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GCF Water Project Design Guidelines

Workshop with DAE's on draft Guidelines

14 April 2021

Presenters
- Eelco van Beek – Deltares
- Judith ter Maat – Deltares
- Ad Jeuken - Deltares

Moderator
- Jerry Velasquez, GCF

Panel member
- Anupa Rimal Lamichhane, GCF

Content of presentation

- **Part I – How to read the Water Project Design Guidelines**
  - Position in GCF Project Cycle
  - Relation with GCF Water Security Sector Guide

- **Part II - Key principles for developing a good water sector project**
  - Stakeholder engagement
  - Structured project design
  - Climate science articulation

- **Part III – Structured process in project design**
  - Structure in phases and steps
  - Content of the steps

- **Part IV – The sub-sectors**
  - IWRM
  - Climate resilient WASH
  - Drought management
  - Flood management

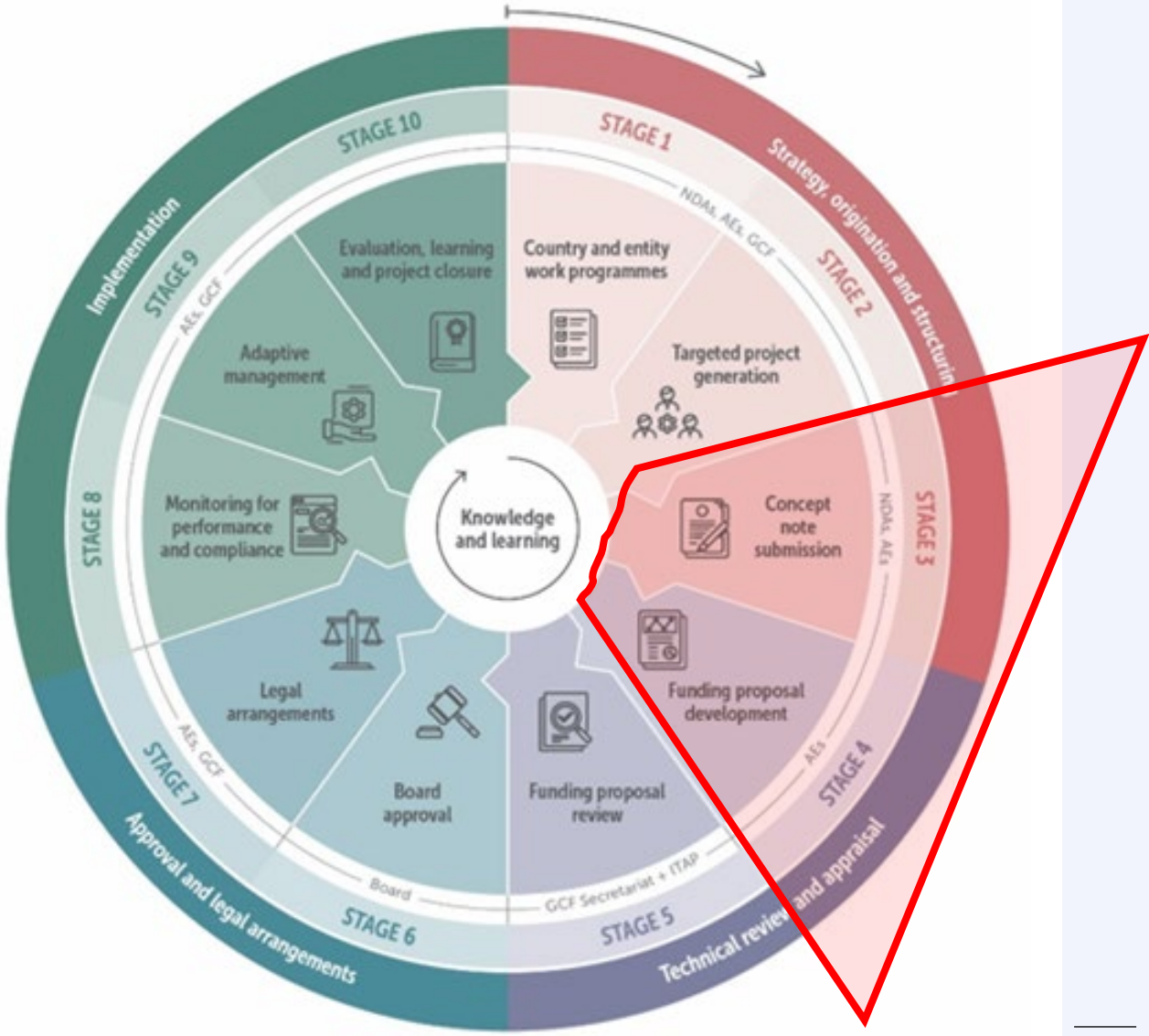
Programme of the Session

Time	Subject	Presenter / facilitator
0 – 10	Introduction	Jerry Velasquez (GCF)
10 – 30	Presentation on set-up and approach of the Guidelines (Part I and II of the presentation)	Eelco van Beek (Deltares)
30 – 45	Discussion – including question 1	Panel (Deltares, GCF)
45 – 60	Structured approach (Part III of the presentation)	Eelco van Beek
60 – 75	Discussion – including question 2	Panel (Deltares, GCF)
75 – 90	Sub-sector (Part IV of the presentation)	Eelco van Beek
90 - 105	Discussion – including question 3	Panel (Deltares, GCF)
105 - 120	Wrap-up session and closure	Jerry Velasquez

Part I – How to read the Water Project Design Guidelines

- Stages in the GCF Project Cycle supported by the project design guidelines:
  - Stage 3: Concept Note submission
  - Stage 4: Funding proposal development

- The Water Project Design Guidelines supports the technical conceptualization of the project
  - The ‘GCF formatting’ of the funding proposal is described in the GCF programming manual



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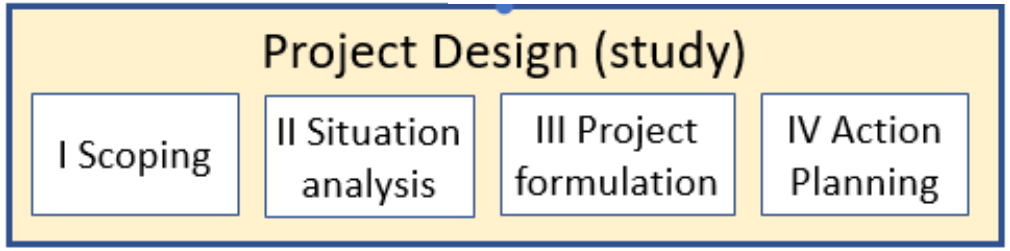
From activities in project design to project proposal

- The Water Project Design Guidelines describe the activities that need to be carried out to design an impactful water programme or project

- The result of these activities will be included in the project proposal
  - Together with the GCF project proposal requirements, as described in the GCF Programming Manual



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GCF Water Security Sector Guide (under development by GCF)

Water Security Sector Guide

- Will provide an overview of country needs and evidence programming experiences
- Aims to guide project proposal development in the water sector in line with GCFs investment criteria

Paradigm-shifting pathways

- Pathway 1: Water conservation, use efficiency and water reuse
  - Demand management, replacing present supply orientation
- Pathway 2: Water supply and water management
  - Developing resilient systems, climate proofing
- Pathway 3: Nature-based solutions for water management
  - Moving away from grey toward green infrastructure in water management

Water Security Sector Guide will be an inspirational document for the development of GCF funding proposals

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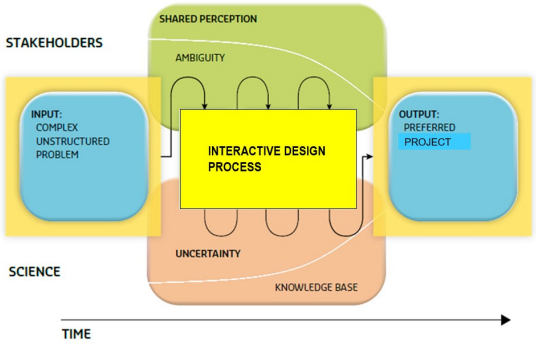
Part II - Key principles for developing a good water sector project for GCF funding

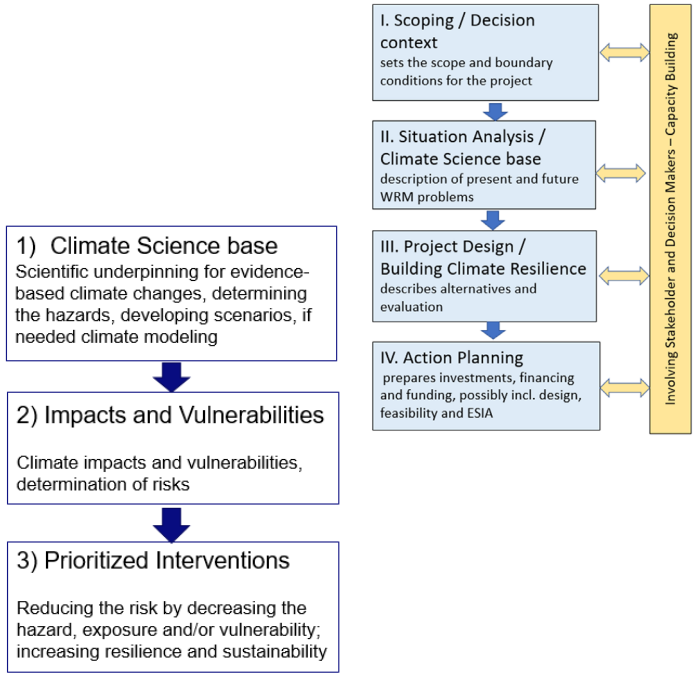
1. The project should be ‘owned’ by the stakeholders

