STEP 3:
Building benefit enhancing scenarios using the Benefit Opportunities Assessment Tool (BOAT)
Objectives of this Step

This Step presents the Benefit Opportunities Assessment Tool (BOAT) and how to use it. Steps 1 and 2 need to have been completed prior to engaging in this Step. The underlying premise of the BOAT approach is that a given water-related investment project or intervention will have differentiated impacts across the groups of stakeholders that share water resources in a basin. BOAT is designed to help stakeholders jointly analyse qualitatively whether a particular water management and development related project, or set of projects, has a positive, neutral or negative impact on a range of stakeholder groups, and how benefits to stakeholders can be enhanced through cooperation. This allows key stakeholders, through scenario development and analysis, to develop a more in-depth and shared understanding of the trade-offs involved in choosing certain projects over others or certain combinations of projects, using a multi-scale cooperation perspective. The resulting stakeholder-validated set of scenarios can then be used to motivate a full quantitative analysis of options. Opportunities and mechanisms for benefit sharing will be context specific and must be adapted to the basin specific social, political, economic and environmental context.

Water has been and still is generally allocated according to historical distribution rights with no consideration to resource productivity (Berbel, Schellekens, Expósito, Borrego, & Montilla-López, 2018) or the maximization of social-welfare. The benefit sharing approach differentiates from simple allocation of water quantities to the allocation of benefits of water uses as we have seen in Step 2. Parties negotiating a benefit sharing agreement are not usually interested in the water itself, but rather in the economic opportunities and ecosystem services that can be obtained and enhanced through a shared management of the basin.

Optimising water allocation and associated benefits is paramount in a global context of increasing pressure on the world’s freshwater resources (Berbel, Schellekens, Expósito, Borrego, Montilla-López, 2018) as it helps to:

- Reduce pressure on water resources and help establish sustainable abstraction rates;
- Promotes resource efficiency and support a shift toward a greener economy and more climate-resilient strategies for the water dependent sectors
- Improves aspects concerning the economic, environmental and social situation of rural areas.
- Contributes to goals of improving economic performance through jobs, growth and investment.

BOAT allows participants to explore the inherent trade-offs in water allocation and associated benefits through considering different basin interventions and developments. Looking at how water is used, under different development scenarios, helps identify to identify the potential benefits, co-benefits and costs to different stakeholders.
IUCN has learned through its work under BRIDGE that one of the best ways for learning and uptake of new concepts relating to the governance of shared waters – often a delicate topic among riparian stakeholders - is to engage them in practical role-play exercises through which they can detach from their real-life roles/positions. To this end, IUCN has developed a set of fictitious basins, including riparian countries and their geographical, economic, historical and political, hydrological characteristics. Based on these fictitious basins, examples and scenarios are constructed for running the BOAT tool. The overall objective of the fictional portion of the training is to equip participants with the concepts and skills of the benefit-sharing framework.

A first important question to answer before planning a BOAT workshop is to know if the benefit sharing process will be for capacity building or for solving a real case problem. This will determine the type of materials used and the emphasis given to each step of the methodology.

Another important question is whether you need to assess the broader development trajectories of the basin or a particular intervention or project of interest. Answering this question will help you in guiding better the type of information that should be prepared and to select the right set of stakeholders for conducting the BOAT exercises.

Be prepared, conflict or misrepresentations may arise throughout the exercises! Remembering the interest/influence stakeholder matrix, make sure all voices are heard and taken into account. Give special attention to ensuring that the most vulnerable groups, less powerful but most impacted, are able to state their position on the negotiation table.

**Desired outcomes and outputs**

Under the fictional case:

- Stakeholders understand the concept of benefit sharing and the potential for basin developments to bring a range of benefits and impacts to a range of stakeholders. Also, understand that there are inherent trade-offs in benefit sharing, but that win-win scenarios are possible.
- Basin stakeholders exchange in a neutral dialogue space, enabling new relationships to build or prior relationships to be strengthened.

Under the real application:

- Stakeholders understand the concept of benefit sharing and the potential for basin developments to bring a range of benefits and impacts to a range of stakeholders. Also, understand that there are inherent trade-offs in benefit sharing, but that win-win scenarios are possible.
- Basin stakeholders exchange in a neutral dialogue space, enabling new relationships to build or prior relationships to be strengthened.
- Identifying the best alternative basin development scenario, where net benefits are enhanced through cooperation. This output can then feed into the following Steps on economic valuation and negotiation and institutional arrangements.

