

Ramsar
Handbooks
4th edition

Handbook 9

River basin management





About the Convention on Wetlands

The Convention on Wetlands (Ramsar, Iran, 1971) is an intergovernmental treaty whose mission is “the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world”. As of October 2010, 160 nations have joined the Convention as Contracting Parties, and more than 1900 wetlands around the world, covering over 186 million hectares, have been designated for inclusion in the Ramsar List of Wetlands of International Importance.

What are wetlands?

As defined by the Convention, wetlands include a wide variety of habitats such as marshes, peatlands, floodplains, rivers and lakes, and coastal areas such as saltmarshes, mangroves, and seagrass beds, but also coral reefs and other marine areas no deeper than six metres at low tide, as well as human-made wetlands such as waste-water treatment ponds and reservoirs.

About this series of handbooks

This series has been prepared by the Secretariat of the Convention following the 7th, 8th 9th, and 10th meetings of the Conference of the Contracting Parties (COP7, COP8, COP9 and COP10) held, respectively, in San José, Costa Rica, in May 1999, Valencia, Spain, in November 2002, Kampala, Uganda, in November 2005, and Changwon, Republic of Korea, October-November 2008. The guidelines on various matters adopted by the Parties at those and earlier COPs have been prepared as a series of handbooks to assist those with an interest in, or directly involved with, implementation of the Convention at the international, regional, national, subnational or local levels. Each handbook brings together, subject by subject, the various relevant guidances adopted by Parties, supplemented by additional material from COP information papers, case studies and other relevant publications so as to illustrate key aspects of the guidelines. The handbooks are available in the three working languages of the Convention (English, French, and Spanish).

The table on the inside back cover lists the full scope of the subjects covered by this handbook series at present. Additional handbooks will be prepared to include any further guidance adopted by future meetings of the Conference of the Contracting Parties. The Ramsar Convention promotes an integrated package of actions to ensure the conservation and wise use of wetlands. In recognition of these integrated approaches, the reader will find that within each handbook there are numerous cross-references to others in the series.

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Ramsar handbooks for the wise use of wetlands
4th edition, 2010

Handbook 9

River basin management

**Integrating wetland
conservation and
wise use into river
basin management**



This 4th edition of the Ramsar Handbooks replaces the series published in 2007. It includes relevant guidance adopted by several meetings of the Conference of the Parties, in particular COP7 (1999), COP8 (2002), COP9 (2005), and COP10 (2008), as well as selected background documents presented at these COPs.

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All Resolutions of the Ramsar COPs are available from the Convention's Web site at www.ramsar.org/resolutions. Background documents referred to in these handbooks are available at www.ramsar.org/cop7-docs, www.ramsar.org/cop8-docs, www.ramsar.org/cop9-docs, and www.ramsar.org/cop10-docs.

Getting the most out of this Handbook

The Handbooks in general

The purpose of the Ramsar Handbooks is to organize guidance material from relevant decisions adopted by the Contracting Parties over the years, according to subject themes. This helps practitioners to implement the internationally-agreed best practice in a way that is convenient to handle and more naturally matches their own everyday working environment.

The intended readership includes national and local staff of the government departments, ministries and agencies that act as Administrative Authorities for the Ramsar Convention in each country. Equally important users in many cases are managers of individual wetland areas, as some aspects of the guidance relate specifically to site management.

The Ramsar guidance has been adopted by member governments as a whole, and increasingly it addresses itself to the crucial roles of other sectors beyond the “environment” or “water” sectors. It is thus very important that these Handbooks should be used by **all** whose actions may benefit from or impact upon the wise use of wetlands.

A vital first step in each country therefore is to ensure adequate **dissemination** of these Handbooks to all who need or can benefit from them. Copies are freely available in PDF format from the Ramsar Secretariat in three languages on CD-ROM or by download from the Convention website (www.ramsar.org).

Other early steps would be, in each particular context, to **clarify** lines of responsibility and **actively check** how to align the terms used and approaches described with the reader’s own jurisdiction, operating circumstances, and organizational structures.

Much of the text can be used in a **proactive sense**, as a basis for framing policies, plans and activities, sometimes by simply importing relevant sections into national and local materials. It can also be used in a **reactive sense** as a source of help and ideas for responding to problems and opportunities, navigating subjects by the need of the user.

Cross-references, original sources, and further reading are liberally cited: the Handbooks will often not be the “last word”, but they provide a helpful “route-map” to further sources of information and support.

Strategic direction in the Ramsar Convention is provided by the Strategic Plan, the latest version of which was adopted by COP10 in 2008 for the period 2009-2015. All thematic implementation frameworks, including the Handbooks, sit within the context of the goals and strategies of this Plan and the priorities it highlights for the period covered.

In this fourth edition of the Handbooks, additions to and omissions from the text of the original guidelines, required by the results of COP8, COP9 and COP10, are shown in square brackets [...].

The Handbook series is updated after each meeting of the Conference of the Parties, and feedback on user experience is always appreciated in helping to refine each new edition.