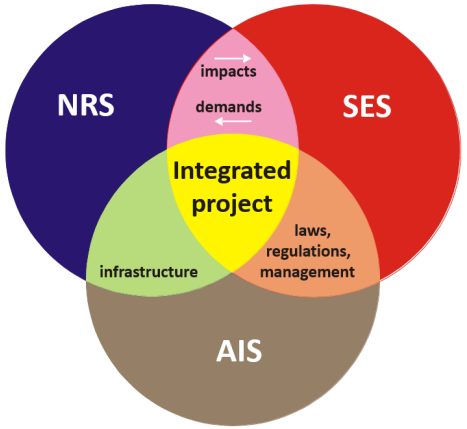
2. An integrated approach of the water systems should be followed

3. A structured process of project design should be adopted

4. The project has a clear climate science base articulation
   - including, where needed, a proper risk assessment







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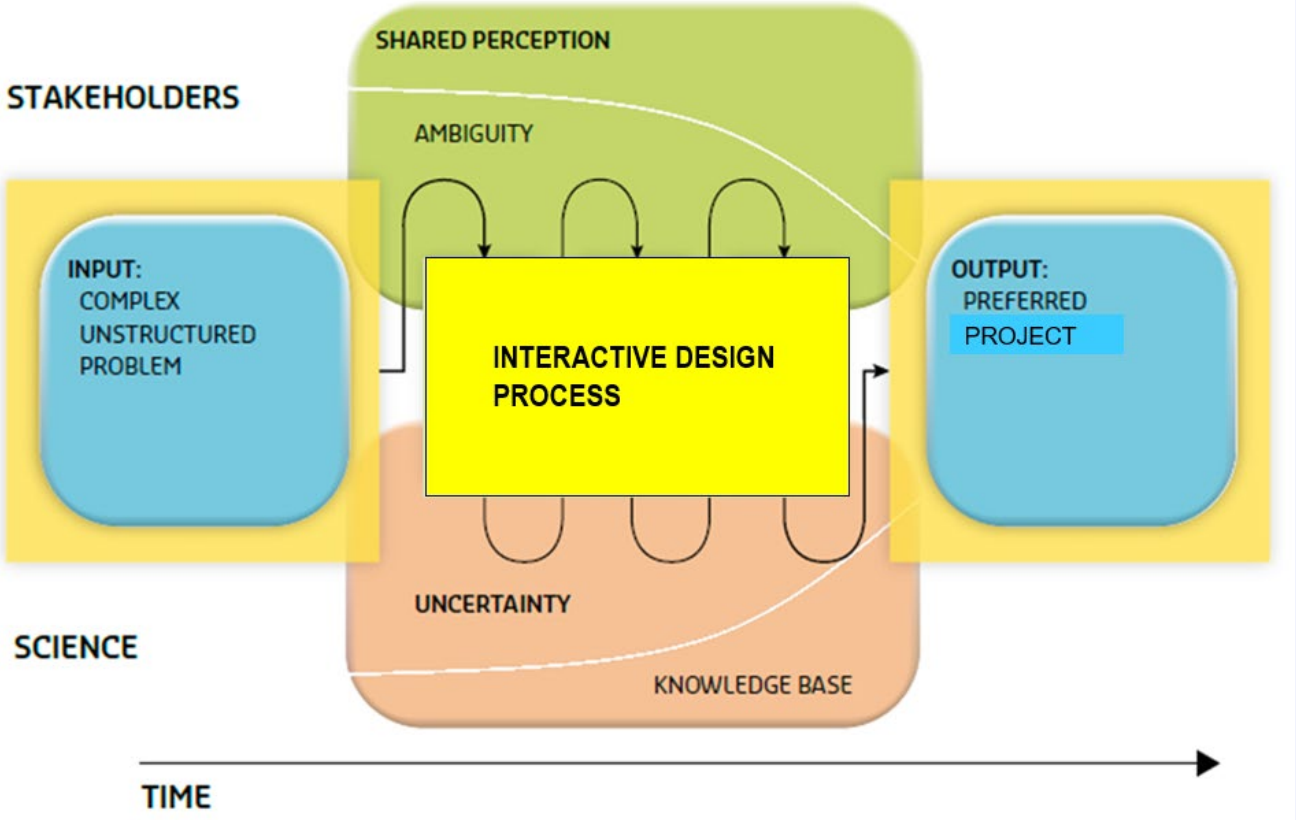
The project should be ‘owned’ by the stakeholders

- All stakeholders should be involved
- An interactive project design process should ensure:
  - A shared perception of the system and the problems
  - Understanding of the uncertainties involved
  - Shared knowledge base
  - Agreement on proposed project
- Ultimately a commitment of the stakeholders to implement the project
- Link to the NOL process of GCF



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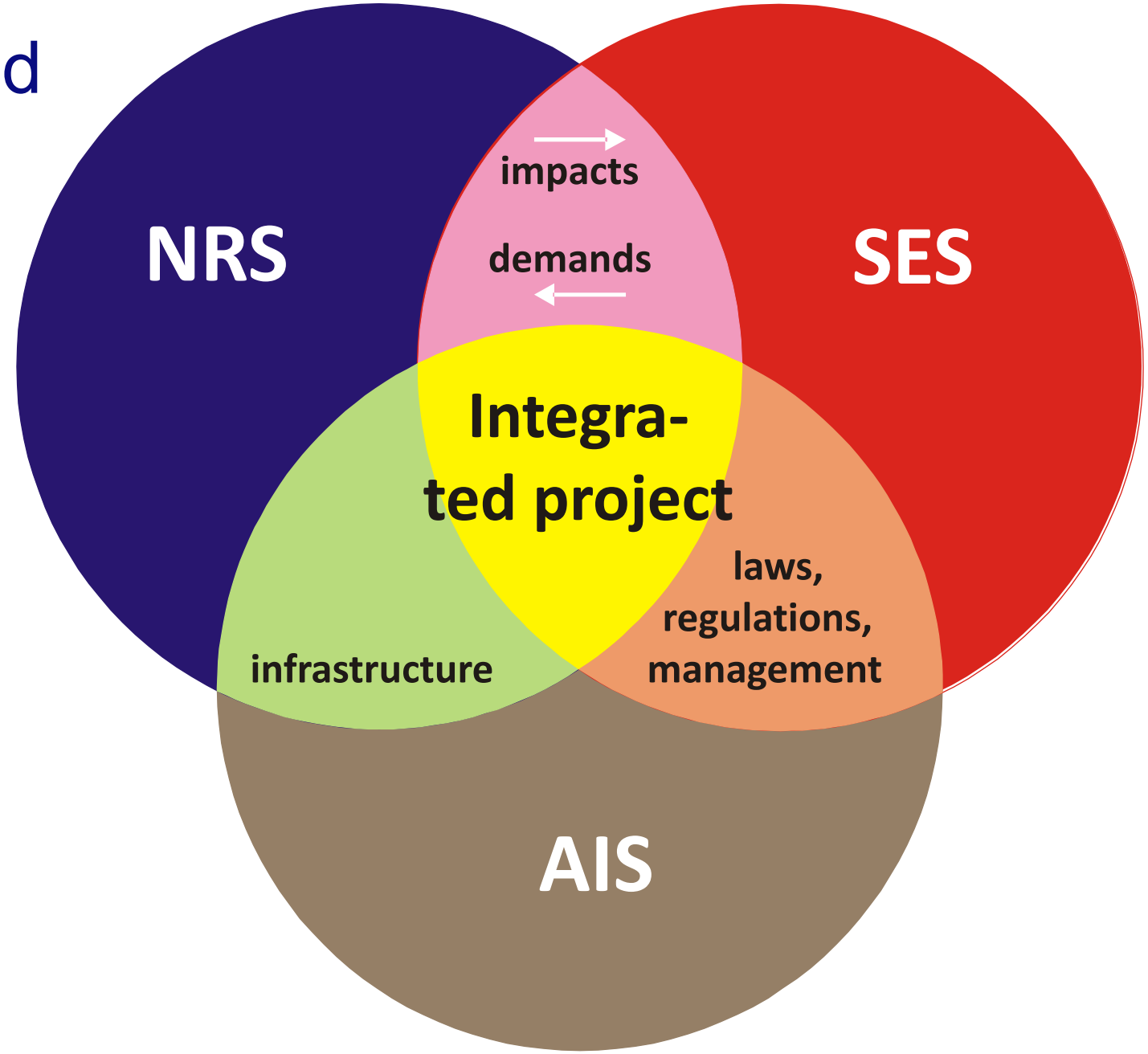
Following an integrated approach - IWRM

- The Natural Resource System (rivers, groundwater, ecology, quantity, quality, etc.)
- The Socio-Economic System (the users, multi-sectoral, conjunctive use, cultural)
- The Administrative and Institutional System



