WATER SECURITY PLANNING
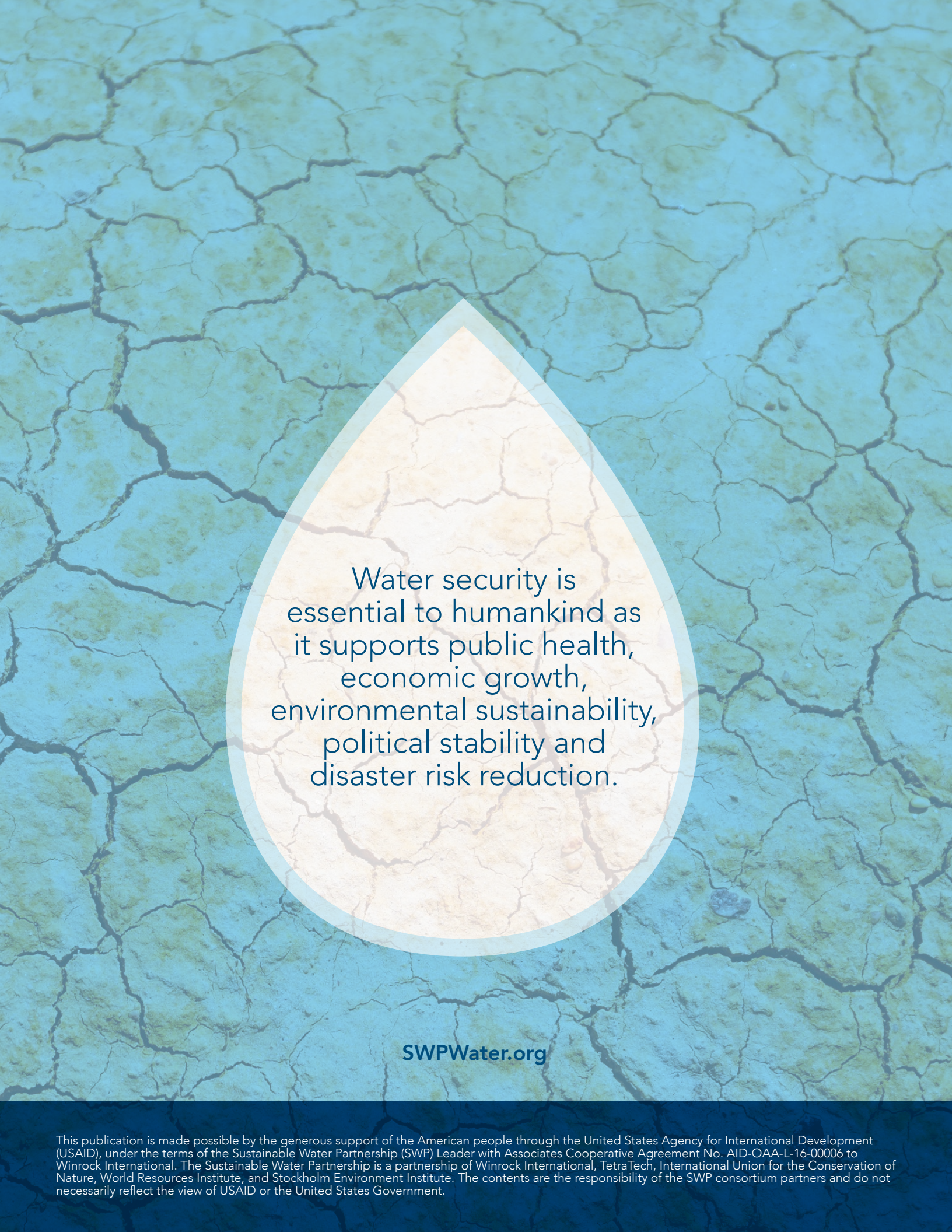
This series of toolkits presents an effective and efficient process to address risks to water security, both long-term water stresses that constrain socioeconomic development and threaten political stability, as well as sudden shocks that can endanger the health and livelihoods of vulnerable populations. These toolkits aim at disseminating the practice of water management. Local decision-makers as well as development specialists should use these toolkits as guidelines to engage water users in a collaborative process that results in improved water resources management.

Water security is
essential to humankind as
it supports public health,
economic growth,
environmental sustainability,
political stability and
disaster risk reduction.

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PREFACE

Water Security Is Essential to Life and Humankind, by Supporting:

Public health: Safe drinking water, sanitation, and hygiene (WASH) are the most fundamental human needs.

Economic growth: Income generation and poverty alleviation heavily rely on water availability for agriculture, energy production, transportation and other livelihood activities.

Environmental sustainability: Natural ecosystems rely on water; they rapidly deteriorate when deprived of natural flows, directly affecting public health and livelihoods.

Political stability: When basic health and livelihood needs are not met, the strain on populations affects the legitimacy and sustainability of governing authorities and can lead to civil unrest.

Disaster risk reduction: Floods, landslides, droughts, tsunamis, and harmful algal blooms can be catastrophic events that claim lives, affect local economies, and may multiply due to climate variability and change.

Population growth, urbanization, industrialization, rising living standards and Westernized diets are likely to further increase the over-extraction and pollution of water resources. This will raise insecurity and uncertainty over water access and the vulnerability of communities and infrastructure to natural disasters.