This Handbook (River basin management)

Strategy 1.7 of the Strategic Plan 2009-2015 is to “ensure that policies and implementation of Integrated Water Resources Management (IWRM), applying an ecosystem-based approach, are included in the planning activities in all Contracting Parties and in their decision-making processes, particularly concerning ... catchment/river basin management”, and includes the Key Result Area (to be achieved by 2015) 1.7.ii, as follows: “All Parties, in their water governance and management, to be managing wetlands as natural water infrastructure integral to water resource management at the scale of river basins”.

Strategy 3.5 on “Shared wetlands, river basins and migratory species” includes KRAs 3.5.i: “Where appropriate, all Parties to have identified their shared wetlands, river basins and migratory species, and Parties to have identified collaborative management mechanisms with one another for those shared wetlands and river basins” and 3.5.ii: “Where appropriate, Parties with shared basins and coastal systems to consider participation in joint management commissions or authorities”.

The text in this Handbook is drawn mainly from Resolution X.19 and its Annex, and the substance of it thus reflects formal decisions adopted by the Conference of Contracting Parties. The Handbook also brings together additional information relevant to this issue. The views expressed in this additional information do not necessarily reflect the views of the Ramsar Secretariat or the Contracting Parties, and such additional materials have not been endorsed by the Conference of the Contracting Parties.



A peat-lined tributary of the Yarghoon River near Lashkargahaz, North West Frontier Province, Pakistan (elevation 3,649 meters). *Photo: Hassan Zaki / WWF Pakistan.*

Acknowledgements

The effort to prepare the guidelines in this Handbook was enormous and would not have been possible without the collaboration of many individuals and institutions who shared both their knowledge and their ideas.

The Ramsar Secretariat gratefully acknowledges the work of Mr Faizal Parish and Ms Suzana Mohkeri of the Global Environment Network and members of the Task Force that developed the original 1999 Guidelines, which have been incorporated into this Handbook. The original Guidelines were adopted as the Annex to Resolution VII.18 at the 7th meeting of the Conference of the Contracting Parties (COP7), San José, Costa Rica, in 1999, with the version presented here now including updates and revisions adopted by subsequent COPs. That project was financially supported by the Secretariat with additional funding from the Department for International Development (DFID) of the U.K.

The Secretariat also gratefully acknowledges the contributions of the Water Research Commission of South Africa, WWF South Africa, and the Living Waters Programme of WWF International, with funding from DGIS Netherlands, in supporting the project to develop the “Critical Path” approach on which the additional guidance was based. The additional guidance was presented in Resolution IX.1 Annex (Ci). The Secretariat and the Scientific and Technical Review Panel (STRP) extend their thanks to the project leader, Dr Chris Dickens of Umgeni Water, and the project team, to the members of the STRP working group on water for the 2003-2005 triennium, as well as to STRP members and Ramsar International Organization Partners for their valuable comments and advice during the development of the additional guidance. Special thanks go to Heather Mackay, then of the Water Research Commission of South Africa, for leading the preparation of several parts of this Handbook.

Foreword

The Convention on Wetlands formally identified the need to integrate wetlands into river basin management at the 6th meeting of the Conference of the Contracting Parties (COP6) in 1996 through Resolution VI.23 on *Ramsar and water*. This Resolution recognized “the important hydrological functions of wetlands, including groundwater recharge, water quality improvement and flood alleviation, and the inextricable link between water resources and wetlands” and realised “the need for planning at the river basin scale which involves integration of water resource management and wetland conservation”. The Strategic Plan for 1997-2002, approved at COP6, urged the Contracting Parties to “to integrate conservation and wise use of wetlands into decision-making on land use, groundwater management, catchment/river basin and coastal zone planning”. However, no clear guidelines were available at that time to assist the Parties in this direction until the 7th meeting of the Conference of the Contracting Parties in 1999, in which was adopted Resolution VII.18 *Guidelines for integrating wetland conservation and wise use into river basin management* and its associated Annex. Following the adoption of Resolution VII.18 and its Annex, the STRP was requested to “review case studies ... and prepare additional guidance (as necessary) on integrating wetlands, biodiversity and river basin management” (Strategic Plan 2003-2008: Operational Objective 3.4.3).

Additional guidance contained in Resolution IX.1 Annex C(i) provided more detail on sequencing river basin management activities. During the 2006-2008 triennium, further work was carried out by the Scientific and Technical Review Panel (STRP) to collate and analyse case studies of integration of wetlands into river basin management against the analytical framework presented in Resolution IX.1 Annex C(i). COP10 in 2008 then adopted Resolution X.19, which updated and consolidated all of the earlier guidance material, drew in aspects of the “lessons learned” from the analysis of case studies, and entirely superseded and replaced the guidance adopted by the earlier Resolutions. Further case study material has now been incorporated into the 4th edition of this Handbook.