---

Facilitation process - Fictional case

A typical BOAT workshop requires two days and significant preparation on the part of its convenors. Some of these involve individual work, others break-out groups, others still, plenary sessions. All require: i) knowledge of the basin context, its biological and social dynamics; ii) that the participants have had adequate time to review the Project Fact Sheets and familiarise themselves with respect to the projects they describe; and iii) guidance and direction by the workshop trainer/practitioner.

To work through the fictional case, the practitioner needs to walk the stakeholders through the description of the fictional case and then the scenarios and the mapped benefits/costs in the BOAT matrix – using the pre-prepared Powerpoint slides and templates. To begin with, use the maps to “set the scene” and introduce the fictional case. Present the fictional maps and include descriptions of the geography, climate, social composition, biodiversity and livelihoods already existing (fisheries, agriculture, tourism, mining, hydropower etc.), in the basin. Note that the fictional case could be adapted to include some of the challenges experienced in your basin/region. Also, remember that a fictional case it is easier to simplify the exercise for learning, so it’s important to remind participants that in a real-life situation the complexities will be much higher in terms of assessing both benefits and costs. The fictive cases help to decontextualize stakeholders from their own basin realities and learn within a safe and confined environment.

Then the practitioner needs to introduce the fictional scenario by getting participants to imagine the building of a Hydroelectric Dam in the basin and get them to describe the

Group work exercise 1: Populate the spreadsheet – suggested time 2 hours

Divide the participants into groups of 5-7 people. Each group should be given a blank BOAT matrix to fill in. Prepare the participants by asking them to bear in mind the following points when working through the BOAT fictional case exercise. It can be helpful to have them projected on a slide while participants work through the spreadsheet template at their tables.

Water use activities may have positive or negative impacts (externalities) on other water users

A first step consists of examining the balance of positive and negative impacts across different activities / sectors in a shared basin

How can joint changes in water management enhance benefits for the largest number of stakeholders (and in the transboundary case: for the riparian countries?)
Then using the prepared excel spreadsheet template in the materials pack, get participants to start inputting the benefits, costs and the sectors that remain neutral (not concerned) by the infrastructure building activity (as per this fictional case). See the example below.

<table>
<thead>
<tr>
<th>Water use activities</th>
<th>Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric production at Elera Dam</td>
<td>Hydro K, Hydro A, Agri K, Agri A, Tourism K, Tourism A, Rural K, Rural A, City K, City A, Mining A, Env A, Env A</td>
</tr>
</tbody>
</table>

Then prompt them to add additional water interventions to the excel sheet for an overview of “best” and “worst” options as per the example below and available on the Powerpoint slide templates. The impacts from each water basin intervention to each stakeholder - the cell scores - could be analysed in a scale from positive (+), neutral (0) to negative impact (-). Finally, get the participants to sum the impacts per water intervention (rows) and impacts per stakeholder cluster (columns) to understand the net number of negative impacts.

Option: you can also add the net number of impacts per country when dealing with transboundary basins.

<table>
<thead>
<tr>
<th>Water use activities</th>
<th>Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric production at Elera Dam</td>
<td>Hydro K, Hydro A, Agri K, Agri A, Tourism K, Tourism A, Rural K, Rural A, City K, City A, Mining A, Env A, Env A</td>
</tr>
</tbody>
</table>

Group work Exercise 2: how to enhance benefits through cooperation – suggested time 4 hours

In the same groups, get the participants to discuss cooperation agreements, such as the selling of the energy from the existing hydropower dam to the nearby urban cities, and mining activities, avoiding the need to build a second hydropower dam on the river etc. Include the changed benefits / costs in the excel sheet and compare and contrast the number of beneficiaries and those being negatively affected. The objective is to identify measures that can enhance the benefits to the most stakeholder clusters - to turn the matrix as green as possible!
sectors it will benefit and those it will challenge, for example: hydropower, tourism and urban sectors in the fictional country will derive benefits in form of electricity generated. The costs associated with the reduced flows due to the dam in this fictional case will however be felt by:

- Hydropower sector in the downstream country
- Tourism sector in downstream country: reduced sediment supply to beaches
- Agricultural sector in upstream country
- Riverine ecosystems (environment) in both counties

Alternatively if you have chosen to use an example that would be closer to the issues in the basin where you are working this is completely fine - just think through the same reasoning and questioning with the participants. Working through the slides, the practitioner can outline how cooperation in the identified fictional scenario could increase the number of benefits while decrease the costs overall.

Once the overview of the fictional case and different cooperation scenarios has been presented the participants are then invited to carry out the same exercise in group work to familiarise themselves with the tool.