This **series of toolkits** presents an effective and efficient process to address water risks, including long-term water stresses that constrain social and economic development and sudden shocks that can quickly jeopardize the health and livelihoods of vulnerable populations.

Improving water security is about focusing actors and resources on key water risks. It is also about collaboratively planning and implementing specific activities to mitigate risks and provide tangible benefits to water users. Water security activities should combine gray and green infrastructure (including improved operation and maintenance of existing infrastructure), awareness raising and behavior change campaigns, management as well as policy and institutional improvements (such as better data and better informed decision-making).

Improving water security must be a cross-sectoral theme. Development strategies and investments that ignore water security usually fall short of their objectives when water issues and conflicts undermine political and social cohesion, supply and value chains, public and environmental health, and service delivery and infrastructure operation.

The Water Security Improvement (WSI) Process

» **Confirm and initiate**

STEP 1 Define geographic/technical/institutional/temporal space (Toolkit #1)

STEP 2 Assess water risks (Toolkit #2)

STEP 3 Prepare water security action plan (Toolkit #3) **and fund it** (Toolkit #4)

STEP 4 Implement water security actions (Toolkit #5)

STEP 5 Monitor, evaluate and adapt (Toolkit #6)

TABLE OF CONTENTS

Water security is the adaptive capacity to safeguard the sustainable availability of, access to, and safe use of an adequate, reliable, and resilient quantity and quality of water for health, livelihoods, ecosystems, and productive economies.

EXECUTIVE SUMMARY

What Is Water Security Planning?

Water security planning aims to identify, define, evaluate, and choose water security activities in terms of:

- **Mitigation** of targeted priority water risks

- **Direct and indirect benefits**, positive and negative impacts and externalities

- **Combined/cumulative benefits and externalities** among various activities

- **Socioeconomic and environmental impacts**

- **Direct and indirect costs**, capacity, and resource needs

- **Robustness** in view of uncertainties of future trends (i.e. capacity to provide benefits across the range of possible futures)

- **Ability to adjust** to changing conditions

Guiding Practices for Water Security Planning

Water security planning must follow the eight WSI guiding practices:

1. Pragmatic focus on specific water risks

2. Engagement and mobilization of water users

3. A "systems thinking" approach to address causes and not just symptoms

4. Robust decision-making that considers uncertainties

5. Negotiated solutions that provide tangible benefits to different water user groups

6. Science-based actions that combine infrastructure development with watershed management, behavior change, and institutional improvements

7. Adaptive management and learning to improve over time and build the capacities of stakeholders

8. Sustainability through economic efficiency, environmental soundness, and social equity

A specific requirement for the water security plan is to be **timely and pragmatic**. This is about finding an "optimal balance" between producing a detailed exploration and review of possible water security options and defining and implementing tangible activities to address priority water risks. Stakeholder perceptions of the magnitude and urgency of current water risks and associated priorities are the deciding factor.

Adopting stakeholder participation is vital for successful water security planning. For years, water managers and engineers have used predictive methods to identify solutions and make top-down water management decisions. These technical methods are based on experience and scientific knowledge to predict outcomes based on existing and future conditions. But predictive methods often fail to deliver the expected results due to factors such as the complexity of water issues, the uncertainties around current information and future conditions, and the multiplicity of objectives.

Participatory Planning vs. "Predict Then Act"

Participatory methods are most appropriate when facing:

- Complex issues
- Multiple objectives
- Various uncertainties
- Need for flexibility
- Diverse stakeholder groups
- Combinations of solutions

Decision Support Systems (DSS) modeling is then most useful to define and visualize the potential consequences of combined actions over many plausible scenarios.

Only water user participation can:

- Handle water problems as the complex problems they are
- Consider multiple objectives
- Ensure positive outcomes despite uncertainties
- Adjust to changing circumstances
- Coordinate disparate views and expectations from stakeholders
- Anticipate the combined impacts of actions

Dimensions of Water Security Planning

Water security action planning occurs in a space with several dimensions:

- The current (and likely future) water security situations
- Human, natural, and built systems (communities, ecosystems, infrastructure assets) and the relationships among them and with water resources
- Uncertainties in the understanding of these relationships, now and in the future
- Goals or the desired water security situation
- Water management activities/options meant to improve water security

Planning is first about targeting priority water risks and setting specific goals for their mitigation. Questions to consider include: What are we trying to address, and how will we measure success? What are our expectations? What future water security situation do we want to achieve? Planning is then about identifying, considering, and choosing different water management options, from gray to green infrastructure, and from institutional improvements to behavior changes, and assessing how they contribute to a reduction in the magnitude and impacts of priority water risks.

How Is a Water Security Action Plan Developed?

A water security planning effort has six tasks:

1. Translate priority water risks into specific goals
2. Explore and define possible water security activities
3. Review, analyze, and compare options
4. Negotiate, decide, and select preferred options
5. Perform the funding "reality check"
6. Finalize and validate the action plan

The action plan should present the intended goals and the water security actions that will be implemented. It should provide details for each activity such as: expected outcomes and targets, implementation roles and responsibilities, resources and funding to be mobilized, and the expected timeline.

Preparing for Implementation

Most countries and donor agencies have environmental and social safeguard provisions and policies. Water security activities must comply with these before being implemented.