Consolidated Guidance for integrating wetland conservation and wise use into river basin management

(adopted as the Annex to Resolution X.19 by the 10th meeting of the Conference of the Contracting Parties, Changwon, Republic of Korea, 2008)

Relevant implementation commitments made by Contracting Parties in COP Resolutions

Resolution IX.3: Engagement of the Ramsar Convention on Wetlands in ongoing multilateral processes dealing with water

THE CONFERENCE OF THE CONTRACTING PARTIES

13. AFFIRMS that the conservation and wise use of wetlands is critical for the provision of water for people and nature, and that wetlands are a source, as well as a user, of water, in addition to supplying a range of other ecosystem benefits/services;
15. CALLS on Contracting Parties to bring Resolutions VI.23, VII.18, VIII.1, and COP9 Resolution IX.1 Annex C and its appendices and the "Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands" (Ramsar Handbook 12) to the attention of national, regional and local authorities in charge of water management for their integration into, and their multisectoral implementation through, national Integrated Water Resources Management plans so as to include an ecosystem approach consistent with the Ramsar Convention.

Resolution X.19: Wetlands and river basin management: consolidated scientific and technical guidance

THE CONFERENCE OF THE CONTRACTING PARTIES

5. NOTES the "Consolidated Guidance for integrating wetland conservation and wise use into river basin management" provided in the annex to this Resolution, and INVITES Contracting Parties to make good use of it as appropriate, adapting it as necessary to suit national conditions and circumstances, within the frameworks of existing regional initiatives and commitments, in the context of sustainable development and in accordance with national institutions and legal frameworks;
7. INVITES Contracting Parties to draw this "Consolidated Guidance for integrating wetland conservation and wise use into river basin management" to the attention of all relevant stakeholders, including inter alia government ministries, departments and agencies, water and basin management agencies, non-governmental organizations, and civil society, and FURTHER INVITES Contracting Parties to encourage these stakeholders to take these guidelines into account, together with those of the Ramsar Toolkit of Wise Use Handbooks, in their decision-making and activities that relate to the delivery of the wise use of wetlands through the maintenance of their ecological character.

Explanatory Note: The terms "shared river basins" and "transboundary river basins" have both been used in previous Ramsar Resolutions, and both are in wide usage in different parts of the world. For the purposes of this guidance, the term "shared" is used to refer to river basins in which ground water and surface water flow across or between two or more countries. However, the term "transboundary" river basins is also commonly used to describe river basins whose management is shared by different administrative units, for example between two or more local authorities, within the same country. In this guidance, it is used in this sense. The use of these expressions and the aforementioned explanation does not imply acceptance by all Parties [and differs from the use in

designating Transboundary Ramsar Sites]. The reading of this guidance shall be in accordance with Principle 2 of the Rio Declaration.

1. Guidance given by the Convention text and previous decisions of the Conference of the Contracting Parties

1. The critical linkage between wetlands, water and river basin management is emphasized in the text of the Convention on Wetlands and in the decisions of the Contracting Parties at the triennial conferences. Notably the second paragraph of the Preamble of the Convention text states: “Considering the fundamental ecological functions of wetlands as regulators of water regimes”, and the 6th meeting of the Conference of the Contracting Parties (COP6, 1996) confirmed through Resolution VI.23 on *Ramsar and Water* that Contracting Parties “RECOGNIZE the important hydrological functions of wetlands, including groundwater recharge, water quality improvement and flood alleviation, and the inextricable link between water resources and wetlands, and REALIZE the need for planning at the river basin scale which involves integration of water resources management and wetland conservation.”
2. Resolution VI.23 further called upon Parties, in promoting the integration of water resource management and wetland conservation, to undertake a range of actions (including the establishment of hydrological monitoring networks on wetlands, studies of traditional water management systems, and economic valuation methods) to involve National Ramsar Committees and local stakeholders in river basin management, support multidisciplinary training, and work in partnership with water-related organizations.
3. Resolution VII.18 (1999) on *Guidelines for integrating wetland conservation and wise use into river basin management* noted the increasing demands being placed upon freshwater resources in many parts of the world, highlighted the importance placed on freshwater resources by the United Nations Commission on Sustainable Development, and recognized that “wetlands, because of their ecological and hydrological functions, are an intrinsic part of the overall water resource system and should be managed as such”. Parties were urged to apply, through integrated approaches, the guidance annexed to Resolution VII.18 within river basins in their own territories as well as in those river basins shared with neighbouring countries.
4. Resolution IX.1 Annex C(i) (2005), *Additional guidance and a framework for the analysis of case studies*, provided further advice on sequencing some of the actions set out in Resolution VII.18 related to integration of wetlands into river basin management. During the 2006-2008 triennium, further work was carried out by the Scientific and Technical Review Panel (STRP) to collate and analyse case studies of integration of wetlands into river basin management against the analytical framework presented in Resolution IX.1 Annex C(i). The “lessons learned” from the analysis of case studies have been drawn into the consolidated guidance (this document) to provide additional detail and refinement of some aspects of the existing guidance.
5. The *Framework for Ramsar’s water-related guidance* was adopted in 2005 as Annex C to Resolution IX.1 (also available as Ramsar Wise Use Handbook [8, 4th edition], Ramsar Convention Secretariat, [2010]). In addition to

providing an overview of the full suite of Ramsar's water-related guidance, the Framework contains detailed discussion of the role of wetland ecosystems and wetland management in Integrated Water Resources Management (IWRM). The Framework also contains a set of principles for the development and implementation of Ramsar's water-related guidance, which apply, *inter alia*, to the guidance related to river basin management.

