue and negotiations on emissions control and climate change financing
- …

ELEMENTS FOR ADAPTATION DECISION MAKING

What are the main elements that were taken into account when designing this new park in Bangkok?

CHARACTERISTICS OF CLIMATE HAZARDS

Characteristic	Description	Value	Indication on critical tasks and appropriate methods
Type	Are risks due to current climate vulnerability?	Yes/no (i.e. extreme event, slow-onset)	If extreme events are considered, decisions may take into account current climate
Observed trend	Has a past trend been observed?	Unknown, not knowable, clear direction, no direction	If a past trend has been observed, then it is easier to motivate the affected actors to adapt. If the trend is unknown, collecting data is indicated
Future impacts	Given a scenario, can I compute impacts (or outcomes)	Yes/no	If future impacts (or outcomes) can be computed, decision-making methods on future outcomes are appropriate.
Climate change is the dominant risk factor	Climate change is considered to be a major driver only if it is important relative to the other drivers involved	Yes/no	If climate change is not the major driver, analysing climate change impacts is not a priority, focus on the other drivers

CHARACTERISTICS OF CLIMATE HAZARDS

Characteristic	Description	Value	Indication on critical tasks and appropriate methods
Heterogeneity	Degree difference in socio-economic characteristics between relevant actors	High/low	If degree of difference is high, options which require collective action may be difficult
Group size	Size of group affected by impacts and taking adaptive action	Small/ large	If group size is small, collective action options may be more easily taken
Damaged experienced	Have actors suffered damage due to extreme weather events	Yes/no	If yes, it is necessary to focus on current risks
Awareness of current risks	Actors perception of risks from current vulnerability and extremes	High/low	If low, risk communication and awareness raising are indicated
Potential capacity	Actors ability to take adaptation action, includes financial, human, and social capital	High/low	If low, incentives may be considered to influence adaptation
Actual capacity	Actors actual capacity to act in situation, given possible cognitive and institutional barriers	High/low	If actors have low actual capacity, institutional or behavioural analysis to identify cognitive and institutional barriers to action are indicated