In view of its implementation, a water security action plan should also include:

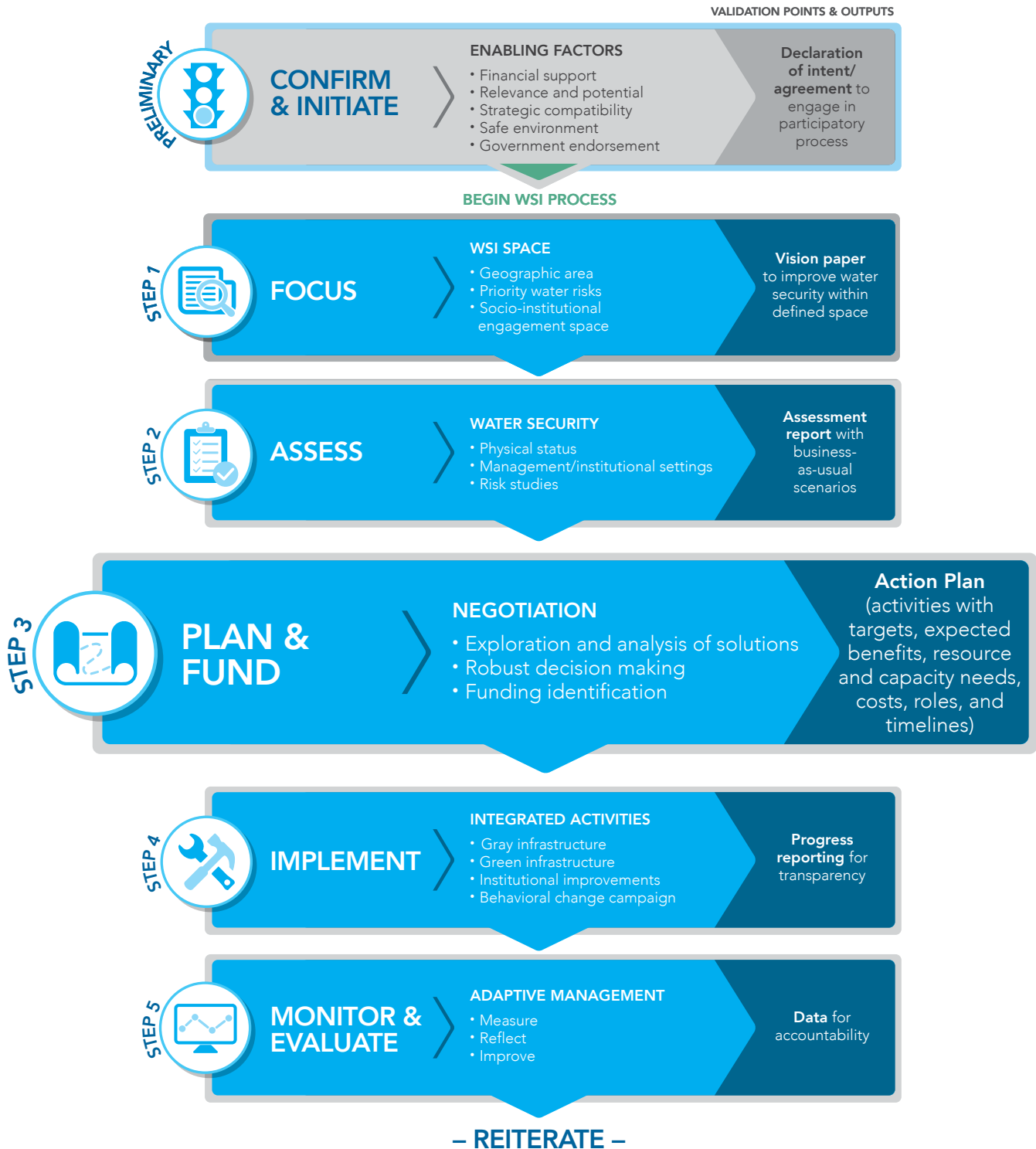- Indicators and targets to ensure monitoring of progress and performance and adaptive management (reallocation of resources to optimize positive outcomes)

- Communication mechanisms among implementers, as well as between them and higher authorities, sponsors, their constituents and the public at large

- Provisions for the sustainability, reiteration and possible scaling-up of the WSI process

INTRODUCTION

The present toolkit covers Step 3: Planning of the WSI process and **has five objectives**:

1. Discuss water security planning and its purpose
2. Describe the key practices that should guide water security planning
3. Define the water security planning space
4. Present the tasks of the planning process
5. Provide pre-implementation considerations

VALIDATION POINTS & OUTPUTS

PRELIMINARY

CONFIRM & INITIATE

ENABLING FACTORS
- Financial support
- Relevance and potential
- Strategic compatibility
- Safe environment
- Government endorsement

Declaration of intent/ agreement to engage in participatory process

BEGIN WSI PROCESS

STEP 1

FOCUS

WSI SPACE
- Geographic area
- Priority water risks
- Socio-institutional engagement space

Vision paper to improve water security within defined space

STEP 2

ASSESS

WATER SECURITY
- Physical status
- Management/institutional settings
- Risk studies

Assessment report with business-as-usual scenarios

STEP 3

PLAN & FUND

NEGOTIATION
- Exploration and analysis of solutions
- Robust decision making
- Funding identification

Action Plan (activities with targets, expected benefits, resource and capacity needs, costs, roles, and timelines)

STEP 4

IMPLEMENT

INTEGRATED ACTIVITIES
- Gray infrastructure
- Green infrastructure
- Institutional improvements
- Behavioral change campaign

Progress reporting for transparency

STEP 5

MONITOR & EVALUATE

ADAPTIVE MANAGEMENT
- Measure
- Reflect
- Improve

Data for accountability

– REITERATE –

WATER SECURITY PLANNING

Defining a water security action plan is an essential step in the process of addressing water risks. It is meant to target priority water risks and define the specific actions meant to mitigate their negative effects.