6. Operational Objective 2.2 of the Strategic Plan 1997-2002 approved at COP6 urged Parties "to integrate conservation and wise use of wetlands . . . into national, provincial and local planning and decision making on land use, groundwater management, catchment/river basin and coastal zone planning and all other environmental management". This was reiterated in Operational Objective 3.4 of the Strategic Plan 2003-2008. Operational Objective 12.1 of the 2003-2008 Strategic Plan also urged Parties to apply the guidelines in Resolution VII.18 in international cooperation related to management of shared wetlands.
7. Following on from the findings of the Millennium Ecosystem Assessment (MA, 2005), it is recognized in the Ramsar Strategic Plan for 2009-2015 that [increasing demands for water abstraction, and a lack of appreciation of the value of wetlands (including their role in the global hydrological cycle), are key contributing factors in the continued change, deterioration and loss of wetlands and their services. The importance of wetlands as sources of freshwater is highlighted in both the MA (2005) Wetlands Synthesis and the Strategic Plan 2009-2015, and the need for ecosystem-based approaches to policy and decision-making is emphasised.
8. Strategy 1.7 of the Strategic Plan 2009-2015 addresses the need to ensure that policies and implementation of Integrated Water Resource Management, applying an ecosystem-based approach, are included in the planning activities in all Contracting Parties and in their decision-making processes, particularly concerning groundwater management, catchment/river basin management, coastal and nearshore marine zone planning, and climate change mitigation and/or adaptation activities.
9. This Consolidated Guidance supersedes and entirely replaces the guidance contained in the Annex to Resolution VII.18 and in Annex C(i) to Resolution IX.1.

2. Introduction

2.1 The importance of wetlands for water and water-related ecosystem services

10. Wetlands provide a wide range of ecosystem services that contribute to human well-being, such as fish and fibre, water supply, maintenance of water quality, climate regulation, flood regulation, coastal protection, and recreation and tourism opportunities (MA, 2005). Wetlands are also critical for the conservation of biological diversity. There is increasing recognition of the value of these functions and other ecosystem services provided by wetlands. In particular, wetlands are vitally important for providing the regulating and supporting ecosystem services that underpin water resources management, and can thus be considered as essential components of overall

water infrastructure (Emerton & Bos, 2004). However, this importance was not always adequately reflected in water resources planning and management in the past.

11. The degradation and loss of wetlands is more rapid than that of other ecosystems. Primary direct drivers of degradation and loss of wetlands include “infrastructure development, land conversion, water withdrawal, eutrophication and pollution, over-harvesting and over-exploitation, and the introduction of invasive alien species” (MA, 2005). Degradation and loss of wetlands, and rapid changes in the river basins of which these wetlands are integral elements, has led to the disruption of natural hydrological cycles. In many cases this has resulted in greater frequency and severity of flooding, drought and pollution. The degradation and loss of wetlands and their biodiversity imposes major economic and social losses and costs to the human populations of these river basins through the loss of previously accessible wetland ecosystem services.
12. Demands on water resources continue to increase, as do the levels of pollutants. Water scarcity and limited or reduced access to water for domestic, agricultural and industrial uses are “key factors limiting development in many countries” (MA, 2005; CA, 2007). Global climate change is likely to exacerbate these problems. Water resource developments intended to address such problems can negatively impact on other services provided by wetlands. Proper consideration of the role and importance of wetlands in river basin management can greatly assist in securing safe, reliable sources of water and meeting sustainable development objectives such as the Millennium Development Goals. Hence the integration of wetland conservation and wise use into river basin management, as promoted by the Ramsar Convention, is essential to sustain the important ecosystem services associated with both wetlands and river basins and the benefits they provide to human populations.
13. River basins or river catchments (the land area between the source and the mouth of a river, including all of the lands that drain into the river) and coastal and marine systems influenced by catchment discharges are important geographical units for considering the management of wetlands and water resources. Wetlands play critical roles in river basin management and, conversely, land and water-related human activities within river basins can have very significant influences on the ecological character of wetlands in those basins.

2.2 Development of the Convention’s guidance on river basin management

14. The Convention’s guidance for integrating wetlands into river basin management is intended to help wetland managers to participate in and influence river basin planning and management, in order to ensure that the values and needs of wetland ecosystems are adequately integrated into river basin processes. While this guidance is intended primarily for the Contracting Parties to the Ramsar Convention, it will be of use to anyone with an interest in the ‘holistic’ approach to the management of wetlands. This approach, recognizing that wetlands are integral parts of river basins, requires that managers and planners focus at the river basin level in developing effective management strategies.