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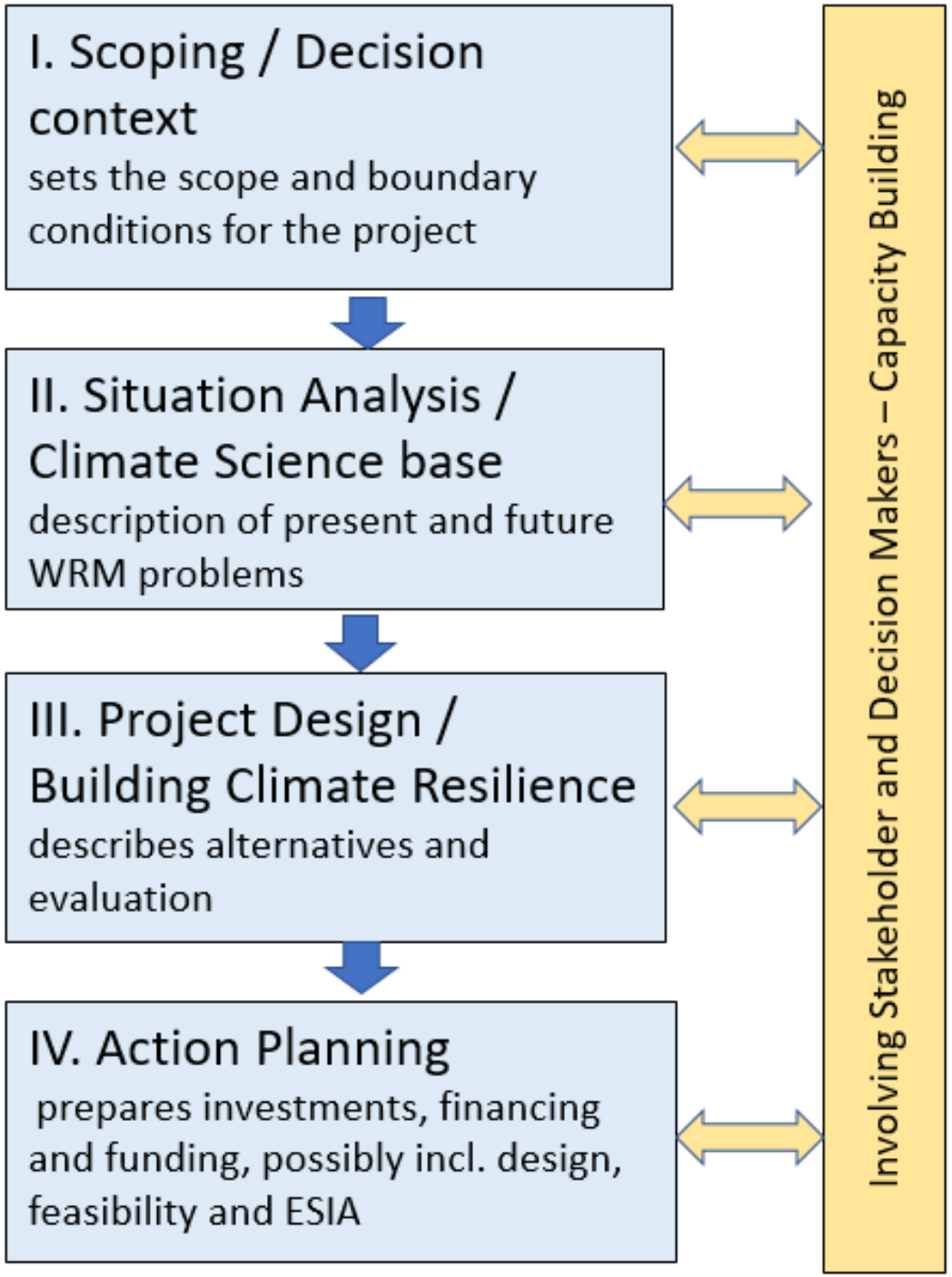
Structured process in design of water projects

The structured approach ensures

- All analysis steps are addressed
- Consistency between analysis steps
- Stakeholders can follow the analysis process
- Alternatives are considered

Each phase is concluded with a decision moment to ensure that all involved agree with the result of that phase



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Climate Science Articulation

Climate science articulation aims to:

- Establish credible climate science and evidence, determining the hydro-climatic hazards
- Robust assessment of exposure, impacts, vulnerability and hydro-climate-related risks
- Develop a set of optimal interventions that address the hydro-climate-related risks and maximizes benefits
- Integrate interventions into a broader national and international policy and decision-making process – such as defined paradigm shifts

1) Climate Science base

Scientific underpinning for evidence-based climate changes, determining the hazards, developing scenarios, if needed climate modeling

2) Impacts and Vulnerabilities

Climate impacts and vulnerabilities, determination of risks

3) Prioritized Interventions

Reducing the risk by decreasing the hazard, exposure and/or vulnerability; increasing resilience and sustainability

4) Paradigm Shift

Integration to broader domestic and international policy and decision-making processes

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Source: GCF/B.21/Inf.08 : Steps to enhance the climate rationale of GCF-supported activities

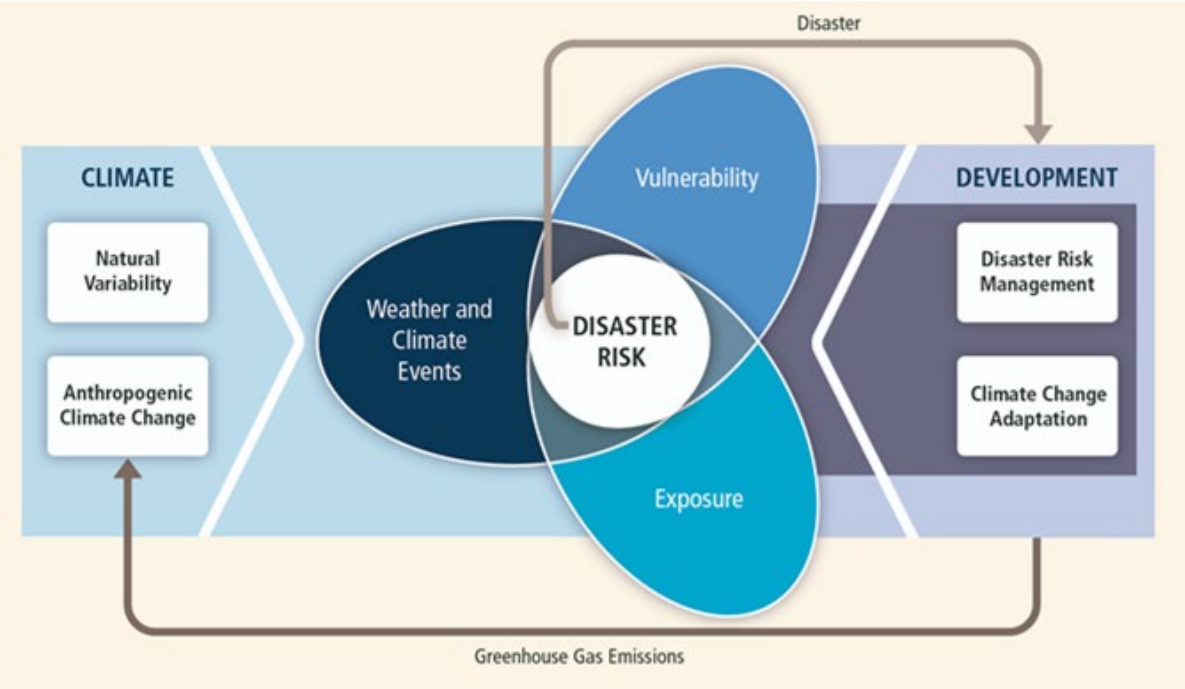
Climate science base and Risk assessment

Climate science

- Literature review on historic and expected climate change
- Using national projections and/or using climate model projections (GCM, RCM) based on IPCC emission scenarios
- Results in project climate scenarios

Risk assessment

- Risk = probability x exposure x vulnerability
- Projects can reduce
  - Probability
  - Exposure
  - Vulnerability



Ensure alignment with NAPs and NDCs

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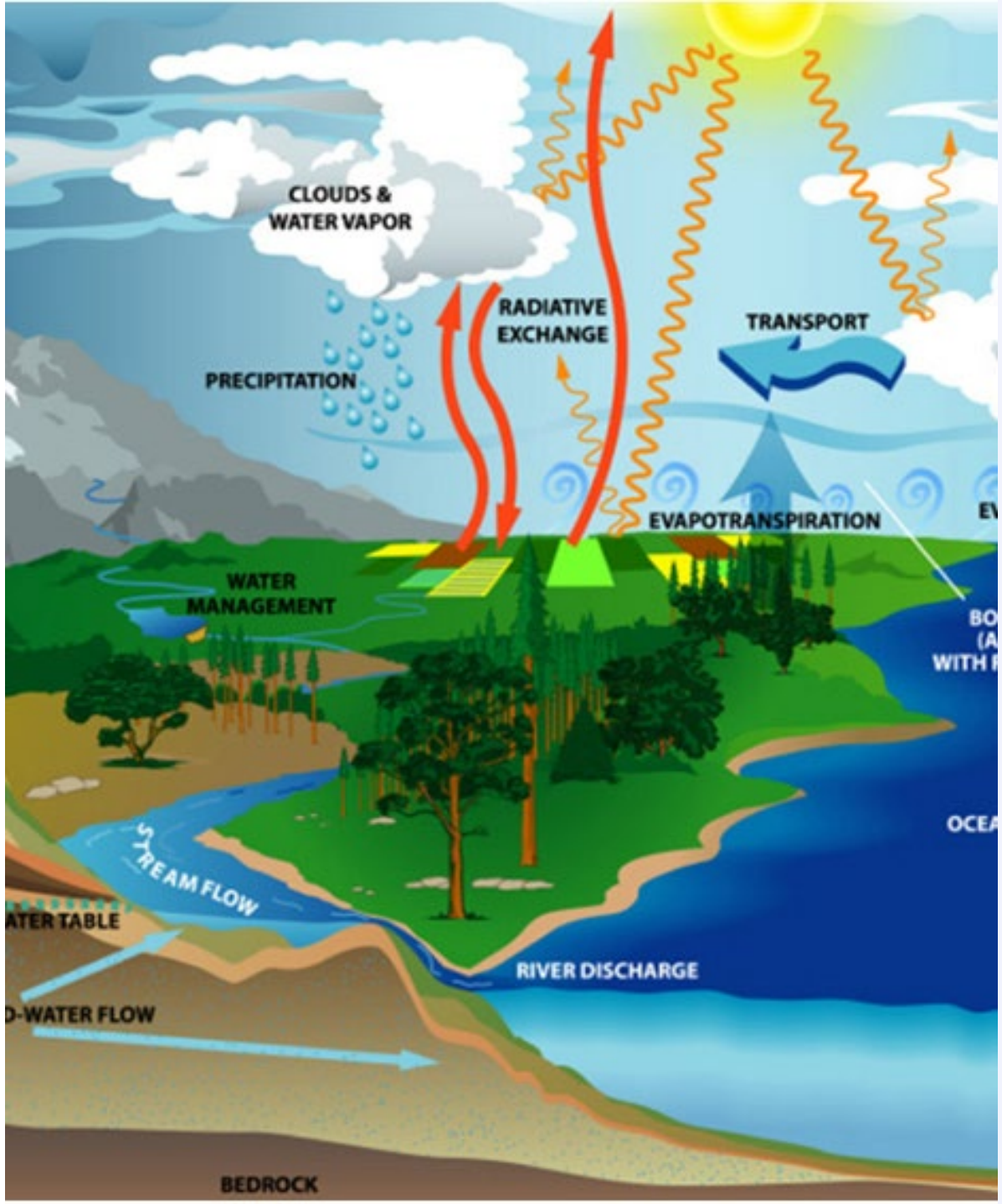
The sub-sectors