Debriefing and report back – suggested time 40mins

Ask the participants to present back the highlights from their group discussions - the challenges and solutions! This can be a helpful exercise, in particular for the practitioner, as this will provide insights into how the stakeholders in the room approached the discussions and why they came to the decisions they made. This can enrich the practitioner’s understanding of stakeholder’s relationships and decision drivers.

This is also the time to further discuss, if desired by the stakeholders, the next steps and information needed to progress into carrying out a real application using the BOAT.
Checklist real application

What do I need to conduct this Step?

- Step 1 (Stakeholder Mapping) and Step 2 (Benefit Identification) need to be completed prior to this step with the associated outputs to hand.
- An understanding of the type of stakeholders and their interests in/relationship to a particular project, which is also needed when preparing the Project Fact Sheets

Materials pre-prepared:
- Basin Base map and Factsheet (template 1)
- Water basin interventions Checklist (template 2)
- Water basin interventions Factsheets (template 3) - 5 to 10 for each group
- Water basin intervention Prioritization MCA Matrix (template 4)
- BOAT Matrix (template 5)
- Flipchart paper, markers, pens, etc.

Facilitation process - Real application

Preparation: Make sure you have prepared your basin base map and templates well in advance of the workshop. This could mean half day of work before the actual workshop. Base maps usually need some Geographic Information System data so prior planning is needed to prepare correctly. Also, identifying all the possible interventions in the basin (actual or planned) needs a deep understanding of the basin dynamics, social-environmental challenges, potential conflicts, stakeholders groups (their interests and influence), among others. The practitioner needs to prepare this ahead and the time needed will depend on their knowledge and experience in the local context.

Steps 1 and 2 were useful to understand better the stakeholder composition and interests in the basin and to understand the concepts behind a benefit sharing analysis. The theory covered in Step 2 will be used to strengthen the exercises in Step 3 where the groups will map the real basin scenarios and will look into the pool of planned projects, future alternatives, modified projects, green/grey solutions, and other interventions that would be of interest to be considered in the benefit sharing analysis. The identification of the “potential interventions” will be a critical step that will be used in the BOAT matrix (template 5).

Stakeholders will usually propose their projects of interest as potential solutions and will probably see them as the best alternative for the development of the basin under their own perspective. Conducting the BOAT exercise will enable us to consider the different project alternatives in a practical and neutral exercise that will consider the impacts and benefits across all relevant stakeholders. It will be useful also to compare the net benefits of each project and to trigger a constructive discussion among different interest groups. This should end with the selection of the best development scenario(s) for the basin.

Securing the quality of information on each potential project and realistic approximation of the impacts and benefits is very important to avoid misrepresentations. The practitioner will play an important role in securing that all the stakeholders have a voice and that the BOAT is performed in a constructive dialogue with the participation of all involved stakeholders.
Applying BOAT – suggested time 1-2 days

To start the group work, divide the participants into groups of 5-7 people. Provide to every working groups in the workshop the following materials:

- Basin Base map and Factsheet (template 1)
- Water basin interventions Checklist (template 2)
- Water basin interventions Factsheets (template 3) – 5 to 10 for each group
- Water basin intervention Prioritization MCA Matrix (template 4)
- BOAT Matrix (template 5)
- Flipchart paper, markers, pens, etc.

**Group work exercise 1: Mapping the baseline scenario – suggested time 1-2 hours**

Use the basin base map and factsheet (template 1) to agree on “the baseline scenario”. Show the basin’s geography, ecology, climate, demography etc. Have the participants finalise mapping out / provide information on: social composition, biodiversity, livelihoods, existing projects, infrastructure, settlements, fisheries, protected areas, etc. in the basin. It is important to realise the upstream-downstream flows and other interactions between stakeholders and water interventions in the basin. Be careful to consider cause-effect linkages.

**Report back – suggested time 20 mins**

Invite the participants form each group to report back on key points. The final product of this exercise should be a map showing the location of the main projects, infrastructure, uses, settlements, land uses, and priority areas of conservation. This is the “Basin Baseline Scenario”. If very different maps are produced, have all participants agree on one baseline scenario to be used by all during the following exercises.

**Group work exercise 2: Identifying potential interventions – suggested time 1-2 hours**

The BOAT is based on the assumption that several developmental pathways can be an option to manage a basin rather than a single way of doing things. This implies recognizing the alternative options and solutions that can be a desired cooperation outcome to most of the stakeholders. In some cases the focus of a Benefit Sharing process will be a particular project that may cause conflict among stakeholders, for example the construction of a Dam on a watercourse. Such a case would require identifying alternative interventions around that project such as avoiding the construction of the dam, modifying the project to a smaller scale or building the planned infrastructure but with a set of compensation measures. A set of alternatives will be identified in this activity.