Guiding Principles

The planning effort must follow the eight WSI guiding practices:

1. Pragmatic focus on specific water risks

2. Engagement and mobilization of water users

3. A "systems thinking" approach to address causes and not just symptoms

4. Robust decision-making that considers uncertainties

5. Negotiated solutions that provide tangible benefits to different water user groups

6. Science-based actions that combine infrastructure development with watershed management, behavior change, and institutional improvements

7. Adaptive management and learning to improve over time and build the capacities of stakeholders

8. Sustainability through economic efficiency, environmental soundness, and social equity

Like the previous assessment step, water security planning must be timely and pragmatic. This reflects the aim of finding an "optimal balance" between allowing a thorough exploration, review, and negotiation over water security actions and issuing relevant and timely solutions to address priority water risks.

This is a trade-off between:

The **necessity** to properly explore and review a diverse set of water security options and negotiate agreements	The **pressure** to address water risks by defining and implementing activities to produce tangible benefits for water users

Predict Then Act vs. Participatory Planning

For years, water managers and engineers have used predictive methods to identify solutions and make top-down water management decisions. Although these methods are based on experience and scientific knowledge, they rely on technical tools and computer models to predict outcomes based on initial and likely future conditions. These approaches can deliver desired targets/outcomes when the decision space is small, when uncertainties are limited and linkages are well-known (i.e., potential actions can be accurately connected to their consequences).

Predictive methods, however, may fail to:

- Handle water problems as complex, "wicked" problems (i.e., difficult to formulate and to solve)

- Simultaneously address multiple objectives

- Comprehend interconnections between human, natural, and built systems

- Ensure positive outcomes despite uncertainties and unforeseen (and unknowable) future conditions

- Provide flexibility to adjust to changing circumstances

- Coordinate disparate views, perspectives, and expectations from stakeholders

- Anticipate the combined impacts of actions

Participatory planning, in contrast, can address the failings of predictive methods by:

- Inventorying and considering different perceptions and formulations of the water risks

- Identifying the various expectations from different groups and address multiple objectives

- Analyzing the interactions between communities and their natural and built assets

- Acknowledging and explaining uncertainties, thus warning against unrealistic expectations

- Negotiating and adjusting solutions to better meet expectations and be based on available resources

- Combining solutions, and notably considering "software" actions such as behavior change campaigns and institutional improvements

Decision Support Systems (DSS) are computer tools that allow the exploration of solutions and outputs across a range of uncertainties (e.g., future climatic, demographic, economic, and political conditions). It also allows identification and focus on robust or "no regrets" actions that have **high probabilities of performing** in any circumstances (rather than "optimal" actions that could be sensitive to uncertainties).

Participatory Planning vs. "Predict Then Act"

Participatory methods are most appropriate when facing:

- Complex issues
- Multiple objectives
- Various uncertainties
- Need for flexibility
- Diverse stakeholder groups
- Combinations of solutions

Decision Support Systems (DSS) modeling is then most useful to define and visualize the potential consequences of combined actions over many plausible scenarios.

Decision Support Systems (DSS)

A DSS is a computer-based tool that can model the analytical framework of linkages between possible solutions, desired outcomes, and key uncertainties by:

- COMPILING available and relevant data (database)

- RUNNING multiple simulations with varying parameters, creating an array of scenarios (model)

- VISUALIZING AND COMPARING these scenarios with informative displays (user interface)

Although a DSS is a powerful tool that can greatly enhance the understanding and exploration of solutions and their performance across potential scenarios, it cannot replace the stakeholder-led negotiation and decision-making process.

For example, "Water Evaluation and Planning" from the Stockholm Environment Institute is a DSS that structures, supports, and accompanies a participatory planning effort through:

- An integrated water planning system with built-in models for rainfall runoff and infiltration, evapotranspiration, crop water requirements and yields, surface water/groundwater interaction, instream water quality, with user-adjustable supporting assumptions and equations

- An embedded allocation optimization program

- A linked GIS-based interface, reporting through graphs, tables, and maps

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WATER PLANNING SPACE

Once stakeholders have assessed and understand priority water risks, potential water security activities must be defined and evaluated in terms of:

- Mitigation of targeted priority water risks

- Direct and indirect benefits, and positive and negative impacts and externalities

- Combined/cumulative benefits and externalities among various activities

- Socioeconomic and environmental impacts

- Direct and indirect costs, capacity, and resource needs

- Robustness in view of uncertainties of future trends (i.e., capacity to provide benefits across the range of possible futures)

- Ability to adjust to changing conditions

Water planning occurs in a space with several dimensions:

- The current water security situation or **status**

- Human, natural, and built **systems** and the **relationships** among them and with water resources

- **Uncertainties** in the understanding of these relationships

- Forecasts regarding the likely **future water security situation**, considering current trends and drivers that will impact future water availabilities and uses

- **Goals** or the desired water security situation

- Water management **activities/options** meant to improve water security.