- GCF has identified four water sub-sectors
  - IWRM
  - Climate resilient WASH
  - Drought management
  - Flood management
- The Water sector has strong links with other sectors such as Agriculture, Energy (hydropower), Environment, etc
  - Irrigation projects, hydropower projects are covered by the other GCF sectors
- IWRM as a sub-sector project brings together water users from multiple sectors to co-invest for mutual benefits
  - And as such can include irrigation, hydropower, ecology, etc, as part of the water system



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Discussion 1

- To what extend do the Guidelines sufficiently address the kind of projects that you intend to submit to GCF for funding?

- To what extend do you recognize the 4 key principles for developing a good water sector project?

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Part III – Structured process in project design

Four Phases

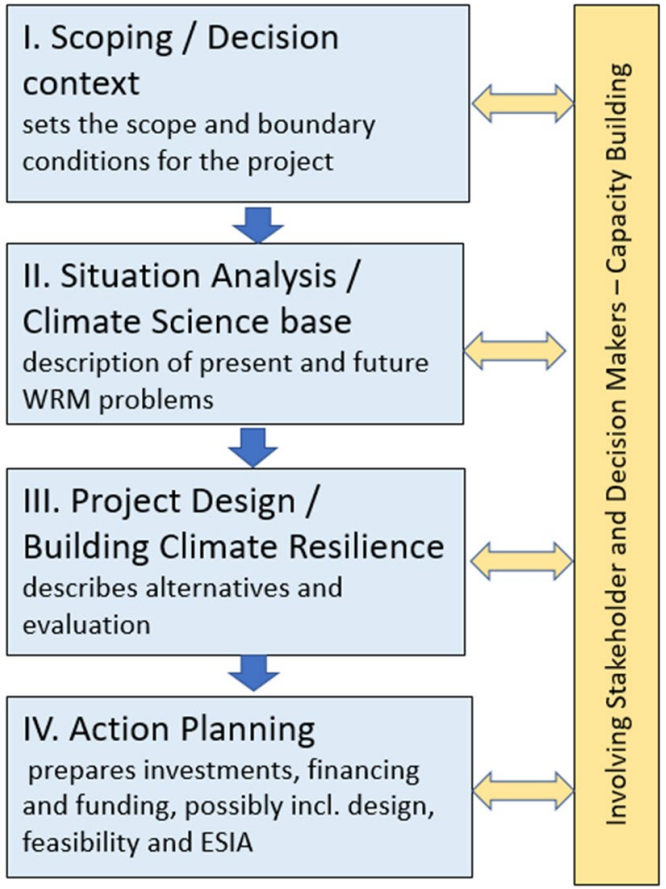
I. Scoping

II. Situation Analysis

III. Project Design

IV. Action Planning

In each phase strong interaction with the stakeholders



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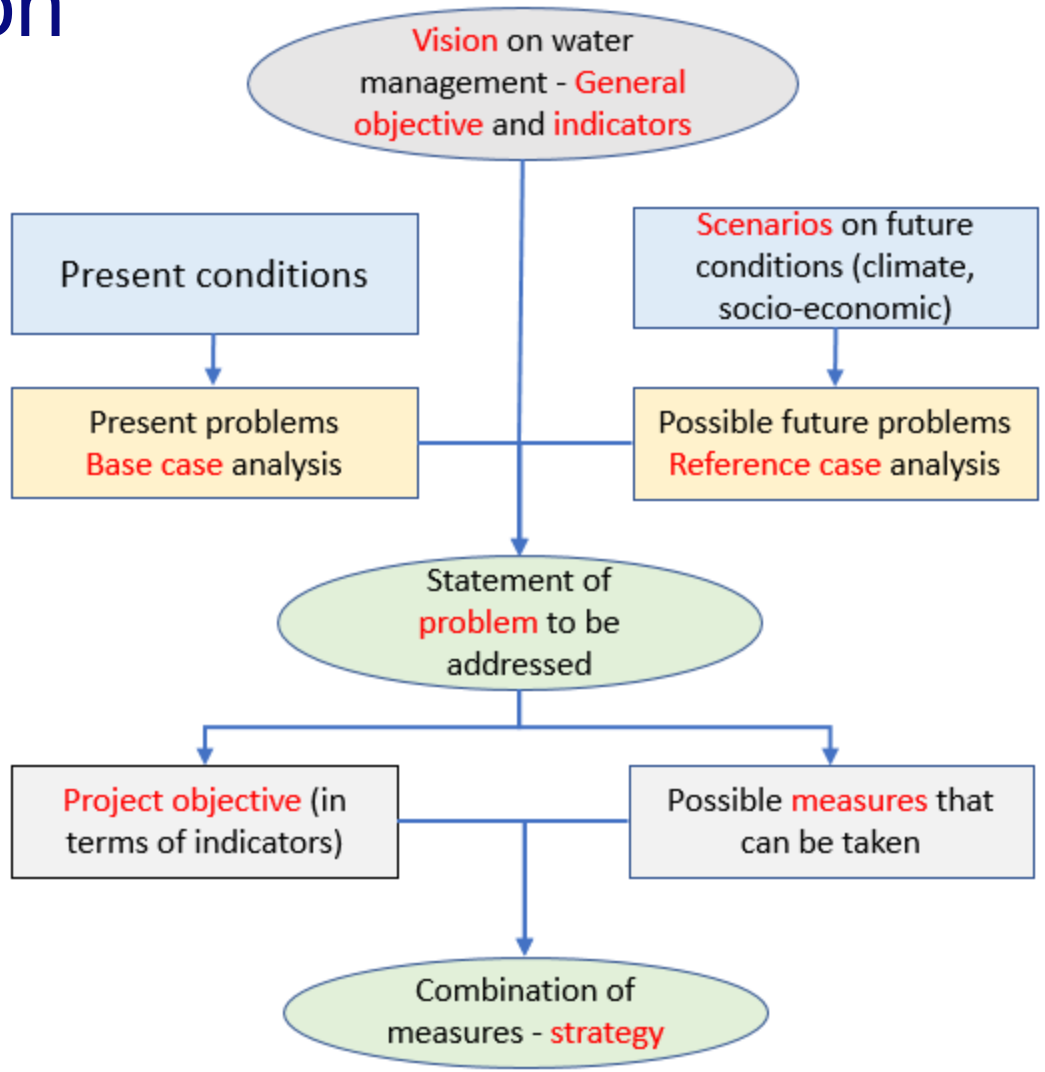
Definitions – avoiding confusion

- **Objectives**
  - Of water management (to support socio-economic development and welfare)
  - Of the project (for GCF projects: to reduce the climate risk)
- **Scenario** (in this Framework)
  - External economic, environmental, political, climatological situation which will affect the impacts of the proposed project
  - For this assumptions have to be made, based on scientific analysis
- **Cases**
  - Base case = present situation
  - Reference case = future situation if no measures are taken