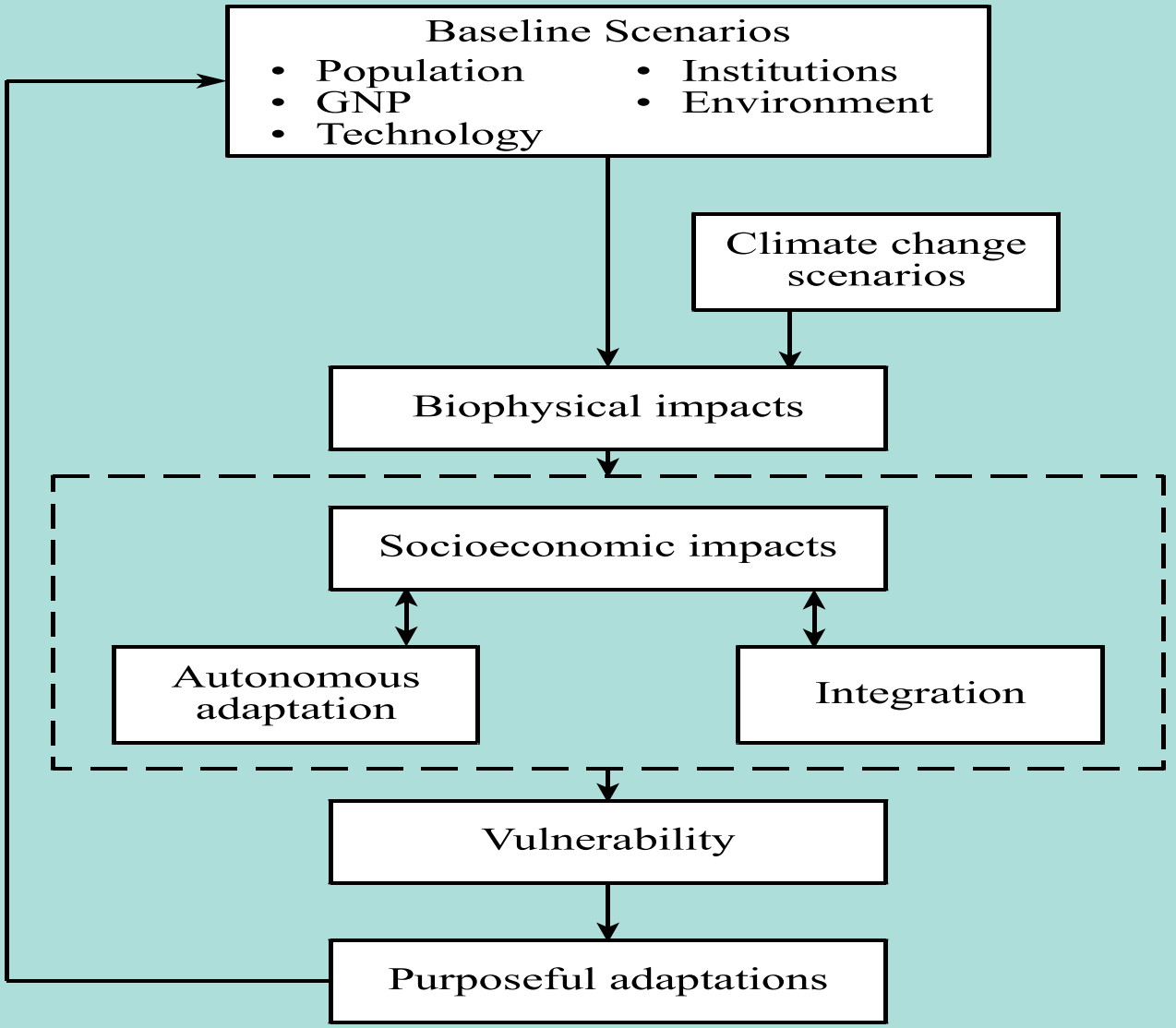
ADAPTATION OPTIONS

Characteristic	Description	Value	Indication on tasks and methods
Relative costs	Investment costs relative to actors annual income and capital stock.	High/ low	If the costs are high, the ability to experiment and learn (through ex-post evaluation) may be reduced
Investment horizon	Time interval over which outcomes attributes can be attributed to an option and must be considered.	Short/ long	If the horizon is long, then it is desirable to assess impacts, or include impacts in decision -making
Flexibility	Degree to which option can be adjusted, or changed. Institutional options tend to be more flexible than physical options	Yes/ no	If option can be adjusted easily, then adaptive management may be appropriate
Conflict	Degree to which individual preferences and social welfare are in conflict	High/ low	If conflict is high, then institutional analysis may be necessary
Complexity	Number and degree of interdependency of variables that determine outcomes	High/ low	If the complexity is high, it is necessary to conduct detailed case studies and/or build models in order to understand and predict action-outcome linkages.

