Freshwater ecosystems play a vital role in the lives of humans, providing critical provisioning services, the basis for economic activities, and a wide range of regulating and cultural services. In the face of development, human population growth, and increasing competition between freshwater uses and users, development must be carefully planned such that the services freshwater ecosystems provide are maintained and that irreplaceable eco-systems and species are not lost. There is a need to identify those areas that must remain intact and actively protected as “No-Go” areas.

Evaluation-based prioritization processes

Efficient freshwater ecosystem protection, as well as sustainable management and use of freshwater resources, requires adequate and timely knowledge about areas of conservation value within river systems. For good and credible decision making, such knowledge must be evaluated according to their functions and values. Such evaluation-based prioritization processes feed into integrated river basin planning and management to ensure the conservation and restoration of freshwater resources. Methods for the identification and subsequent prioritization of areas of conservation value – both terrestrial and aquatic – are increasingly available. While numerous approaches or methodologies are available to obtain credible results, there are a set of core planning principles that are critical in any freshwater prioritization process. The World Wide Fund for Nature (WWF) is developing and using such methods to identify priority areas for freshwater conservation and to contribute to guiding sustainable development and human use in river basins, while also protecting important natural assets.

Stakeholder engagement

In order to guide development and to allocate water resources in a sustainable manner, all involved planners, distributors, developers, regulators, and affected stakeholders should be aware of all possible effects and threats to existing freshwater ecosystems and collaboratively apply this knowledge into sustainable practices. The buy-in of both key decision-makers and stakeholders is necessary to achieve optimal outcomes. Indeed, stakeholder participation and transparency are critical for building support for the identified priorities. From this perspective, governments and river authorities, developers, affected stakeholders, and freshwater conservationists share the requirement for good, integrative knowledge of where freshwater-related assets lie, which rivers or river stretches should be kept free-flowing, and which can be sustainably utilized.

“Rivers for Life” Guide

WWF’s Rivers for Life Global Strategy brings together all stakeholders involved with freshwater management, providing a guide on the identification of priorities for freshwater conservation in the face of rapidly developing infrastructure. Case studies show how setting priorities can be for a valuable tool not only for conservation NGOs’ own agendas, but also for all parts of society explicitly involved in or informing decision-making processes regarding freshwater systems.

“Rivers for Life” discussions:

1. Why the identification and prioritization of “areas of conservation value” is needed
2. How (can it be done effectively, even under a number of constraints (e.g. scarcity of data, lack of institutional capacity, etc.))
3. Which outputs can be produced
4. How to effectively integrate this knowledge into river basin planning and relevant decision-making processes

Conclusions and recommendations

Rapidly developing infrastructure has led to the need for priority area conservation to ensure important freshwater ecosystems can be efficiently protected, as shown by the case studies presented in the previous chapter. In addition, such prioritization processes were also found to be useful in encouraging sound management of all rivers within the basin, regardless of their priority level, in the context of an IBRM approach such as in China, Mexico, and the Mekong.

The main characteristics of the most successful approaches were:

- Good balance between scientific work (e.g. causal methodology, involvement of experts, or thorough data analysis) and practical considerations (e.g. availability, access to data, timing, etc.)
- Involvement of key stakeholders (e.g. water agencies, national government, local communities) from the earliest possible stages to ensure ownership and secure public acceptance and effective buy-in from decision-makers
- Using the river basin as a minimum scale, even if this implies working in a transboundary context (e.g. Amazon, Mekong)
- Sustained advocacy work at highest political levels

Challenges are both scientific in nature, such as the lack of data or data availability; and practical, such as difficult access to field sites (e.g. mountain areas in India, forest cover in the Amazon), little funding or time available (e.g. India case); as well as political, including lack of political leadership, interest of stakeholder groups (e.g. Mexico case), and conflicting interests over water use.

In most cases, a scientific assessment was the initial purpose and often led to a more exhaustive stakeholder dialogue over water issues. However, the ultimate goal was in many cases the institutionalization of the “Rivers for Life” process through a high-level political process or integration into the legal framework.

There is a considerable implementation gap between recognition of the freshwater assets within a basin and application of this knowledge in practice. Globally important natural assets are increasingly under threat from unsustainable development. A plethora of international and national agreements and commitments exist that recognize biodiversity and ecosystems’ inherent value. However, few are effectively implemented. Thus, there is a need for more concerted action to ensure that such commitments become effective; this could be managed through more effective transnational coordination across sectors, adequate funding, and clear commitment at the highest political level.