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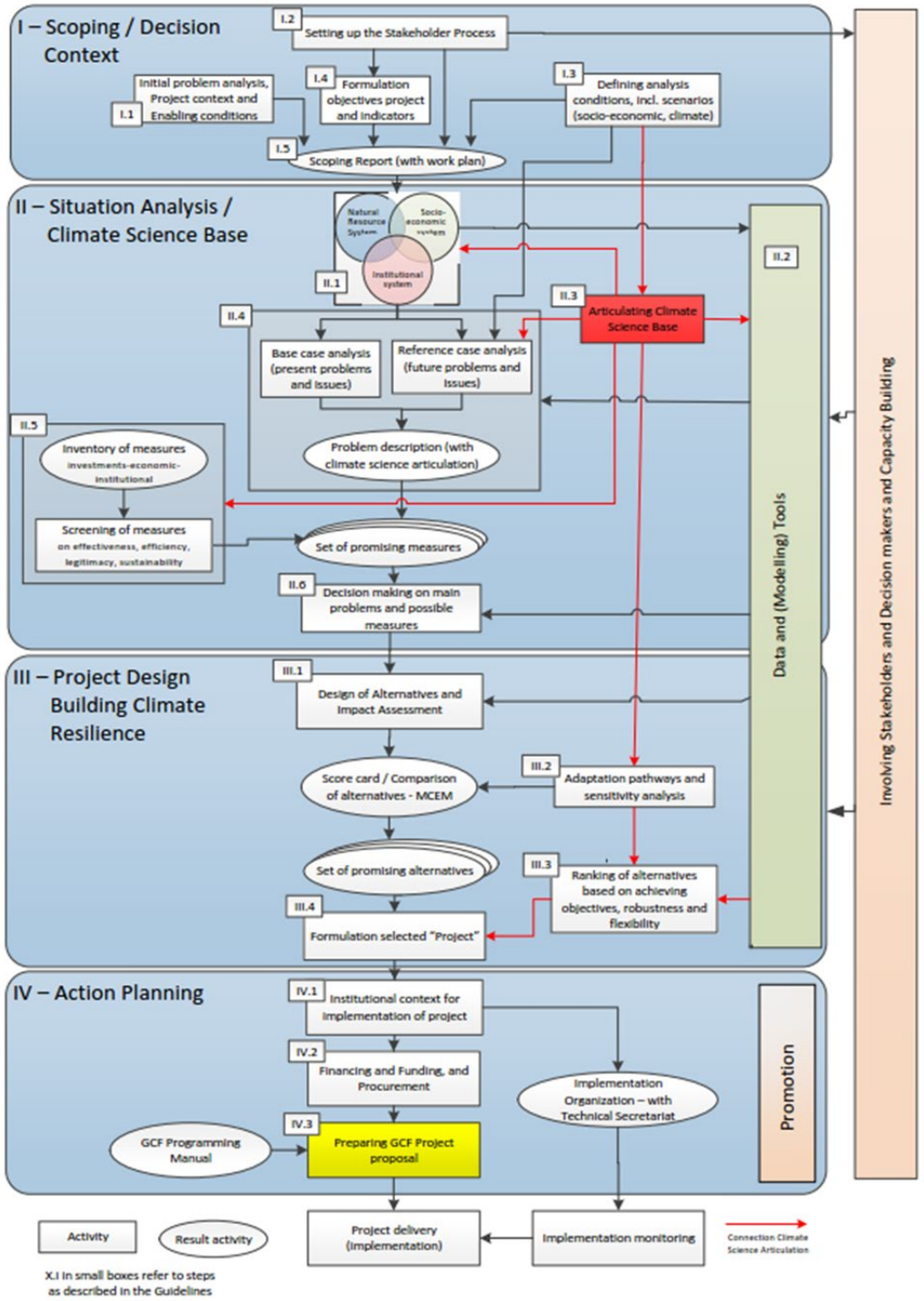
Structured analysis framework

- For each phase several steps are identified
  - Labeled I.1, I.2, etc
- Last step in each phase is the decision moment
- Phase III ends with the technical specification of the proposed project
- In Phase IV this project will be made ready for a GCF funding proposal by including implementation arrangements and compliance with the GCF Programming Manual
- Special attention needed for the Climate Science Base Articulation



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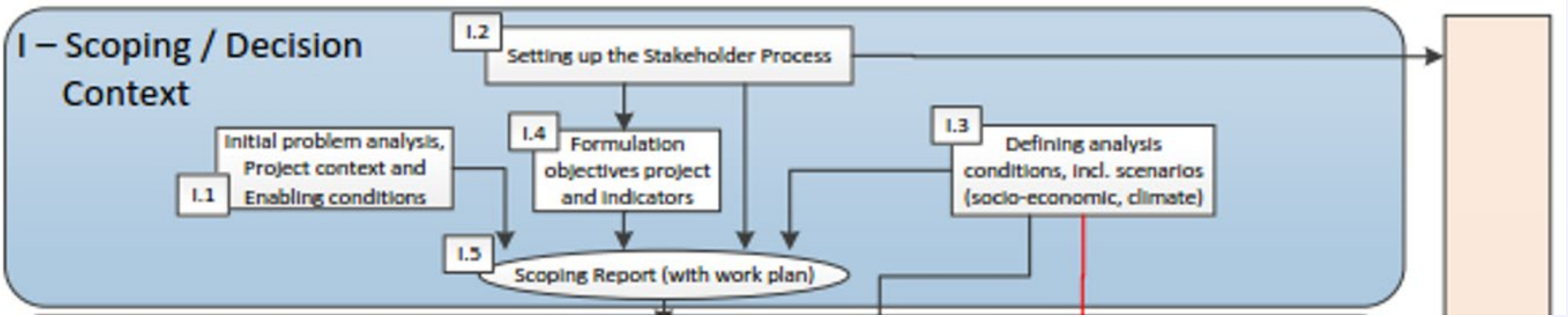
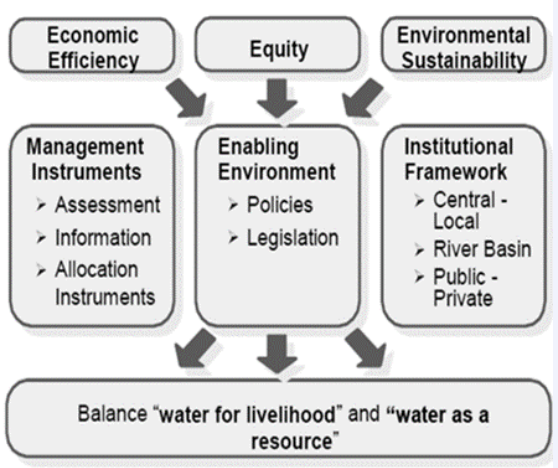
Phase I – Scoping Phase – the Decision Context



- **Step I.1** Initial problem analysis, project context and **enabling conditions**
  - Links to be made with NAP, NDC's, etc
  - Enabling conditions to be taken into account

- **Step I.2** Setting up the **stakeholder** engagement process
  - People and organizations affected by the problem
  - People and organizations needed to implement the project



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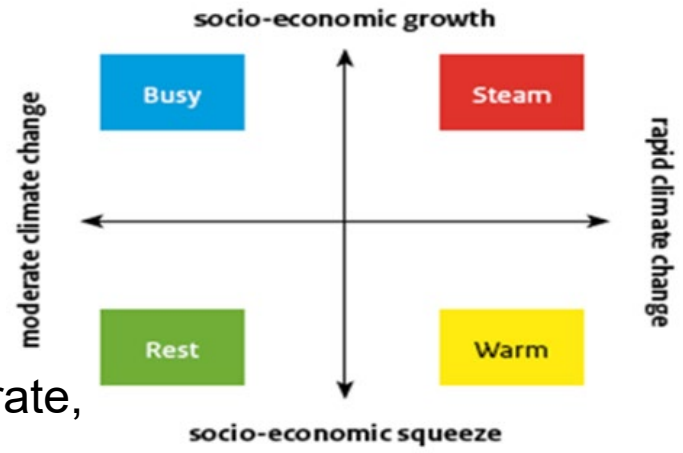
Scoping Phase - continued

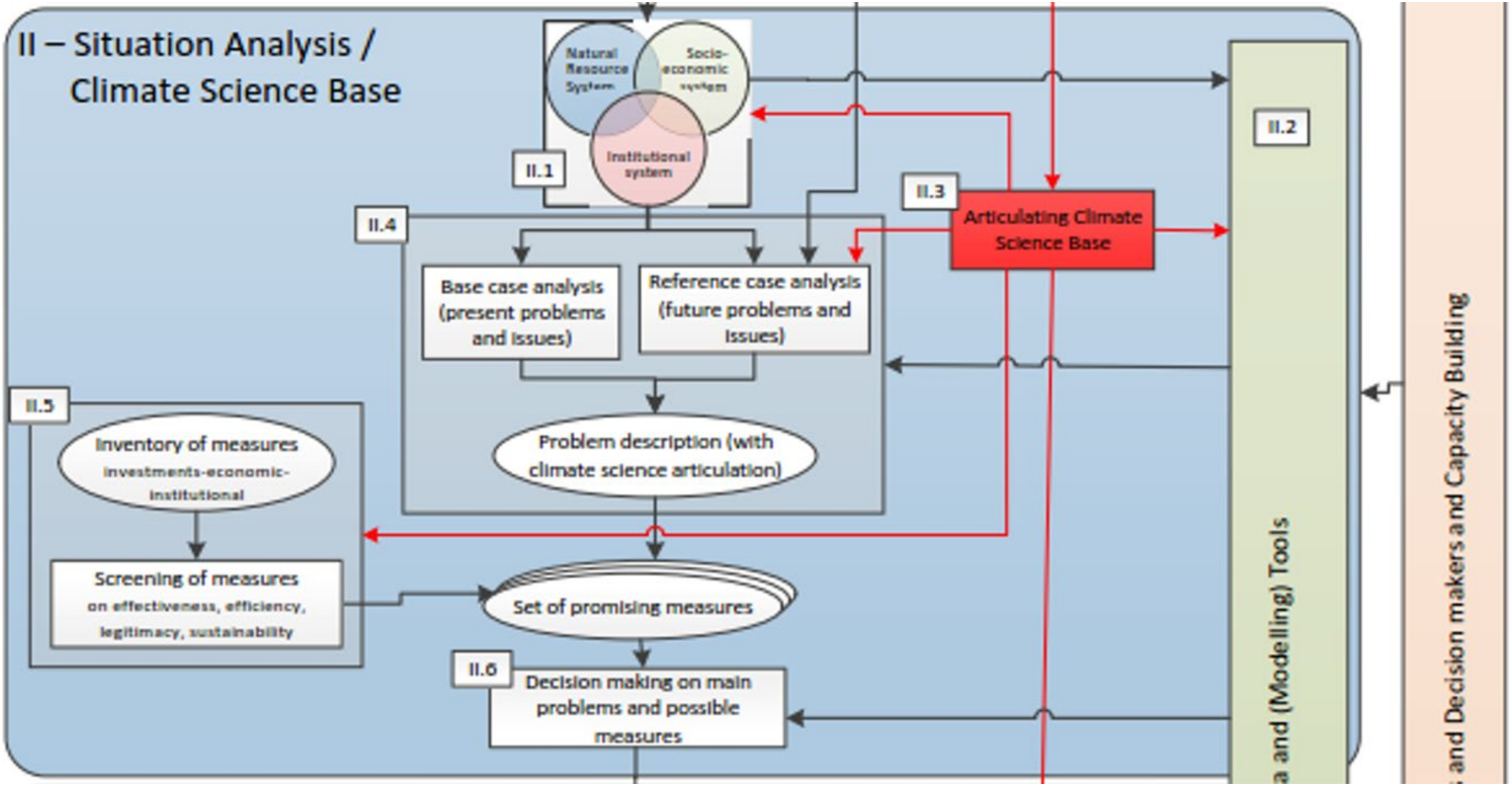


- **Step I.**3 Defining the **analysis conditions**, including the climate change challenges
  - To make sure that all agree on the conditions, such as time horizon, discount rate, system boundaries, scenario assumptions
  - Time horizon should be long enough to take into account the impacts of climate change
  - Scenarios often a combination of socio-economic development and climate change