The assessment should also have highlighted uncertainties that exist in:
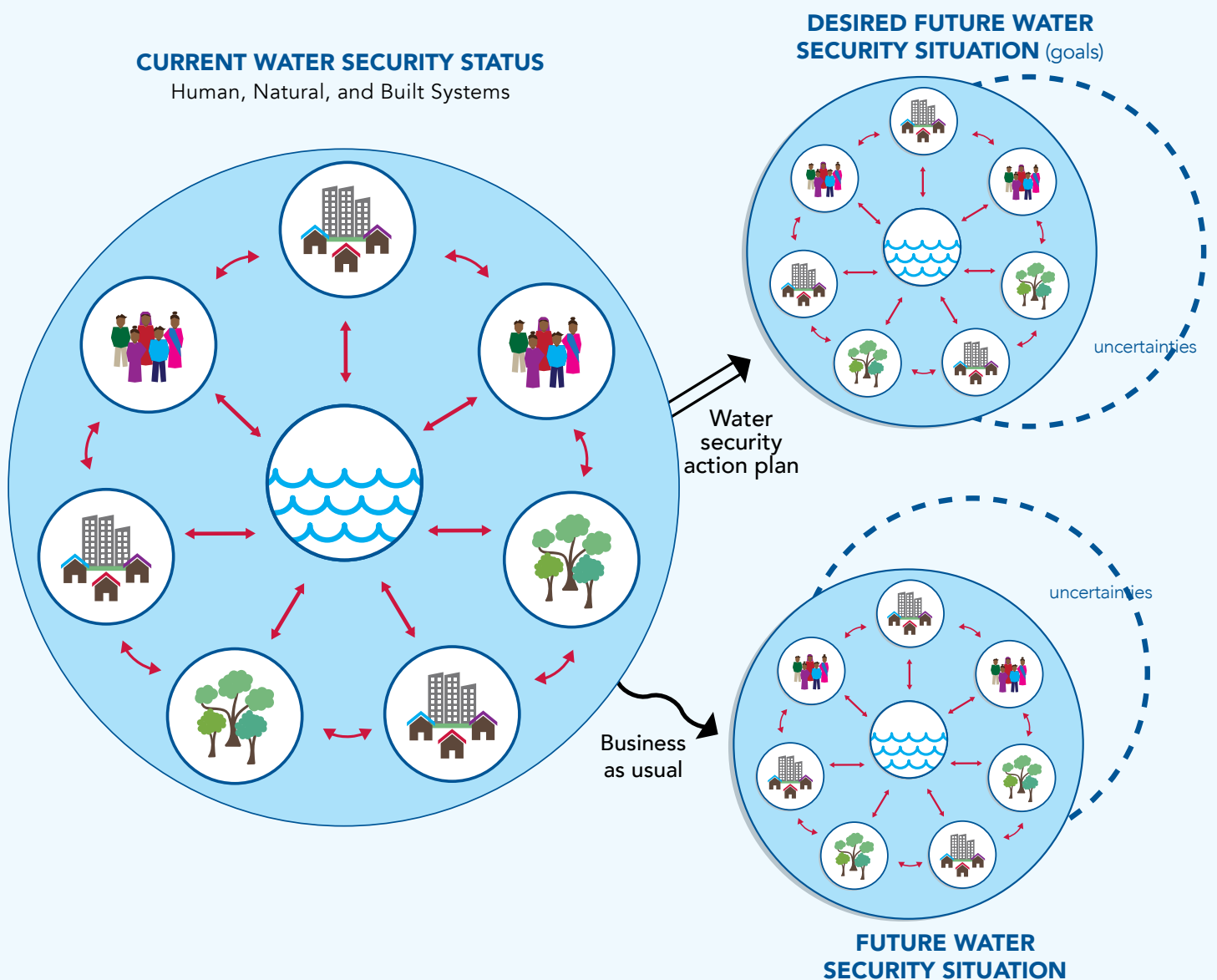
- Information: Knowledge is always partial and evolving; data is never comprehensive.

- Science: How will ecosystems respond to water activities and other factors?

- Human behaviors: How will humans respond to water activities and other factors?

- Technology: What technologies will be available in the future?

- Climate change: What will future climate conditions be?

- Economic factors: What will future business conditions be?

- Water governance: How will water laws, policies, and organizations change in the future?

Planning is first about targeting priority water risks and setting **specific goals** for their mitigation.

Questions to consider include:

- What are we trying to address, and how will we measure success?
- What are the expectations of the main stakeholders?
- What future water security situation do we want to achieve?
- How will we deal with uncertainties and how will we adjust to changing conditions during implementation?

Planning is then about identifying, considering, and choosing different **water management options**, from gray to green infrastructure, and from institutional improvements to behavior changes, and assessing how they contribute to a reduction in the magnitude and impacts of priority water risks.