To begin, you can use a checklist of potential sectors that can have projects and water interventions of interest for the basin (template 2) or projects that can be considered as part of the developmental pathway of the basin. Usually, among your stakeholders in the group you will find new project ideas or potential projects that have been heard about. At the same time, it is important to include in this exercise, all the planned projects, most of the times strategic infrastructure projects are planned decades before being built, if this is the case, make sure you include them in this step.

For each potential water basin intervention you will fill a template with a basic description (template 3). This will help you to keep in mind the benefits and impacts of each water intervention and what could be at stake during the valuation and negotiation steps.

**Tips:** Identifying the possible water basin interventions is already a positive result because you put into consideration other options for developing the basin in a sustainable way. This is the starting point to visualize benefit sharing within the context of a range of benefits rather than focusing solely on water quantity allocation.
Report back – suggested time 20mins

Invite the participants from each group to report back on key points. At the end of this activity, you will have a set of water basin interventions: some may be planned projects, some may be new ideas, some may be modified versions of planned projects, or existing projects with a set of compensation interventions.

Group work exercise 3: Prioritization exercise - suggested time 1-2hours

The list of resulting alternative water basin interventions can be long and may complicate the execution of the BOAT matrix (template 5). Depending on the time and resources available, you may want to constrain the number of alternatives (5 to 10) to simplify the benefit sharing analysis. For this purpose, we suggest a MCA Matrix (template 4) so that the most relevant projects are the ones included in the BOAT matrix (template 5).

Accordingly to time constraints, participants should be given the opportunity to agree upon the valuation criteria and respective weight in the MCA Matrix. The valuation of each water basin intervention should be done democratically either in a plenary session or work groups that will have to agree later. Some suggested criteria are:

- Transboundary dimension
- Alignment with national policy objectives
- Feasibility and barriers to implementation
- Investment volume and financial sustainability
- Meeting SDGs
  - Water and sanitation
  - Poverty Alleviation
  - Zero Hunger
  - Energy
- Climate Resilience
- Benefits to ecosystems and biodiversity

TIP: the most relevant projects are not necessarily the largest or expensive as BOAT is intended to optimize the net benefits.

If time is limited a set of guiding questions could be used to classify the projects and you can do a democratic voting exercise. Where a fixed number of votes are given to each participant to rank the projects. Some guiding questions to help you can be:

- Which of the identified interventions is most likely to occur?
- Which is preferable to occur to maximize social welfare?
- Which is conflictive or has several major negative impacts?

Report back – 30mins

Invite the participants from each group to report back on key points. The result of this activity will be the “Water Basin Interventions” completed in the BOAT matrix (template 5). Each set of interventions is an “Alternative Basin Development Scenario”. You should consider some of the following scenarios:

1. Baseline Basin Scenario (existing water basin interventions- no cooperation)
2. Alternative Basin Development Scenarios
   a. With planned water basin interventions
   b. Without planned water basin interventions
   c. Hybrids (green and grey infrastructure) and nature based solutions
   d. Modified sets of water basin interventions

TIP: Always choose the Baseline Basin Scenario to set the starting point and then choose from 3 to 5 Alternative Basin Development Scenarios. The following valuation process effectively shows how cooperation and benefit sharing is advantageous to all stakeholders; but it is a time and energy consuming process that can be exhausting. Furthermore, in real basin applications, the cooperation agreements reached might need approval from authorities not present at the time of the workshop.
EXTRA OPTION: If time and resources allow it, make participants draw a map for each alternative development scenario since this will help visualize the interactions between proposed water basin interventions.

**Group work exercise 4: Fill in the BOAT matrix - suggested time see comments below**

The workshop should provide a significant amount of time for this because of the opportunity it provides to engender a comprehensive understanding of the case and effect relationships between the proposed water based interventions.

Completing the BOAT matrix: In the columns (first top row), place the stakeholders as mapped in Step 1. For rows (first left column), place your set of water basin interventions in each scenario. Make sure your rows follow an upstream – downstream or cause effect order.

For each scenario, consider two BOAT Matrixes (template 5). One that evaluates benefit sharing under a no-cooperation approach and the other one with a cooperation approach.