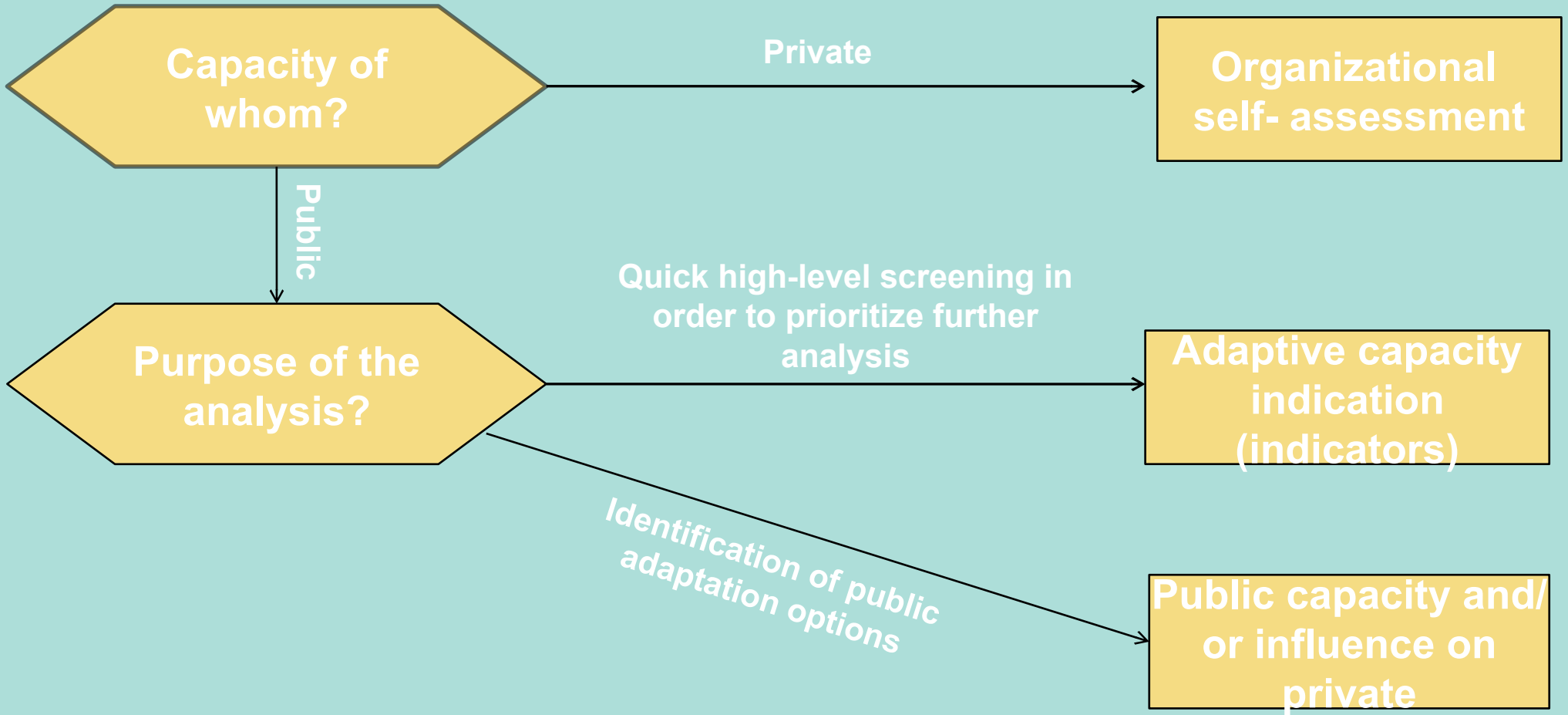
ENTRY POINT: Public Adaptation Problem in Which the Analyst Must Consider the Critical Tasks for Influence the Adaptation of Other (Private) Actors

Example	Indication on the next task to carry out
Public actor wanting to influence elderly people living in isolated areas, often alone threatened by heat waves	Behaviour analysis addressing the question: How the capacity of the vulnerable actors to address the risk could be increased. As the actual capacity of the vulnerable actors is low, awareness raising or behaviour and institutional analysis are indicated
Public actor wanting to influence Tuscan wine farmers threatened by gradual change in mean temperature	As the vulnerable actors have capacity to address risks but are not aware of it, the next task would be risk communication or awareness raising (risk communication, training, TV ads)
Farmers using a shared and already scarce groundwater resource that is declining under climate change	Institutional analysis addressing the question what kind of institutional arrangements may resolve conflict
Public actor wanting to influence farmers so that they keep migration corridors open in order to allow species to migrate and thus maintain biodiversity	Appraising economic incentives. As actors may not have capacity to address the potential loss of biodiversity on their own due to lack of financial incentive to do so, addressing the problem may be a question of designing appropriate economic incentives e.g. through agri-environmental schemes