15. The move towards the integration of wetlands and wetland water requirements into water sector planning and activities has only been initiated formally in most countries since the mid-1990s, concurrently with wider adoption and application of Integrated Water Resources Management (IWRM) approaches, as advocated in, for example, the Implementation Plan of the 2002 Johannesburg World Summit on Sustainable Development (United Nations, 2002).
16. Yet awareness of the need for this integration has been growing for a long time in the water, environment, and wetland communities (see, for example, the Dublin Principles (Dublin Statement on Water and Sustainable Development, 1992) and Agenda 21 (United Nations, 1993)). This awareness was reflected in Resolution VI.23 (*Ramsar and water*) and was taken up in several Operational Objectives in the Convention's 1997-2002 Strategic Plan. In order to support implementation of Resolution VI.23 and the 1997-2002 Strategic Plan, Contracting Parties then requested the preparation of scientific and technical guidance for integrating wetlands into river basin management, resulting in the adoption of Resolution VII.18 (*Guidelines for integrating wetland conservation and wise use into river basin management*).
17. The *Integrated Framework for the Convention's water-related guidance* (Resolution IX.1 Annex C; Ramsar Wise Use Handbook [8, 4th edition, 2010]) provided an overview of the relationships between wetlands, water resources management, and river basin management. The Framework described in some detail:
 - the links between wetland ecosystems and water resources management, through the hydrological cycle;
 - the importance of integrating the protection and wise use of wetlands into both river basin and water resources planning and management; and
 - the role of the Ramsar Convention's Contracting Parties in implementing IRBM and IWRM approaches.
18. The guidance in Resolution VII.18 described, in some detail, the different policy, planning, and management activities that are needed at national and river basin levels in order to support more effective integration of wetlands into river basin management.
19. Subsequent review of recent experiences of wetland management and protection in the context of river basin management has led to the growing recognition that there is a certain degree of sequencing required between planning and management activities at river basin level and at individual wetland or site level. A generic sequence based on an approach called the "Critical Path" (Dickens *et al*, 2004) was described in the additional guidance on integration of wetlands into river basin management, adopted as Resolution IX.1 Annex C(i) in 2005.
20. After COP9 in 2005, the STRP undertook a project to collate and analyse a range of case studies related to integration of wetlands into river basin planning and management. The results of this project are described in [a forthcoming] Ramsar Technical Report. Not all of the case studies covered in that Ramsar Technical Report explicitly described examples of application of the Convention's river basin management guidance, since the guidance

See also Handbook 8, Water-related guidance

was still relatively new. However, the case studies did provide valuable examples and learning related to:

- specific activities covered in the Convention's river basin management guidance, and
 - typical obstacles to implementation that can arise if the sequence of activities is not adequately addressed.
21. The Convention's pieces of existing guidance related to river basin management (Resolution VII.18 and Resolution IX.1 Annex C(i)) were included together in Volume 7 of the Wise Use Handbooks, 3rd edition, 2007. These two previous guidances have now been fully integrated and supplemented with additional information and guidance derived from the case studies, and they form this Consolidated Guidance.
 22. It is important to note that, in this Consolidated Guidance, the term "river basin management" encompasses planning as well as implementation activities. Both kinds of activities are critical to successful river basin management, and both are usually undertaken at various levels, including national level (and international level in shared river basins), river basin level, and local or community levels. Planning activities may include assessment, modeling and scenario generation, negotiation, decision-making, scheduling, budgeting and programme design. Implementation activities may include management actions such as modified agricultural practices, restoration of ecosystems, cleanup and rehabilitation of contaminated sites, operation of dams and water storage facilities, regulation and enforcement of laws, monitoring and reporting.

2.3 Understanding integration in the context of Ramsar, wetlands, and river basin management

Wetlands and Integrated River Basin Management

23. Wetlands are the primary resources from which water and all its benefits for humans are derived, and they are a major and critical component of the hydrological cycle that keeps us supplied with water. The protection and wise use of wetlands, and recognition of their role and value, are essential aspects of water resources planning and management.
24. Recent development and application of Integrated Water Resources Management (IWRM) and Integrated River Basin Management (IRBM) approaches, while initially being led by water sector policy in order to ensure the protection and sustainable development of water resources, has offered a significant opportunity for the wetlands sector to engage with the water sector and land use sectors at river basin level.
25. Definitions of IWRM and IRBM are many and varied, but most reflect the principal philosophy of coordinated, collaborative decision-making across multiple land and water use sectors on multiple, connected scales, in order to ensure that the social and economic benefits of land and water resource use can be sustained and shared equitably, while still protecting vital ecosystems and their services.
26. Some descriptions of IWRM reflect a narrower perspective, i.e., with a primary focus on managing the actual water component of water resources

Additional Information

Definitions of Integrated Water Resource (IWRM) and Integrated River Basin Management (IRBM)

World Bank definition of IWRM:

An integrated water resources perspective ensures that social, economic, environmental and technical dimensions are taken into account in the management and development of water resources. Source: <http://web.worldbank.org/>.