CURRENT WATER SECURITY STATUS
Human, Natural, and Built Systems

DESIRED FUTURE WATER SECURITY SITUATION (goals)

uncertainties

Water security action plan

Business as usual

uncertainties

FUTURE WATER SECURITY SITUATION

WATER SECURITY PLANNING PROCESS AND OUTPUT

A water security planning effort has six tasks:

1 **TRANSLATE** priority water risks into specific goals

2 **EXPLORE** and define possible water security activities

3 **REVIEW**, analyze, and compare options

4 **NEGOTIATE**, decide, and select preferred options

5 **PERFORM** the funding "reality check"

6 **FINALIZE** and validate the action plan

Task 1: Translate Priority Water Risks into Specific Goals

The objective is to convert concerns about water risks into goals, as the table below illustrates:

WATER RISK	ILLUSTRATIVE POSSIBLE GOALS
Scarcity	• Increase drinking water delivery hours (by x%) in specified areas • Extend coverage of water supply network to specified areas • Decrease domestic/industrial water use (by x%) in specified areas • Decrease technical losses (leaks and seepages) in water network (by x%) • Decrease administrative losses (unauthorized, unmetered or unbilled connections) in water network (by x%) • Improve reliability of water delivery in specified areas (by x%) • Improve irrigation efficiency (by x%) in specified areas • Prepare and implement water allocation plans for specified areas • Prepare and implement drought mitigation plans for specified areas
Pollution	• Extend coverage of wastewater collection to specified areas (or by x%) • Develop or improve wastewater treatment in specified areas (by x%) • Improve water quality (by x%) in specified water bodies • Ensure protection of water sources in specified areas • Improve water monitoring in specified areas • Prepare and implement watershed/ecosystem management plans in specified areas
Flooding	• Prepare and implement flood management plans • For specific/design flood, prevent or mitigate flooding in specified areas • Improve flood monitoring/warning systems in specified areas

Defining specific goals is meant to guide and focus the search for water management solutions. It is also an opportunity for stakeholders to dialogue, negotiate, and prioritize among competing water issues.

Expert advice

Throughout the planning process, expert advice from knowledgeable technical specialists and academics is critical to help generate possible solutions, assess their benefits and costs, and review their strengths and weaknesses.

Expert advice is also essential to educate stakeholder representatives. However, the experts should not participate in the actual decision-making. Decisions should be made by the responsible authorities and/or stakeholder representatives, who are assumed to be representing the best interests of and be accountable to their constituents.

Task 2: Explore and Define Possible Water Security Activities

Different options are usually available to serve a specific objective. Identifying options often relies on either local knowledge or international experience. Local knowledge and practices suit local conditions and can be designed and implemented through local expertise, while international experience may call for more expensive solutions that have to be adapted to the local context. However, international practices may be better suited than traditional ones to respond to increasing demands and changing climatic conditions.

Brainstorming for solutions should be done by stimulating the generation of ideas, welcoming innovative ones, and combining and varying the options. At first, the strengths and weaknesses of brainstormed ideas should not be reviewed. Non-infrastructure solutions should be encouraged, to think outside of the (engineering) box and inventory options of natural infrastructure, institutional improvements, and behavior change activities.

Brainstorming can be conducted in one or several sessions. These gatherings can be large or restricted to specific groups of stakeholders. Whatever the size, brainstorming sessions should ensure that all stakeholders can contribute, especially representatives from marginalized groups (e.g., women and youth).

After options have been identified, they should be defined in terms of components, direct and indirect benefits and outcomes, as well as direct and indirect costs, capacity, and resource needs to assess their feasibility and validity.

Task 3: Review, Analyze, and Compare Options
Similar stakeholder gatherings should be held to evaluate and discuss options in terms of:

- Mitigation of targeted priority water risks

- Direct and indirect benefits, and positive and negative impacts and externalities

- Combined/cumulative benefits and externalities with other activities

- Socioeconomic and environmental impacts

- Direct and indirect costs, capacity, and resource needs

- Robustness in view of uncertainties of future trends (i.e., capacity to provide benefits across the range of possible futures)

- Ability to adjust to changing conditions

Task 4: Negotiate, Decide, and Select Preferred Options
Stakeholder representatives must understand that the decision process will involve negotiation and compromise: trade-offs will be necessary to reach agreements. Lack of agreement and continuation of the status-quo must be seen as the worst possible outcome. Another undesirable possibility is that some stakeholders leave the negotiation and use their (privileged) relationships with higher authorities to get water management decisions that favor only their interests. This type of non-transparent, non-equitable outcome tends to perpetuate the status-quo, whereby unfair distribution of benefits and unequal exposure to negative impacts eventually leads to conflicts and social instability.

Standard guiding practices for negotiations involve:

» Considering other parties as partners or members of the same team

» Focusing on positive outcomes, not people

» Understanding other parties' expectations and interests, behind stated positions or intentions

» Developing solutions to address expectations

» Inventing or combining options to provide mutual or wider benefits

» Applying the guiding principles of the WSI process, especially defining and evaluating solutions based on facts and science

Decision-making rules should be clearly defined at the onset, when the WSI space is set and stakeholders convene. The method and timing for decision-making must be based on local practices and circumstances, such as the need for emergency measures, and the magnitude of the decision and its impacts.

