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 that freshwater ecosystems provide are maintained and that irreplaceable ecosystems 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

Effective freshwater ecosystem protection, as well as sustainable management and use of water resources, requires adequate and timely knowledge about areas of conservation value within river systems. For good and credible decision-making, areas and river stretches of interest need to 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 sustainable use 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 in 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, decision makers, regulators, developers, financiers, and affected communities should be aware of all possible effects and threats to existing freshwater ecosystems and collaboratively apply this knowledge into sustainable practice. The buy-in of both key decision-makers and stakeholders is necessary to achieve optimal outcomes; indeed, stakeholder participation and transparency are crucial for building support for the results of the process. Ultimately, ensuring legitimacy through wide acceptance by stakeholders will increase the chance of the outputs being integrated into legal, policy, and management frameworks. From this perspective, governments and river authorities, developers, inhabitants, 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 guide Rivers for Life, intended for any and all stakeholders involved with freshwater management, provides an overview to the identification of priorities for freshwater conservation in the face of water infrastructure development. Case studies show how setting priorities can be a valuable tool not only for conservation NGOs’ own agendas, but also for all parts of society explicitly involved in or influencing decision-making processes regarding freshwater systems.

“Rivers for Life” discusses:

1. Why the identification and prioritization of “areas of conservation value“ is needed
2. How this can 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

Cover: Aerial view of the Laitaure Delta in the Rapadalen Valley with Skierffe and Nammatj Mountains, Sarek National Park, Laponia World Heritage Site, Lapland, Sweden

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 to encourage sound management of all rivers within the basin, regardless of their priority level, in the context of an IRBM 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. sound methodology, involvement of experts, or thorough data analysis) and practical considerations (resource availability, access to data, timing, etc.)
- Involvement of key stakeholders (such as, water agencies, national government, local communities) from the earliest possible stages to increase ownership and to 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 trans-boundary context (e.g. Amazon, Mekong)
- Sustained advocacy work at higher political levels

Challenges were both scientific in nature, such as the lack of data or data aggregation; and practical, such as difficult access to field sites (e.g. mountainous 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 buy-in, mistrust between 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 use. However, the ultimate goal was in many cases the institutionalization of a priority area status (e.g. for Mexico the “water reserves”, for Austria the official listing of “No-Go” rivers) 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. Critically important natural assets are increasingly under threat from unsustainable development. A plethora of multilateral and national agreements and commitments exist that recognize biodiversity and natural ecosystems’ inherent value. However, few are effectively implemented. Thus, there is thus a need for more concerted action to ensure that such commitments become practice. This could be encouraged through more effective inter-institutional coordination across sectors, adequate funding, and clear commitment at the highest political level.

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)
- Inform relevant stakeholders and involve them in freshwater prioritization assessments/processes at an early stage and obtain public acceptance
- Ensure that identified freshwater areas of conservation value obtain a legally-binding status
- Ensure enforcement of the legal and regulatory framework on priority freshwater conservation areas
- Require Strategic Environmental Assessments for river basins and/or infrastructure development according to internationally recognized standards, the precautionary principle, and under full consideration of environmental services
- Regularly monitor the integrity of freshwater areas of conservation value to update conservation status and adjust management, as needed

Private sector:

- Adopt 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
- Foresee 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/processes
- 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, tailoring the methods employed to 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 (HIS-ARA)
- Identify priority areas for biodiversity conservation from the terrestrial and aquatic perspective
- Create a database and information system to support planners' decision making process
- Design a baseline for monitoring of future conservation actions effectiveness and impact

Austria – National Eco-Master Plan
- Preserve the few remaining free-flowing rivers in Austria
- Take stock and identify assets
- Decision-making for conservation priorities
- Map free-flowing rivers and installed hydropower

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

India – Identifying Ecologically Critical Areas in Himalayan River Basin
- Preserve a representative sample of free-flowing rivers
- 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

Case Study and Textbox contributions:
Amazon Case Study & Textbox – Pedro Bara Neto and Sidney Tadeu Rodrigues (WWF Brazil),
JC Riveros Salcedo (WWF Peru), Marco Flores (WWF US)
Austria Case Study – Arno Mohl (WWF Austria)
China Case Study – Lifeng Li (WWF International)
India Case Study – Kiran Rajashekariah (WWF India)
Mekong Case Study – Marc Goichot (WWF Mekong Programme Office)
Mekong Textbox – Nikolai Sindorf and Bart Wickel (WWF US)
Mexico Case Study – Eugenio Barrios and Sergio Salinas (WWF Mexico)

Publisher WWF Deutschland, Berlin; **Date** February 2012; This summary is based on the complete version of the Guide published in October 2011 by WWF Germany.