CAPNet definition of IWRM:

The UN Programme on Capacity Building for Integrated Water Resources Management describes IWRM as a “systematic process for the sustainable development, allocation and monitoring of water resource use in the context of social, economic and environmental objectives.” Source: CAPNet Tutorial on Integrated Water Resources Management, http://www.archive.cap-net.org/iwrm_tutorial/p_2_1.htm.

Global Water Partnership definition of IWRM:

The GWP says that Integrated Water Resources Management may be defined as: a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Source: Integrated Water Resources Management - GWP Technical Committee (TEC) Background Paper No. 4, cited in <http://www.gwpforum.org/gwp/library/TEC10.pdf>.

World Water Forum description of IWRM:

IWRM is described as an incremental and adaptive policy approach that seeks the coordinated development and management of water, land and related resources. Source: 4th World Water Forum Synthesis Report http://www.worldwatercouncil.org/fileadmin/wwc/World_Water_Forum/WWF4/synthesis_sept06.pdf.

WWF description of IRBM:

The WWF describes Integrated River Basin Management as the process of coordinating conservation, management and development of water, land and related resources across sectors within a given river basin, in order to maximise the economic and social benefits derived from water resources in an equitable manner while preserving and, where necessary, restoring freshwater ecosystems. Source: http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/rivers/irbm/index.cfm.

within a catchment or basin, while still recognizing the need to consider land use influences on the quantity, quality and reliability of water supplies. The concept of integrated river basin management, on the other hand, offers a somewhat broader perspective, i.e., considering the need to protect and manage the ecosystem services provided by both land and water resources within a river basin, and also recognizing the interdependence of these land-based and water-related ecosystem services as they are linked through the hydrological cycle.

27. For the purposes of the Ramsar Convention, the broader perspective offered by use of the term IRBM is more appropriate, since this term clearly includes both land and water aspects and allows management to address the role that

wetland ecosystems play as the connecting links between land and water systems in a river basin.

*See also Handbook
11, Managing
groundwater*

28. It is important to note here that the term “river basin” encompasses the surface and subsurface water resources, soil and land resources, wetlands and associated ecosystems, including those coastal and nearshore marine systems that are hydrologically or ecologically linked to the river basin. The catchment areas of groundwater resources in the river basin may not always coincide with the boundaries of surface water catchment areas, and this should be considered in defining the extent of a river basin for management and administrative purposes.
29. In this guidance, references to “the water sector” include those institutions, groups, agencies and organizations, public or private, that are responsible for regulatory, operational and institutional aspects of water policy, planning and regulation; water infrastructure development, operation and maintenance; water allocation and permitting; water treatment and supply; wastewater management, treatment and discharge; water quality management; CEPA [(Communication, Education, Participation and Awareness)] and extension services.
30. References to “the wetlands sector” generally include those institutions, groups, agencies and organizations, public or private, that are involved in some way in promoting or implementing wise use of wetlands. Their responsibilities and interests may encompass regulatory, operational or institutional aspects of wetland management, such as conservation, restoration, oversight and enforcement of compliance with regulations related to protection and management of wetlands, CEPA, policy and planning.
31. Experiences from several countries have shown that poorly integrated or strongly single-sector approaches to water resources management frequently lead to significant degradation of wetland ecosystems within a river basin, which in turn affects the productivity and accessibility of land and water resources in the basin, as well as the associated ecosystem services. This observation is also applicable to the case studies described in [the forthcoming Ramsar Technical Report on river basin management case studies].
32. While it is not essential for a Contracting Party to be formally and actively implementing IWRM or IRBM approaches in order to be able to integrate wetland conservation and wise use into river basin management, it does help a great deal to have enabling national policy or legislation in place that supports implementation of IWRM or IRBM approaches.
33. Just the commitment, however, to consider wetland water requirements in water resources management can be a significant first step in moving towards more integrated approaches that encompass land, water and wetlands within the management of river basins. This first step can often catalyse development and application of IWRM and IRBM approaches, since wetlands themselves are integrative in two ways:

- The nature of wetlands as connectors between land and water systems means that considering wetlands in water management is an integrative step.
- The critical importance of wetlands to all sectors of society through the provision of water-related ecosystem services means that people will need to share the benefits of wetlands, and so will need to come together over wetlands, whether in conflict or in consensus, and this offers opportunities for integration between different sectors and interest groups.