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Therefore, when engaging in a prioritization plan, WWF recommends that:

- National or regional authorities in charge of water management:
  - Conduct assessments identifying freshwater areas of conservation value at the appropriate scale (including trans-boundary)
  - Ensure that identified freshwater areas of conservation value are legally-binding status
  - Support the implementation of the legal framework on freshwater areas of conservation value
  - Require Strategic Environmental Assessments for river basins and/or infrastructure development according to internationally recognized standards, the precautionary principle, and under full consideration of all valid services
  - Regularly monitor the integrity of freshwater areas of conservation value to update conservation status and adjust management, as needed

Private sector:

- Accept the precautionary principle in their approach to infrastructure development
- Recognize responsibility towards sustainable development and the conservation of critically important natural assets
- Comply with the mandatory provisions for freshwater areas of conservation value in planning procedures and approval processes
- Ensure appropriate mitigation and/or compensation measures where adverse impacts of projects cannot be avoided
- Be transparent and inclusive in project development plans

Civil society:

- Recognize responsibility in shaping a sustainable world and take the initiative accordingly
- Participate actively in stakeholder consultations during freshwater prioritization assessments/
  processing
- Support the implementation of the legal framework on freshwater areas of conservation value
- Act as a guardian of freshwater areas of conservation value by monitoring their integrity

In conclusion, WWF’s global experiences show that the identification and prioritization of areas of conservation value is a powerful tool to address river management and water infrastructure development. WWF and partners are applying prioritization approaches around the world, seeking to identify the methods exploited in the diverse requirements, situations, and resources available in individual settings and freshwater systems.
WWF case studies on setting priorities for freshwater conservation

In the various regions where WWF works, the combination of science and policy considerations has been translated differently in freshwater land use planning approaches as illustrated by the differing objectives for each case study presented.

Amazon – Hydrological Information System for Amazon River Assessments (HISS-ARA)

• Identify priority areas for biodiversity conservation from the terrestrial and aquatic perspectives
• Create a database and information system to support planners’ decision making process
• Design a framework for monitoring of future conservation actions effectiveness and impact

Australia – National Eco-Master Plan

• Protect the few remaining free-flowing rivers in Australia
• Take stock and identify assets
• Define “No-Go” rivers
• Create a database and information system to support planners’ decision making process

China – Central and Lower Yangtze River & Lake Eco-region Conservation Planning

• Prioritize WWF work
• Identify Ecologically Critical Areas in Himalayan River Basin
• Define “No-Go” rivers

Mekong – Rapid Sustainability Assessment Tool (RSAT)

• Build into existing planning tools and processes a set of interventions that will help move the Mekong countries towards adopting an agreed upon decision support system for sustainable hydropower development

Mexico – Identification of Potential Water Reserves in Mexico

• Identify watersheds that meet the necessary conditions to qualify as “Water Reserves” with the purpose of ensuring ecological flows, notably for freshwater ecosystem conservation or restoration

India – Identifying Ecologically Critical Areas in Himalayan River Basin

• Define priority areas for biodiversity conservation from the terrestrial and aquatic perspectives
• Prioritize WWF work

Austria – National Eco-Master Plan

• Reserve the few remaining free-flowing rivers in Austria
• Take stock and identify assets
• Define “No-Go” rivers

Amazon – Hydrological Information System for Amazon River Assessments (HISS-ARA)

• Identify priority areas for biodiversity conservation from the terrestrial and aquatic perspectives
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The Case for Conservation Priorities in the Face of Water Infrastructure Development

WWF’s CASE STUDIES show that identification and prioritization processes are powerful tools to address and guide river management and water infrastructural developments. WWF and partners are applying prioritization approaches around the world.

THE WATER-FOOD-ENERGY NEXUS

Defining “Gating” pressures on freshwater ecosystems: Identification and prioritization of vulnerable freshwater areas needed to maintain interactions of freshwater ecosystems are preserved.

Case Study and Textbox contributions:

• Mexico – Identification of Potential Water Reserves in Mexico
• India – Identifying Ecologically Critical Areas in Himalayan River Basin
• China – Central and Lower Yangtze River & Lake Eco-region Conservation Planning
• Australia – National Eco-Master Plan
• Amazon – Hydrological Information System for Amazon River Assessments (HISS-ARA)

Prioritization approaches and methodologies

Prioritization approaches are not stand-alone; they are guided by overall objectives, decision requirements/situations, and resources available in individual settings. Certain general principles should be included in almost any freshwater conservation plan or prioritization process.

The Face of Water Infrastructure Development

To build a future in which humans live in harmony with nature, WWF is creating an information framework to help decision makers and the public understand the connection between freshwater conservation, water infrastructure development, and the people’s need for food, energy, and water. This report aims to inform and influence decision-makers and the public to ensure that implementation of water infrastructure development is aligned with freshwater conservation goals.

Characteristics of successful approaches are:

• Reliance on scientific and practical considerations
• Involvement of key stakeholders to increase ownership and secure public acceptance and effective buy-in from decision-makers
• Using the river basin as a minimum scale
• Strong advocacy work at higher political levels

Why we are here
To stop the degradation of the planet’s natural environment and to build a future in which humans live in harmony with nature.

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Background information on the case studies, selected requirements/situations, and resources available in individual settings are provided to help decision-makers and the public understand the connection between freshwater conservation, water infrastructure development, and the people’s need for food, energy, and water.