BASIC STRUCTURE FOR DECISION MAKING USING IMPACTS FRAMEWORKS



DECISION TREE FOR CAPACITY ANALYSIS



OVERVIEW OF VULNERABILITY AND ADAPTATION (V&A) FRAMEWORKS

- **One size does not fit all**

- Select a frameworks that suits your situation.
- The framework needs to:
- Answer the questions related to the adaptation action
- Address the issues of the stakeholders
- Suit the resources, data and technical support available
- Remain user friendly

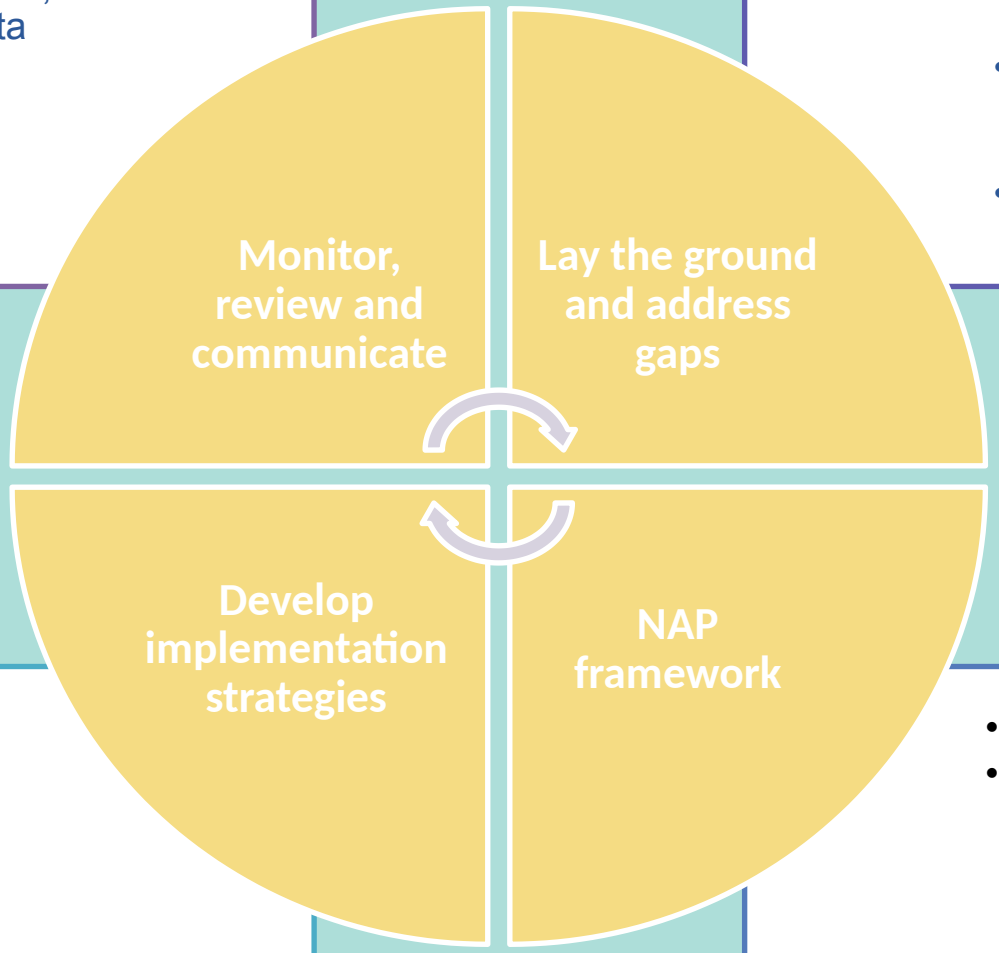
MAIN ADAPTATION FRAMEWORKS

- United nations Development Programme (UNDP):
  a) Adaptation Policy Framework
  b) Toolkit for Designing Climate Change Adaptation Initiatives
- National Adaptation Programmes of Action (NAPA) Guidance
- USAID Adapting to Climate Variability and Change
- Community Vulnerability Frameworks.