Ramsar and Integrated River Basin Management

See also Handbook
10, Water allocation
and management

34. It has long been recognized, and is incorporated in all of Ramsar's guidance on wetland management planning, notably through Resolution VIII.14 (2002) and Ramsar Handbook [18, 4th edition 2010] (*Managing wetlands*), that land uses in and around a wetland should be managed and planned in a way that is consistent with wise use objectives for the wetland itself.
35. Until recently, however, the equivalent water uses within, upstream of, and downstream of, a wetland have not always been given sufficient attention – rather they have been considered an external driving force more or less beyond the control of wetland managers. Ramsar Contracting Parties adopted Resolution VIII.1 (*Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands*) in 2002, which provided guidance for wetland managers to engage more formally with the water sector in determining and assuring water allocations for wetlands ecosystems, and this represents a significant step forward in the process of integrating wetland needs into water resources planning and management.
36. Ultimately, in order to support the wise use of wetlands, management of wetlands must be undertaken within the context of their larger surrounding "waterscape" (the river basin or catchment, including the hydrological processes and functions within the basin or catchment) as well their larger surrounding landscape.
37. In the longer term, it is not sufficient to integrate wetland management objectives into land use management plans; they should also be integrated into water resource management plans. In turn, land and water resource management plans need to be integrated to ensure that these plans reflect common, agreed objectives for the wetlands in a river basin. Water-related management objectives for wetlands in a river basin should preferably be "hard-wired" into the business plans and operational plans of the relevant water and land management agencies, to ensure that wetland objectives are fully realized. The aim should be to match water resources strategies with land use strategies, so that these can be implemented jointly to support the maintenance of healthy, functional wetlands that provide a full range of benefits and services for people, including water supply.
38. Ramsar's water-related guidance is not intended to lead or drive the formulation and implementation of core water sector policy regarding water allocation, water supply and water resources management. Nevertheless, Contracting Parties should apply this guidance:

- at international level, to promote the integration of wetlands into the management of shared river basins;
- at national level, to establish processes for cross-sectoral planning and harmonization of policy objectives and to raise awareness about the role and value of wetlands in river basin management;
- in their water sector institutions, to establish a supportive policy, legislative and institutional environment for implementing RBM that properly integrates wetlands; and
- in their wetlands sector institutions, to ensure that the wetlands sector has the capacity, resources and information to participate meaningfully in river basin management planning, decision-making, and implementation.

2.4 Guiding principles for integrating wetlands into river basin management

39. A set of guiding principles was set out in the guidance annexed to Resolution VIII.1 (*Water allocation and management for maintaining the ecological functions of wetlands*) and in the *Integrated Framework for Ramsar's water-related guidance* (Ramsar Handbook [8, 4th edition]). These principles have been defined not only through analysis of previous policy documents adopted by the Ramsar Convention, but also by reference to IWRM principles developed by other international organizations and initiatives.
40. Parties should note the following guiding principles:

Guidelines Box A. Principles for integration of the conservation and wise use of wetlands into river basin management

Contracting Parties should apply these guiding principles in initiating and implementing river basin management approaches into which wetland conservation and wise use are integrated.

- A1. **Sustainability as a goal.** Adequate protection from the impacts of land and water uses within and beyond a river basin should be provided in order to sustain the functioning of wetland ecosystems, respecting their natural dynamics for the benefit of future generations. This protection includes the provision of water allocations for wetland ecosystems.
- A2. **Clarity of process.** The process by which decisions are made on the management of river basins, including the allocation and management of water and wetlands, should be clear to all stakeholders.
- A3. **Equity in participation and decision-making factors.** There should be equity for different stakeholders in their participation in river basin management, including in land use, water allocation, and water management decisions related to wetlands.
- A4. **Credibility of science.** Scientific methods used to support land use and water management decisions related to wetlands, including water allocations to meet environmental water requirements of wetlands, should be credible and supported by review from the scientific community.

- A5. **Transparency in implementation.** Once plans and procedures for river basin management, water allocation and water management decisions related to wetlands have been defined and agreed, it is important that they are seen to be implemented correctly.
- A6. **Flexibility of management.** Like many ecosystems, wetlands are characterized by complexity, changing conditions and uncertainty. It is essential that an adaptive management strategy be adopted, which requires plans that can be changed as new information or understanding comes to light.
- A7. **Accountability for decisions.** Decision-makers should be accountable. If agreed procedures are not followed or subjective decisions can be shown to be contrary to the spirit of the above principles, then decision-makers should provide a full explanation. Stakeholders should have recourse to an independent body if they feel that procedures have not been followed.
- A8. **Cross-sectoral cooperation in policy development and implementation.** All of the public sector agencies with responsibilities for activities or policies that influence land, water and wetlands within river basins should commit themselves to cooperative processes of consultation and joint setting of policy objectives, at national level as well as at river basin level.