- **Step I.4** Formulation of **objective** of proposed project
  - General national development objectives should be made operational, with clear evaluation indicators and if possible targets
  - Specific indicators for climate resilience are robustness and flexibility
  - GCF investment criteria to be taken into account

- **Step I.5** Scoping **report**, including work plan for next phase
  - To ensure that the stakeholders agree with the approach of the analysis
  - Including the workplan for the next phase

Phase II – Situation analysis – including the climate science base

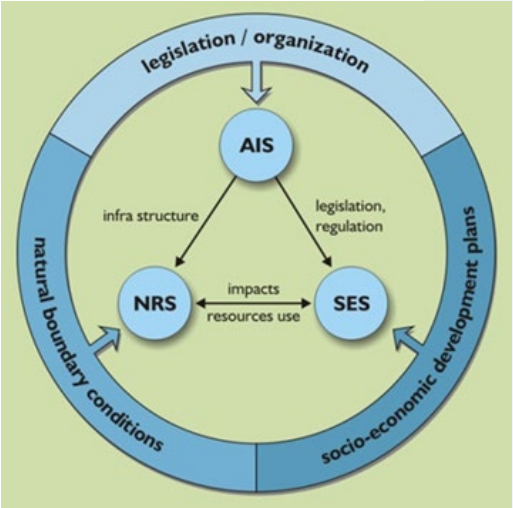


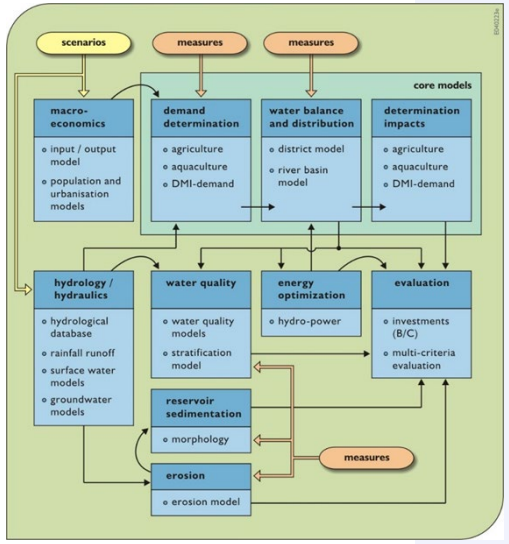
Situation Phase - continued

- **Step II.1** Understanding and describing the Water Resources System
  - NRS, SES and AIS
  - And how they influence each other and are influenced by the bigger system

- **Step II.2** Data and modelling tools
  - Analysis process should be data and information driven
  - Level of detail of models depend on the problem and the project
  - Type of models depend on the problem and the project, and refer to the socio-economic and biophysical processes of the water system

- **Step II.3** Articulation of the Climate Science Base
  - Further climate articulation of NRS and SES of Step II.1
  - Climate Science Base (with focus on the hydrological cycle)
  - Impacts and Vulnerabilities
  - Prioritized interventions – will be picked up again in Step II.4
  - Paradigm Shift – also linking with Step I.4





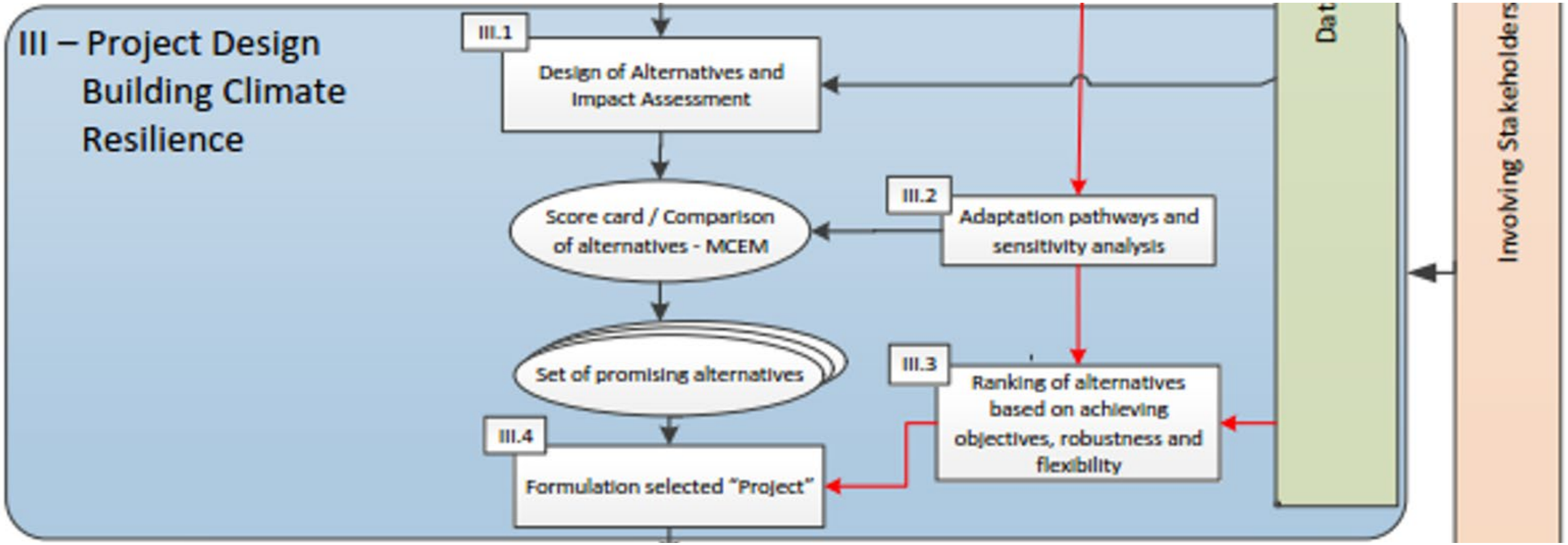
Situation Phase - continued

- **Step II.4** Problem analysis
  - Present **and** future problems (including climate change)
  - System perspective – identifying the limitations of the system
  - Risk perspective – taking into account the probability of the events
  - To be quantified with results of Steps II.1 and II.2
  - Barriers and opportunities (enabling conditions, financial, environmental, societal)

- **Step II.5** Identification and screening of potential measures
  - Inventory of all possible measures (with support of stakeholders)
  - Screening of these measures to identify the most promising ones
  - Based on evaluation criteria, including GCFs investment criteria

- **Step II.6** Documentation of results situation analysis
  - To ensure that the results are ‘owned’ by the stakeholders

Phase III – Project Design – building climate resilience



- **Step III.1** Design of alternative projects and impact assessment
  - Combination of promising measures into alternative projects
  - Evaluation of the impacts of these alternative projects in terms of the defined objective
  - Precautionary principle to be taken into account

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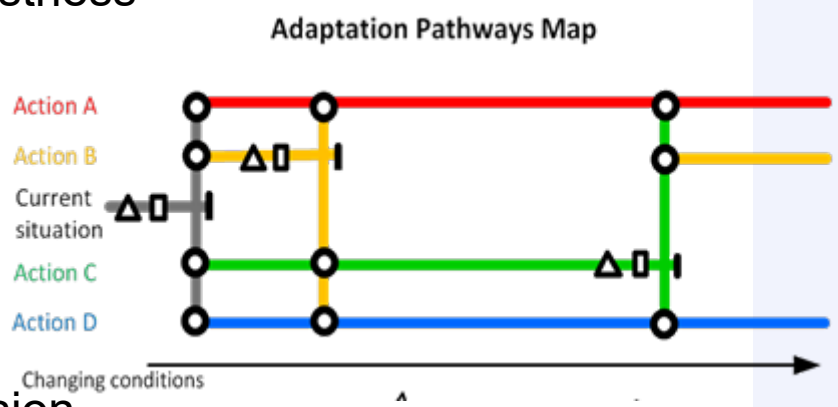
Project Design Phase - continued