GENDER ENTRY POINTS FOR NAP FORMULATION

- Gender sensitive indicators, collect disaggregated data
- Document and communicate lessons learned on gender in adaptation

- Align CCA with gender policy commitments
- Meaningful participation of stakeholders with a gender perspective
- Stocktaking and address capacity gaps in gender



- Support gender related commitments in sectors
- Gender responsive budgeting
- Mainstreaming practices
- Define gender sensitive results

- Gender analysis in key sectors
- Address gender in climate vulnerability risk assessments and appraisal of adaptation options

DIMENSIONS OF RESILIENCE: SCORECARDS METHOD

- A scorecards method can be used based on sector and project characteristics (at least one scorecard per sector)
- Different scorecards are included in the Screening Manual and Tool
- Completed scorecard provides project teams with levels of risk and required mitigation measures.

SCREENING PROCESS IN THE SCORECARDS METHOD

The screening process follows 6 steps:

Task Managers are requested to:

- Select scorecards according to sector and project characteristics;
- Enter basic information on project, once scorecard is selected;
- Answer questions: possible answers are presented as a number of options, each one with a predetermined score;
- Add up scores and categorize: selected option scores are added up to obtain a total score for the project;
- Based on the total score, the project is classified based on its climate vulnerability;
- Completed scorecard and screening summary are enclosed to the Project Concept Note and sent to ORQR for inspection, approval, and follow up.

PROJECT CLASSIFICATION IN THE SCORECARDS METHOD

CATEGORY 1 High vulnerability Scores above 60	Projects with important opportunities for climate change adaptation require a comprehensive evaluation of climate risks and adaptation measures to be costed and integrated into project design and implementation
CATEGORY 2 Medium vulnerability Scores 30-60	Projects with climate change adaptation opportunities, but the adaptation efforts needed are less than category 1. It requires a review of specific components of the project and a plan to incorporate climate adaptation measures into project design and implementation
CATEGORY 3 low vulnerability Scores below 30	Projects not significantly exposed to additional climate risk and opportunities for climate change adaptation are not essential. No further review is required.

SCORECARDS METHOD EXEMPLE : TRANSPORT SECTOR

Topic	Selected Option	Score
1. Damage to road infrastructure	What kind of terrain do the project roads cross?	15
2. Impact of flooding	Are the project roads susceptible to flooding?	10
3. Critical infrastructure	Will the roads (after project completion) form part of the host country's critical infrastructure?	5
4. Impact of road management practices	Does the host government have the institutional capacity and/or budget for effective road management?	7
5. Design life time of the road surface	What is type of road surface is planned for the project?	10
TOTAL SCORE		**47**