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Editor Andrea Kraljevic **Design** Thomas Schlembach/WWF Deutschland

WWF'S CASE STUDIES

show that identification and prioritization processes are powerful tools to address and guide river management and water infrastructure development. WWF and partners are applying prioritization approaches around the world.

THE WATER-FOOD-ENERGY NEXUS

is creating increasing pressure on freshwater ecosystems. Identification and prioritization of valuable freshwater areas is needed so that vital services of freshwater ecosystems are preserved.

PRIORITIZATION APPROACHES AND METHODOLOGIES

will vary based on the overall goals, diverse requirements/situations, and resources available in individual settings. Certain general principles should be included in almost any freshwater conservation plan or prioritization process.

CHARACTERISTICS OF SUCCESSFUL APPROACHES ARE:

- Balance between scientific work 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
- Sustained 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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WWF GUIDE D 2012

SUMMARY

To download the full report, please go to:
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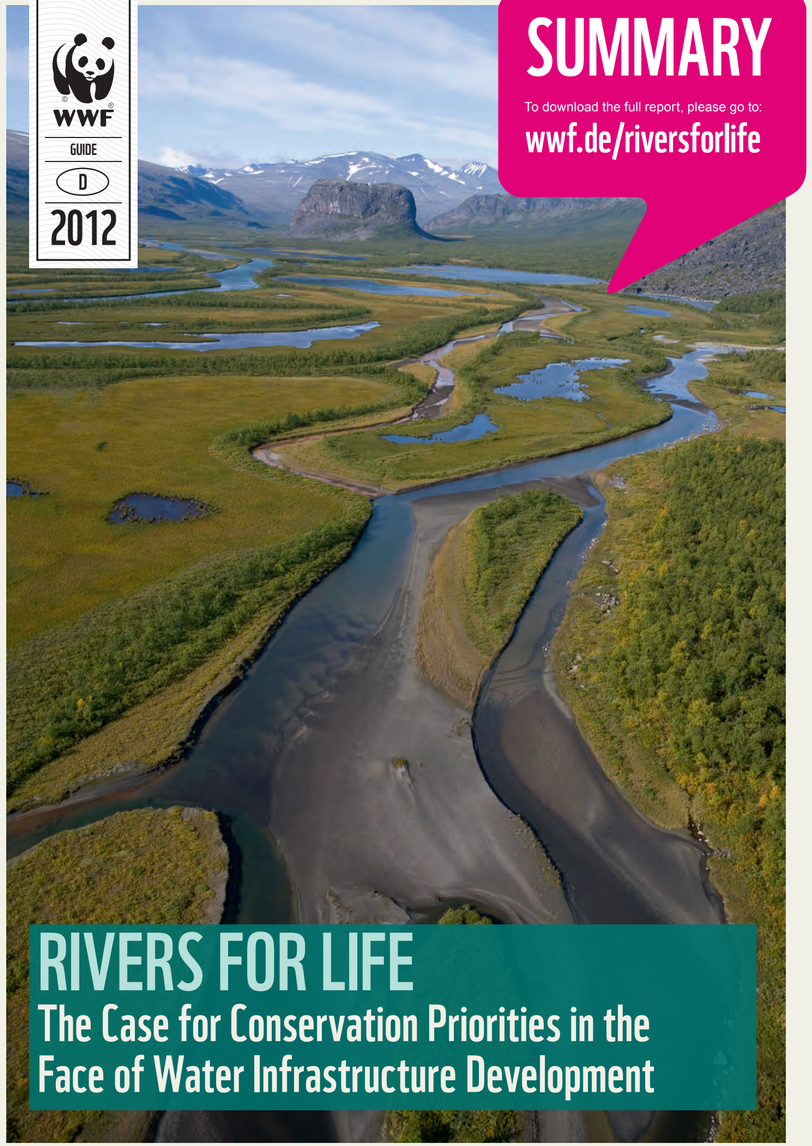

RIVERS FOR LIFE

The Case for Conservation Priorities in the Face of Water Infrastructure Development