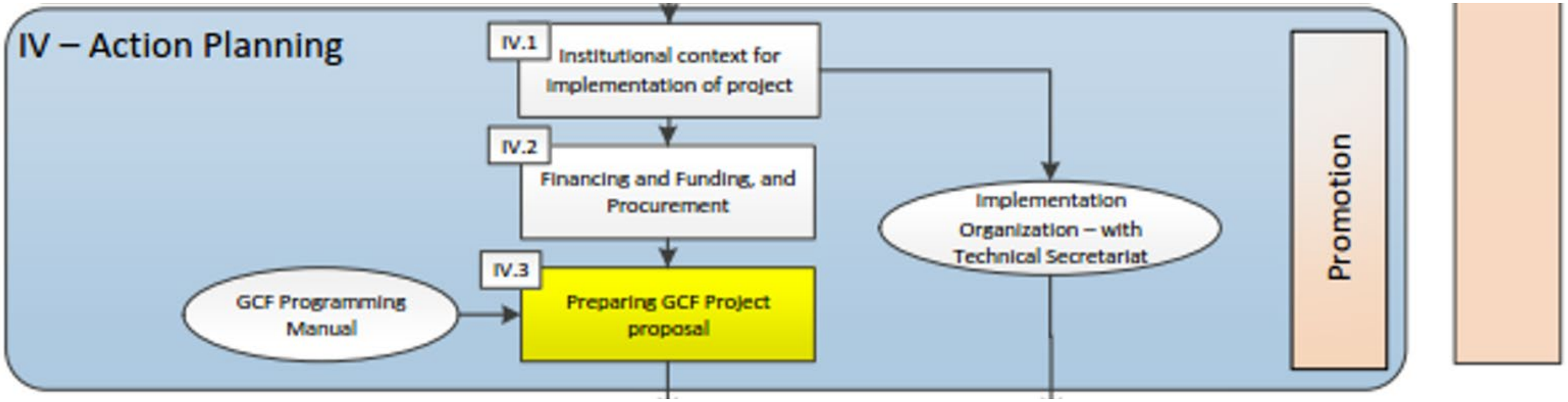
- **Step III.2** Adaptive management analysis – dealing with uncertainties
  - Uncertainty (including about climate change) requires that criteria robustness and flexibility are explored and evaluated
  - Techniques available for more detailed analysis: Decision Scaling, Adaptation Pathways approach, …



- **Step III.3** Evaluation of alternative projects and decision making
  - Evaluation to be done by multi-criteria evaluation methods
  - Which includes (rather simple) scorecards – often appreciated by decision makers
  - Actual decision making on preferred project by stakeholders / decision makers

- **Step III.4** Formulation of **project** or project portfolio
  - Compilation of all information on selected projects in a Concept Note
  - To be authorized by responsible organizations

Phase IV – Action Planning – financing and implementation



- **Step IV.1** Institutional context and implementation arrangement
  - Further specification of involved institutions for the implementation
  - Specification of implementation arrangements: kind of transaction, service level, incentives
  - Implementation Framework (supervising and guiding the implementation by responsible institutions

Action Planning Phase - continued

- **Step IV.2** Funding and Financing of project and Procurement
  - How will the project pay back for the investment made (the funding)
  - How to make the money available up-front for the investment (the financing)
  - Funding and financing can be both public and private and be mixed (blended finance)
  - Procurement – how will the project be implanted (constructed and managed)

- **Step IV.3** Prepare for GCF funding proposal
  - Taking into account the requirements of the GCF Programming Manual
  - Theory of Change
  - If needed carry out EISA (Environmental and Social Impact Assessment) to complement the analysis done in phases I till III (sometimes legally required)

Applying the structured approach for designing sub-sector projects

The structured approach should be followed for all four sub-sector projects

- Emphasis on steps may differ for some sub-sector projects

The sub-sector descriptions (chapters 5 till 8) provide specific recommendations on:

- The impacts climate change has on the sub-sector
- The ambitions of GCF for the sub-sector
- How to apply specific steps of the structured approach for GCF funding proposals
  - The climate science base
  - The analytical tools
  - The kind of measures to be considered to increase resilience

Discussion 2

1. Do you see the added value of the suggested structured approach of project design? What component is most valuable and/or new for you?

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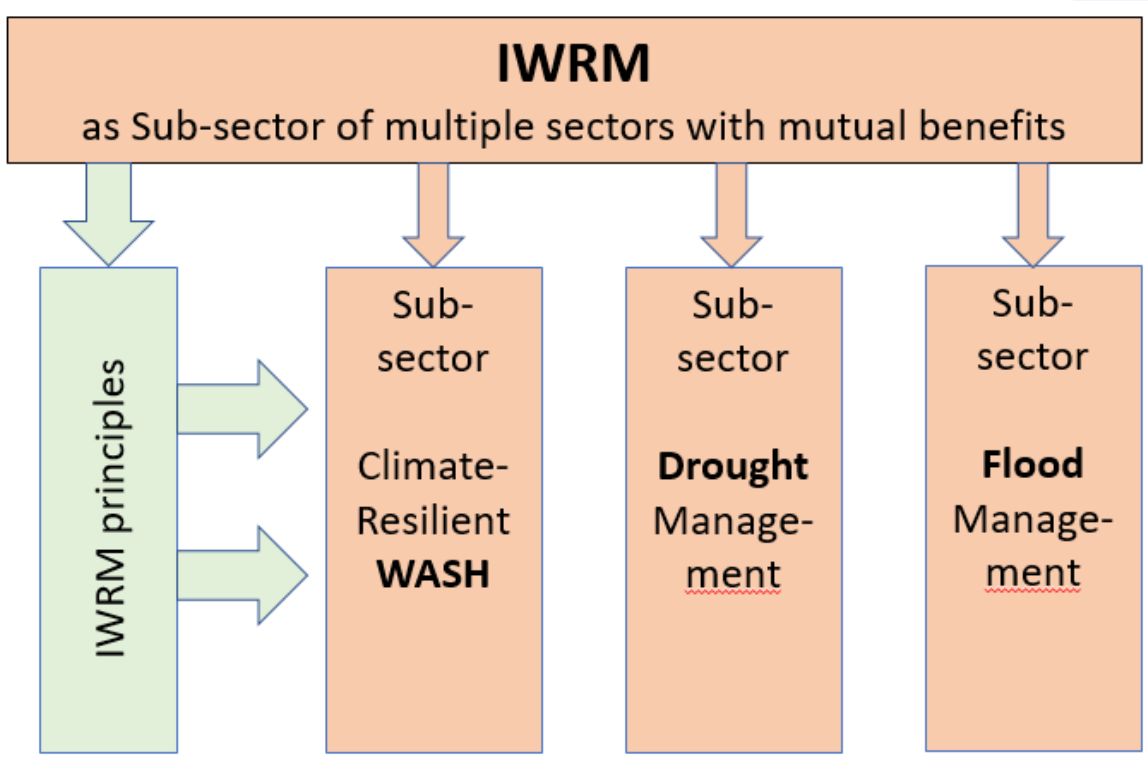
Part IV – The sub-sectors

- GCF has identified four water sub-sectors
  - IWRM
  - Climate resilient WASH
  - Drought management
  - Flood management

- IWRM is a sub-sector by itself, but the IWRM principles (integrated, stakeholder participation, etc.) applies as well to the three other sub-sectors

- And IWRM projects can include elements of WASH and Drought and Flood Management



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IWRM

IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. GWP (2000)

IWRM as a sub-sector project brings together water users from multiple sectors to co-invest for mutual benefits

Climate Change impacts

- Not new to IWRM as IWRM already requires that future conditions are taken into account, including climate change; Climate Change will increase the stress on the system
- Water system performance (hydrological characteristics, temperature, etc) and with that the supply
- Demand for water (for agriculture, cooling water, etc)
- Productivity of agriculture, fisheries

GCF ambitions on IWRM

- Transformative IWRM planning and programming for climate resilient water security is accepted in national and regional adaptation planning and programming
- Water projects are designed to address the full water cycle
- Prioritize investments to increase water productivity

Important note: only IWRM projects that include actual investments can be considered for regular GCF funding. **IWRM planning projects** (such as river basin plans) and feasibility studies can be supported by GCF by means of their **Readiness and Preparatory Support Program**.

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Developing an IWRM project

Climate Science base depends on the focus of the IWRM project

- In case of balancing supply and demand: probabilities of low water availability (rainfall, river flow, etc)
- Impacts and vulnerabilities

Analytical tools

- Water system models, describing the performance of the water system in terms of quantity and quality
- Sector models (e.g. for agriculture, water supply) describing the demand for water and the impacts of too much, too little of too dirty water
- Water allocation models, balancing demand and supply based on socio-economic criteria
- Multi-criteria evaluation models, providing insights in the positive and negative impacts of interventions

Measures to be considered

- Supply oriented measures
- Demand oriented measures
- Institutional measures

Climate Resilient WASH

Climate Change impacts

- Physical damage of facilities and networks, e.g. exposure to (increased) flooding
- Threats to water quality, e.g. saltwater intrusion due to sea level rise
- Threats to water quantity, e.g. (extended) dry(er) conditions in time and area

GCF ambitions on WASH projects

- WASH projects should preferably address the **whole WASH system and in context of river basin,** and address the ultimate aim of WASH project, i.e. to improve the health of the communities involved and contribute to helping **build community resilience to the impact of climate change**.