SCORECARDS METHOD EXEMPLE : WATER

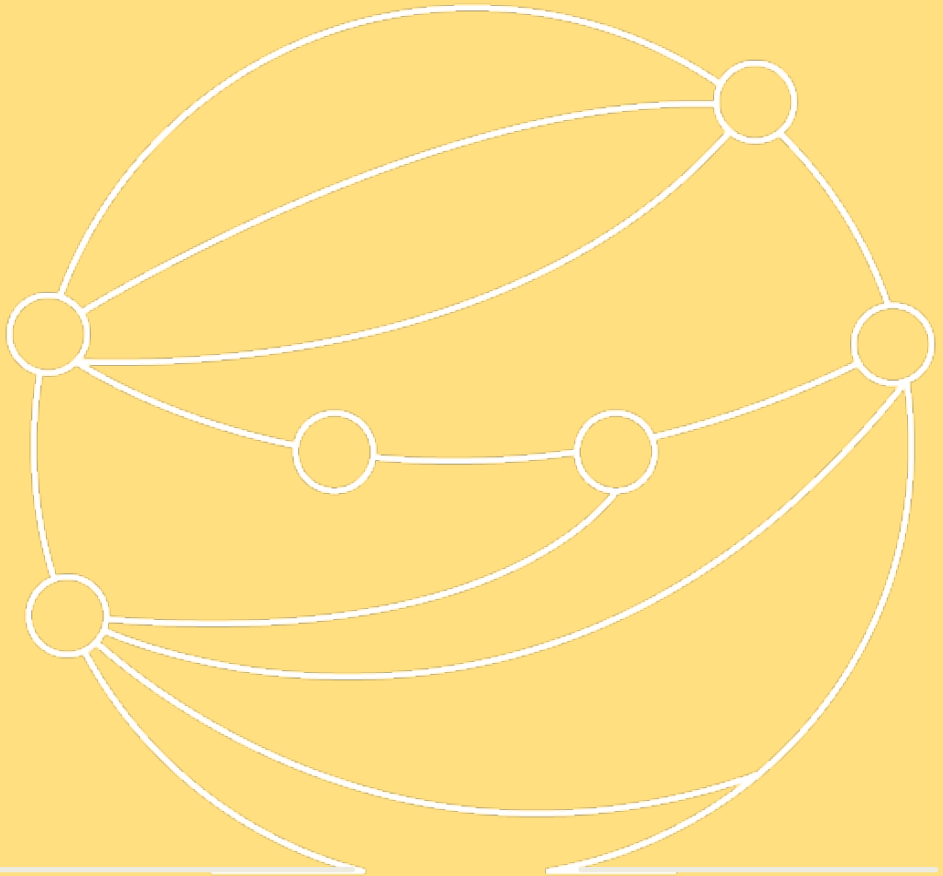
Topic	Selected Option	Score
1.Asset lifetime	The project includes major physical assets with an asset life of > 30 years	25
2. Service continuity	All four criteria included to an adequate level	2
3. Water resources	There is sustained dry season with no rainfall and high evaporation	15
4. Risk management	There is commitment to develop contingency or response plans	5
5. Resource variability	Extreme events (either prolonged droughts or floods) are common in the project region	15
6. Competing uses	The viability of maintaining supplies/services to some users is already at risk	10
TOTAL SCORE		**72**

Four NGO Local and Community Frameworks

Name	Developer	Target Audience	Key inputs	Key Outputs
CEDRA	Tearfund	Development field practitioner with senior management support	Guidance and checklist for 6 steps to identify and prioritise hazards and adaptation options	Identifies risks and risk management of programme, including changes to portfolio of projects
CVCA	CARE	Project managers, field staff, local partners and communities	Framework with supporting questions and exercises: participatory community level analysis combines local knowledge with climate science.	Assessment informs programming and provides evidence base for advocacy
CRiSTAL	IISD, IUCN, SEI, IC	Community-level project planners and managers	Two module analytical framework for linking local livelihoods and climate. MS Excel interface for entering information and compiling report. Typically 1-5 days.	Results serve as a basis for designing or adjusting projects for adaptation
Adaptation Toolkit	Christian Aid	Country Programme and partner staff	No set steps. Three toolkits for understanding livelihoods adaptation (PVCA), community climate analysis and strategy development	Analysis informs livelihood programming and cc strategy development

CONCLUSION

- Adaptation is a necessary and unavoidable, and complements mitigation
- Adaptation-related knowledge for decision-making is improving… key gaps remain (likely impact of and vulnerability to climate change, associated socio-economic aspects and the costs and benefits of adaptation options)
- Coordination and coherence at the various levels of planning and management: national adaptation strategies, including risk and vulnerability assessments, are key to inform and prioritize action and investment
- Need for an appropriate policy coordination mechanisms / importance of mainstreaming
- Importance of education, awareness raising and capacity building in improving the resilience of societies
- Improved access to funding is a critical factor in building climate-resilience
- Awareness and preparedness is different from country to country, and therefore cooperation between states and regions must be promoted



www.gcca.eu | www.[illegible] www.[illegible]