While different decision-making methods are available, the outcome should always be the broad acceptance of solutions that:

- Target the priority water risks in a sustainable, efficient, and, effective manner

- Are justified on solid information and current expert knowledge

- Are robust (i.e., provide satisfactory outcomes across a range of uncertain futures)

- Are acceptable to most stakeholders

DECISION-MAKING METHODS			
METHOD	WHEN?	PROS	CONS
Unanimity	Simple Issues and Solutions	Fast, Easy, Uniting	Too fast, possibly superficial
Consensus	Important Issues and Decisions	Collaborative effort, builds commitmen	Time-consuming needs small group of informed & involved parties
Compromise	Strong, Polarized Positions	Discussions toward middle option that all can live with	Negotiations can be time-consuming and divisive
Majority Voting	Clear, Few Options	Fast and Effective if voters are informed	Results can be divisive
Multi-Voting (multi-criteria analysis)	Many different goals and options	Participatory, Feels Consensual	Subjective weighing or ranking, possibly unsatisfactory outcome
Autocratic (with/without consultations)	Simple issue, clear expertise or leadership	Fast, Clear Accountability	Possibly unsatisfactory and not endorsed by other stakeholders

GOVERNMENT VETTING

A water security action plan will ideally be prepared by regional government agencies in collaboration with water user groups representing both private sector and civil society. However, the action plan will also have to be vetted by a supervising governmental authority who verifies that:

- Proper procedure (agreed-upon process) was followed and guiding practices were applied.

- Plan is a legitimate outcome from a representative group of stakeholder/user delegates.

- Plan is properly funded.

- Plan is compatible with national strategic documents.

- Proposed water actions are supported by technical studies.

Other government agencies not directly involved in the process should have a reasonably specified time to review and provide feedback within their prerogatives.

Task 5: Perform a Funding "Reality Check"
(See Toolkit #5)

Available funding can be a limiting factor. Preferred solutions must be properly financed to ensure successful implementation. Funding must be reviewed and discussed before the action plan is finalized, preferably in parallel with the review of strengths and weaknesses of individual water security options.

Developing additional funding resources can also be part of the water security activities (e.g., creating or increasing water user tariffs or fees to support better water security). Informed water users are generally willing to pay for improved water services.

Task 6: Finalize and Validate the Action Plan

In this last task, the final set of solutions is translated into a list of activities or a **water security action plan** that defines each activity in detail. This planning document must be finalized and shared in different forms through a variety of media (e.g., summaries, print media, television, radio, blogs) so they reach the widest possible audience of stakeholders.

The parties who will drive implementation of the action plan should have the relevant legal powers, authorities, and resources to proceed. Successful implementation also requires that relevant information be shared among implementers, reported to higher authorities, and disseminated to stakeholders and the public on a timely basis. A communication plan should be part of the action plan.

Output: Contents of a Water Security Action Plan

A water security action plan should present the intended goals and the water security actions that will be implemented with their details:

- Expected outcomes and targets, along with the indicators meant to monitor progress and performance

- Roles and responsibilities in the implementation

- Resources to be mobilized for implementation, along with supporting training and capacity-building activities

- Funding needs and how these are addressed

- Expected timeline for implementation of activities, when resources and inputs will be needed, and when outputs and benefits are expected to occur

PREPARING FOR IMPLEMENTATION

Most countries and donor agencies have environmental and social safeguard provisions and policies. Projects must comply with these before implementing development activities, including:

- **Environmental documentation:** For projects that do not involve significant impacts on the natural environment, a simple declaration of non-impact will suffice. Should a project include major infrastructure, extensive land use change, or alterations to the water cycle, a more substantial environmental impact assessment will likely be required. The rules governing these environmental documents vary by country and funding agency, but most usually require a definition of the baseline conditions and an assessment of the impacts associated with a range of alternatives. The environmental impact assessment must demonstrate that the proposed project will mitigate or not generate negative environmental impacts that exceed the benefits it will produce. It must also demonstrate that the proposed project is the best alternative among available options.

- **Social documentation:** Similarly, ensuring social sustainability is desirable and often required. A social impact assessment may be necessary for some of the planned water security activities to demonstrate that the proposed project fairly distribute benefits across social groups and will mitigate or not generate negative social impacts that exceed the benefits it will produce. It must also demonstrate that the proposed project is the best alternative among available options.

Other considerations for implementation are:

- **Adaptive management:** Until recently, most water management planning and decision-making processes assumed that the analysis supporting the decision was sound and that project impacts (positive and negative) would emerge as anticipated. Uncertainties about information, science, climate variability and change, and human behaviors mean that in many cases, water security activities will not perform exactly as planned, and actual outcomes will not exactly match expected outputs. Adaptive management responds to uncertainties in two ways:

  - Acknowledging uncertainties and developing robust solutions as part of the water security process (robust solutions are meant to provide benefits across the range of possible futures)

  - Establishing monitoring mechanisms during implementation to detect changes early on and adjust the timing, extent, or content of the water security activities accordingly

Indicators and targets should be provided for each activity in the water security action plan to monitor progress and performance. **(See Toolkit #6 for further monitoring guidance.)**

- **Communication:** Successful implementation and the legitimacy of the WSI process require that information be shared regularly with stakeholders, reported to higher authorities, and disseminated to water users and the public. The water security action plan should include details regarding:

  - Coordination mechanisms among implementers, with regular meetings (probably not as frequent as during assessment and planning) to reflect on progress and possibly decide to adjust actions to respond to changing conditions

- Reporting mechanisms to sponsors and higher authorities to ensure continuing support and endorsement

- Dissemination of performance information to raise awareness among water users and the public to ensure support and promote the necessary water use behavior changes

- **Sustainability, reiteration, scaling up:** The WSI process is not meant to be a one-time iteration, but to be a sustainable collaborative endeavor. Provisions should be made, as part of the action plan, to sustain and further strengthen, throughout implementation, the decision makers and water users groups that went through the assessment and planning stages, and the supporting lead entity or convening platform.