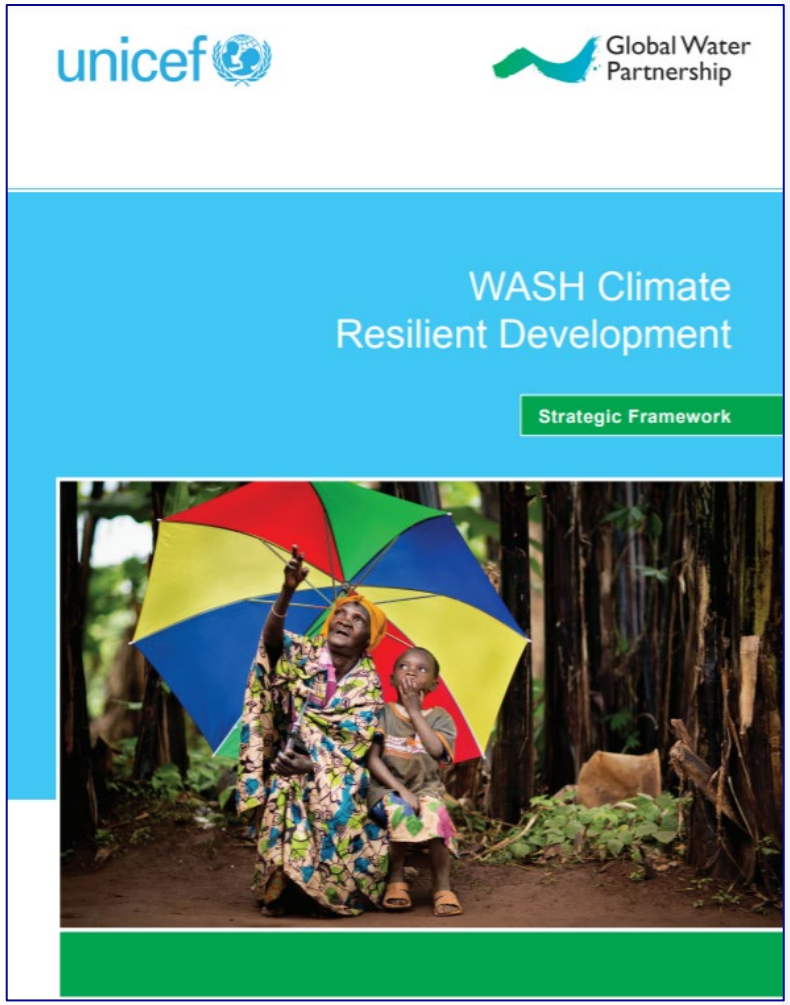
Developing a climate resilient WASH project

Climate Science base depends on the component of WASH (Water supply network, sanitation, etc.)

- Analysis of historic WASH impacts with probabilities
- Prediction on how climate change will influence probabilities (and with that the extremes of the hazard)
- Analysis of exposure (what component of WASH will be impacted) and vulnerability (sensitivity and adaptive capacity)

(Analytical) tools

- See: strategic Framework for WASH climate resilient development of GWP/UNICEF, including detailed guidance notes on e.g. Risk assessments for WASH, options for Climate Resilient WASH, local participation, etc.



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Developing a Climate Resilient WASH project - continued

Measures to be considered

- Technological or infrastructural oriented (e.g. digging new wells, building water treatment plants)
- Capacity building oriented (e.g. set-up climate-hydrology monitoring and information systems, knowledge exchange about good WASH practices and water resources assessment)
- Governance oriented for WASH cycle (e.g. spatial planning to ensure water quality, priority setting for water supply)
- Institutional setting or governance oriented in context river basin (e.g. national guidance and incentives for WASH programming, regional water supply rules and priority setting in river basin context)

Drought Management

Climate Change impacts

- Depending on the duration, timing and frequency of the meteorological drought more or less severe agricultural or hydrological droughts will originate with impacts on economy, society and environment
- Accelerated hydrological cycle will result in more extreme and more frequent drought events
- Sea level rise will increase water quality issues (brackish water)
- Drought is underestimated important impact of climate change, but awareness is rising

GCF ambitions on Drought Management

- Pro-active instead of re-active
- Promote the establishment of forecasting and warning systems that focus on impacts and risks to raise risk resilience of communities.
- Promote nature-based solutions for reduction of droughts

Note: GCF drought projects must address the **exacerbation of the drought due to climate change**

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Developing a Drought Management project

Climate Science base

- Information on historical analysis of drought hazard and impact
- Extend with predictions on how climate change might influence the probabilities involved.

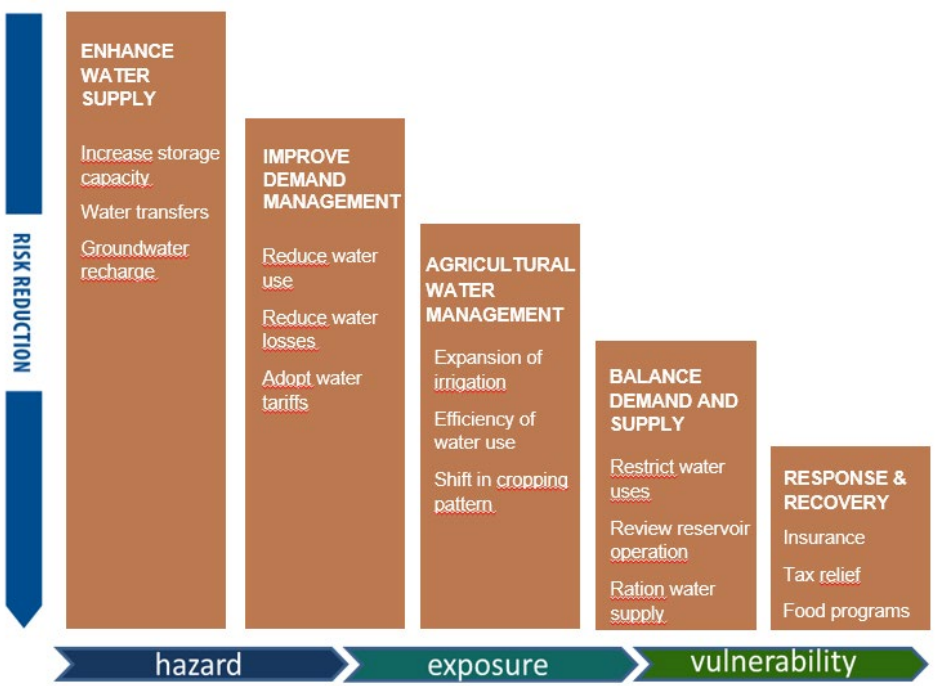
Analytical tools

- Hydrological and water balances modelling, incl. the probability of the drought conditions (hazards) and water shortages
- Sector or Impact models, that indicate these drought conditions have on the users (exposure and vulnerability)
- Drought mapping

Developing a Drought Management project

Measures to be considered

- Integrated approach considering all pillars of the drought risk cascade
- Prioritizing and balancing different water uses (IWRM) based upon sound drought risk information
- Installing flexible governance mechanisms and payment for ecosystem services (water pricing, public tax)
- Insurance mechanisms that cover residual risks
- Early warning systems



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Flood Management

Flood types

- Fluvial, Pluvial (urban), Flash Floods, Coastal Flooding

Climate Change impacts

- Accelerated hydrological cycle will result in more extreme and more frequent flooding
- Sea level rise and will increase coastal flooding
- Floods might well be the most important impact of climate change

GCF ambitions on Flood Management

- Pro-active instead of re-active
- Transformational planning and programming to prioritize policy interventions that reduce hazards and enhance climate resilience to floods
- Promote Nature Based Solutions
- Co-invest with MDB and private sector in PPP models (hydro-met, green-grey infrastructure, insurance.

Note: GCF flood projects should address the **increased risk of flooding (and related damage) due to climate change**

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Developing a Flood Management project

Climate Science base

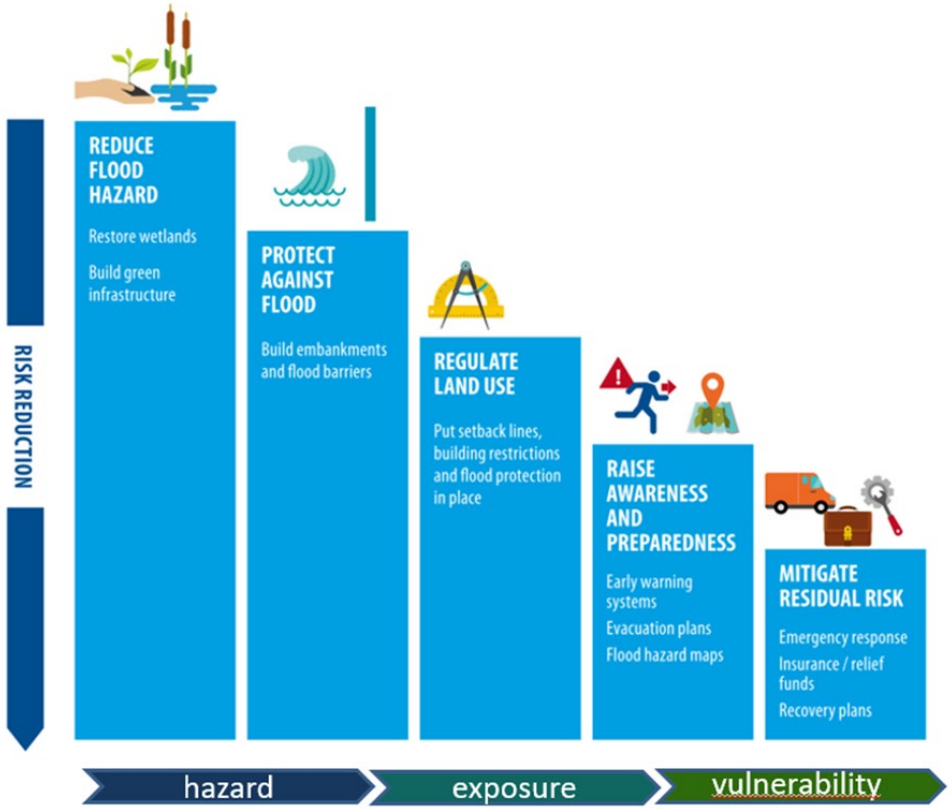
- Analysis of historic floods with probabilities
- Prediction on how climate change will influence probabilities (and with that the extremes of the hazard)
- Analysis of exposure (flood extend) and vulnerability (who will be impacted)

Analytical tools

- Statistical and stochastic analysis of time-series
- Hydraulic modelling
- Flood mapping

Measures to be considered

- Integrated approach considering all pillars of the flood risk cascade
- Spatial planning measures
- Early warning systems



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Discussion 3

1. To what extend do the guidelines sufficiently refer to recommendations for specific information that the project developer need to implement the structured approach in the sub-sectors?

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