The impacts from each water basin intervention to each stakeholder, cell scores, could be evaluated in a scale of +5 (very positive) to -5 (very negative) impact, considering 0 as neutral. For visualizing purposes, cells scored with positive impacts could be coloured green, neutral impacts coloured yellow and negative impacts coloured red.

Participants will need to evaluate the non-cooperation approach under each scenario. Then, participants need to evaluate the cooperation and benefit sharing approaches to find ways to optimise outcomes to create, if possible, win-win possibilities for most stakeholders, e.g. through alternative/additional measures in project design or by substituting other project or even by combining projects into other. Each “cooperation agreement” should be noted in the comments of the BOAT Matrix.

Option: If time is limited, you could simplify the analysis scale to positive (+), neutral (0) or negative impact (-).

**Conduct a debriefing and report back session to share the process conclusions – suggested time 1-2 hours**

Invite participants to feedback on their experiences of conducting the BOAT exercises. You can also invite them to present all the alternative development scenarios in a plenary session. It can be helpful at this point to write points directly into a Powerpoint slide that is projected in the room so that all stakeholders can see what has been noted and agreed upon as next steps.
Case study: Identifying most beneficial investment projects in the Sio-Malaba-Malakisi River Basin through the application of BOAT

The Sio-Malaba-Malakisi (SMM) is a transboundary sub-basin of the Nile River with a basin population of around 4 million. The sub-basin shared between Kenya and Uganda, to the Southwest of Mount Elgon, has a wide variety of ecosystems, including lakes, rivers, forests, game reserves, and national parks that are home to a rich variety of flora and fauna of high tourism value. These characteristics also provide a great potential for social and economic development. At the same time, it is experiencing a range of urgent and intensifying challenges which include population growth, land pressure, unreliable or inadequate water services, pollution and low agricultural productivity, all in the context of intensifying climate change. A BOAT exercise was held to support local stakeholders jointly and qualitatively analyse the extent to which a particular water management and development related project, or set of projects, would have a positive, neutral or negative impact on a range of stakeholder groups, and how benefits to stakeholders could be enhanced through cooperation.

Preparatory steps:
Before the BOAT exercise could take place, a preliminary, or first SMM Stakeholder’s consultative workshop was organized, in which the participants prepared the second step of the benefit sharing process; a joint basin context assessment identifying existing benefits as well as opportunities for additional benefits from cooperation. In preparing for the second workshop and the BOAT exercise, consultants were hired to prepare background and analytical studies on the benefit paper and a full list of potential water sector (or related) investment projects in the SMM basin. Through analytical studies and stakeholder consultation a first list of 67 existing project proposals was elaborated. Applying a multi-criteria analysis, developed by and agreed upon by the basin stakeholders, the consultants prepared a shortlist of 12 projects that would fit the criteria. A full documentation of the shortlisted investment projects was prepared to be provided as part of the BOAT exercise.

During the workshop:
The Sio-Malaba-Malakisi Stakeholder Consultative workshops were attended by nearly 50 participants drawn from the EU Delegation to Uganda, the German Corporation for International Cooperation (GIZ) based in Kampala, Uganda, representatives from the Kenyan and Ugandan governments, as well as NGOs, local communities and water users from various sectors (water supply, water resources management, irrigation, energy, fisheries etc.). During the second Stakeholder’s consultative workshop, the participants were divided into four break-out groups, two for the Malaba-Malakisi sub-basin and two for the Sio sub-basin, using the BOAT to categorise the shortlisted projects by relevance and clustering them together with the aim to increase their combined positive impacts and decrease combined negative impacts. Using the BOAT tool stakeholders could balance the economic and environmental benefits and keep the sustainability of the basin in mind. The workshop identified a set of four project scenarios, each addressing a variety of stakeholders and touching on issues such as infrastructure development, catchment restoration and protection and livelihoods enhancement etc.

Results from the workshop:
The application of the BOAT tool to the real planning process for project development in the SMM lead to the formalisation of stakeholder-inclusive mechanisms in the basin. A third workshop was organised to finalise the process and prepare a strategy for resource mobilisation to support the implementation of the SMM 4 prioritized clusters of investment projects. A Joint Working Group on SMM Investment Strategy and Institutional Framework was put together, consisting of six members from each country and drawn from a wide stakeholder representation, as an interim arrangement to take the SMM process forward. Additionally, and based on these processes, an SMM Investment Plan, a Resource Mobilisation Strategy and a Financial Sustainability Strategy for the basin is currently being developed through an equally stakeholder-inclusive process.

This case study has been adapted based on available reports from and materials produced for and from the Second SMM Stakeholder Workshop (May 2018).