As the group of WSI stakeholders becomes more knowledgeable; new iterations of the WSI process, partial or complete, should be envisioned and eventually carried out, disseminated and scaled up to promote trust and collaboration among larger groups of stakeholders.
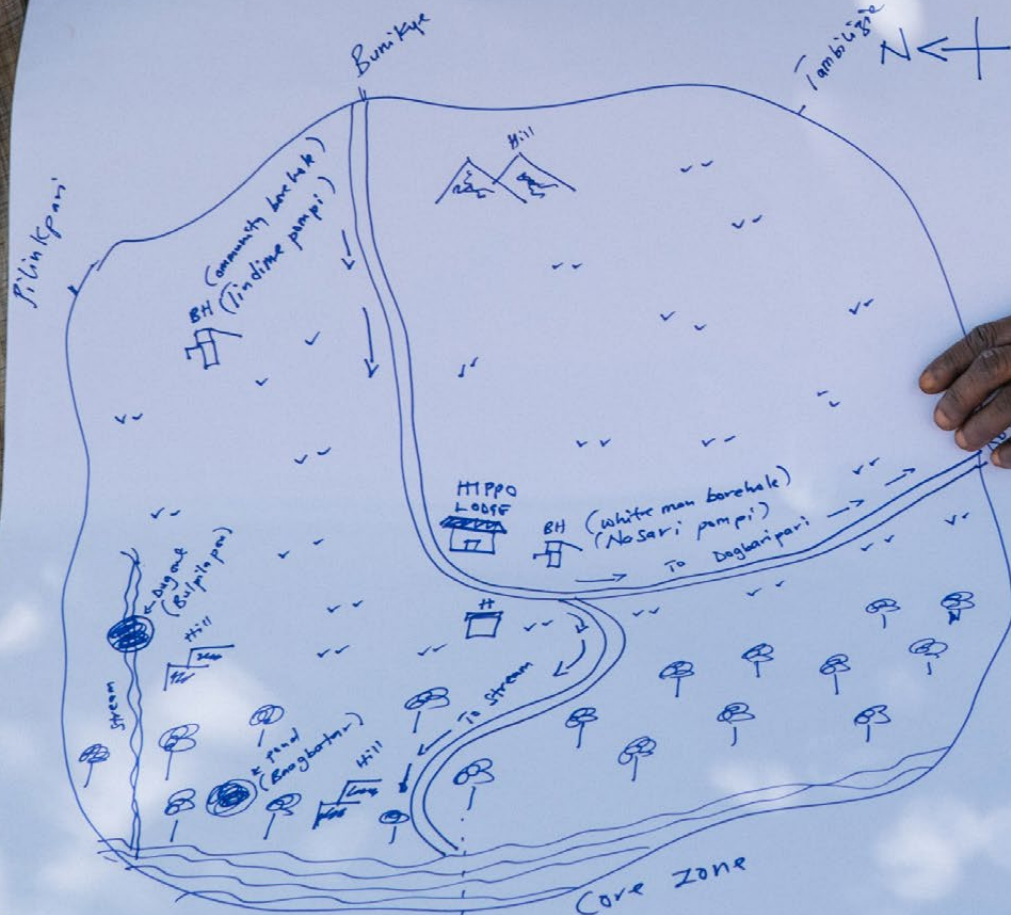
RESOURCES

CapNet & UNDP (2005). Integrated Water Resources Management Plans: Training manual and operational guide.

Presents a process, considerations and techniques for integrated water resources management (IWRM) planning.

GWP & INBO (2009). A Handbook for Integrated Water Resources Management in Basins.

A practical review of river basin management. Provides basics for establishing and sustaining river basin organizations, involving stakeholders, conducting strategic planning, ensuring communications, and supports these through numerous concrete examples.

IUCN-WANI (2010). Negotiate: Reaching agreements over water.

This manual emphasizes constructive engagement and consensus building. It provides the 4R framework (Rewards, Risks, Rights and Responsibilities) to facilitate negotiations, discusses the characteristics of Multi-Stakeholder Platforms and of final agreements as intended products of water negotiations.

Regional Environmental Center (REC) (2016). Local Water Security Action Planning Manual.

Presents a detailed and thorough process which tends to be focused on urban water planning. Suggested process is quite detailed and involves 20 steps.

Sheldon, T. (2005). River Basin Management: A negotiated approach.

A solid and convincing advocacy for participation and negotiation in river basin management, with practical advice and several case studies.

UNESCO (2013). Basin Water Allocation Planning: Principles, procedures and approaches for basin allocation planning.

This document provides a general understanding of the process and frameworks for basin water allocation planning and describes techniques available to support the allocation process, including how and when these techniques might be used. It does not provide guidance on detailed technical tools.

UNESCO (2009). IWRM Guidelines at River Basin Level (Part 1: Principles and Parts 2.1, 2.2, 2.3: Guidelines for IWRM Coordination, for Flood Management, and for Irrigation).

These guidelines provide necessary information to implement IWRM, notably the fundamental concepts of IWRM as well as perspectives of various stakeholders, key for success for overcoming problems, and good examples where such keys for success were applied.