Source: Resolution VIII.1 and Ramsar Wise Use Handbook Vol [8, 4th edition (2010)]

2.5 Improving the integration of wetlands in river basin management

41. As mentioned above, the aim of river basin management should be to match water resources strategies with land use strategies, so that these can be implemented jointly to support the maintenance of healthy, functional wetlands that provide a full range of services for people, including water supply.
42. A clear, understandable and sequential process for river basin management planning and implementation provides opportunities for wetland managers to formulate their inputs appropriately and to engage with civil society, land and water users, water resource planners and managers as well as with their counterparts in land use sectors. The exact sequence is perhaps less important than the fact that there is a formal, organized and transparent process established, with which all relevant sectors and groups can engage. The Convention's guidance on integrating wetlands into river basin management is set out in the framework of such a sequential process, the so-called "Critical Path" approach, described in detail in this Consolidated Guidance.
43. In summary, to improve the integration of wetlands into river basin management, attention needs to focus on three major areas of activity:
- A supportive policy, legislative and institutional environment that promotes cooperation between sectors and sectoral institutions and amongst stakeholder groups;
 - Communication, education, participation and awareness (CEPA) programmes to support communication of policy and operational needs and objectives across different sectors, primarily the water and wetlands sectors, and amongst different stakeholder groups;

Additional Information

Challenges associated with integrating wetlands into river basin management

Whilst several countries have achieved good results in integrating wetland management and water resources management at the local, site or sub-basin level, successful upscaling of these approaches to the basin level has generally proved difficult, though not impossible. Experiences based on a range of recent case studies, including those in the [forthcoming] Ramsar Technical Report on RBM case studies, have provided some useful lessons and insights into the generic challenges of upscaling and implementing river basin management approaches into which wetlands are integrated.

Difficulties in implementation of wetland management plans often occur when higher-level water resources planning, management and water allocation issues have not been addressed adequately prior to the design and implementation of wetland management plans. Conversely, some problems in river basin management, such as deteriorating water quality or changes in flooding patterns, can have their origins in a failure to adequately address the importance of wetland ecosystems in the early stages of river basin planning.

Obstacles to upscaling (i.e., from local to river basin level) can arise from insufficient attention to:

- providing an enabling policy, legislative and institutional environment at national and river basin levels, and
- establishing and promoting mechanisms for cross-sectoral and multi-stakeholder dialogue, decision making, and setting of policy objectives.

Obstacles to implementation of management plans can arise from:

- insufficient attention to sequencing the river basin management activities described in Resolution VII.18 (1999).

Obstacles to both upscaling and implementing wetland or river basin management plans can arise from:

- weaknesses in multi-stakeholder processes of consultation, consensus-seeking and decision-making. Such weaknesses generally arise when communication, education, participation and awareness (CEPA) programmes are not properly designed into river basin management planning and ongoing implementation, or are not adequately supported by funding and technical resources.

At river basin level, some challenges are related to operational issues such as local zoning, water allocations, and land use practices. Planning and management need to be flexible, with implementation mechanisms that allow responsible sectoral agencies to respond to local river basin priorities while remaining consistent with national policy and planning frameworks.

It is also important to ensure that connections between national and river basin levels can operate in both directions. In some cases, national level policy, legislation, regulation and institutions are needed in order for river basin management initiatives to begin and to proceed at basin level. In other cases, plans and decisions made at basin level may need policy or regulatory responses at national level to support implementation, for example, declaration of

certain wetlands as national or international protected areas in order to protect these wetlands and their services for the river basin.

Individual land and water users as well as communities may be reluctant to participate in implementation of management plans if they have not previously participated in the development of these plans and had some say in the setting of their objectives. At sectoral level, insufficient communication among various responsible agencies and institutions, allied with weak bureaucratic processes for cross-sectoral cooperation, can lead to conflicting sectoral policies at river basin and national levels, again creating obstacles to implementation of river basin management plans and wetland management plans.

Source: forthcoming Ramsar Technical Report on RBM case studies

- Sequencing and synchronization of planning and management activities in different sectors responsible for land use, water resources and wetlands.

3. Integrating wetlands into river basin management: overview of the scientific and technical guidance

3.1 The “Critical Path” approach

44. The cyclical, so-called “Critical Path” approach to integrating wetlands into river basin management evolved out of many experiences of the obstacles to implementation of the protection, management and wise use of individual wetlands at site level. Additional experience from implementation of environmental flows concepts and policies has also brought the recognition that there is a certain degree of sequencing required, between planning and management activities at river basin level and between management and user activities at individual wetland or site level. Activities need to be progressively initiated and completed, in time and through scales from basin scale down to site scale, in order to ensure the successful management and wise use of wetlands.
45. These obstacles and issues are common to many countries and many wetland situations. It appears from experience that failure to implement management plans, and thus to achieve wise use objectives for individual wetlands, has often occurred when broader water resources planning, management and water allocation issues have not been adequately addressed in management plans for individual wetlands or groups of wetlands. Achievement of wetland management objectives will continue to be difficult until broader land use and water resources management plans at river basin level fully integrate the management and wise use objectives for the wetlands in question.
46. The Critical Path approach offers a “road map” that can help Contracting Parties to apply the existing suite of Ramsar’s wise use guidance in a systematic, sequential way to support integration of the conservation and wise use of wetlands into river basin management.

Additional Information

The “Critical Path” concept

The general “Critical Path” sequence was not a new idea: rather, it evolved implicitly from observing and listening to the experiences of people and groups around the world in implementing integrated river basin management, integrated water resources management, and management of wetlands. From those experiences, an emerging common thread was that the sequence of various river basin management activities can be almost as important as the activities themselves.

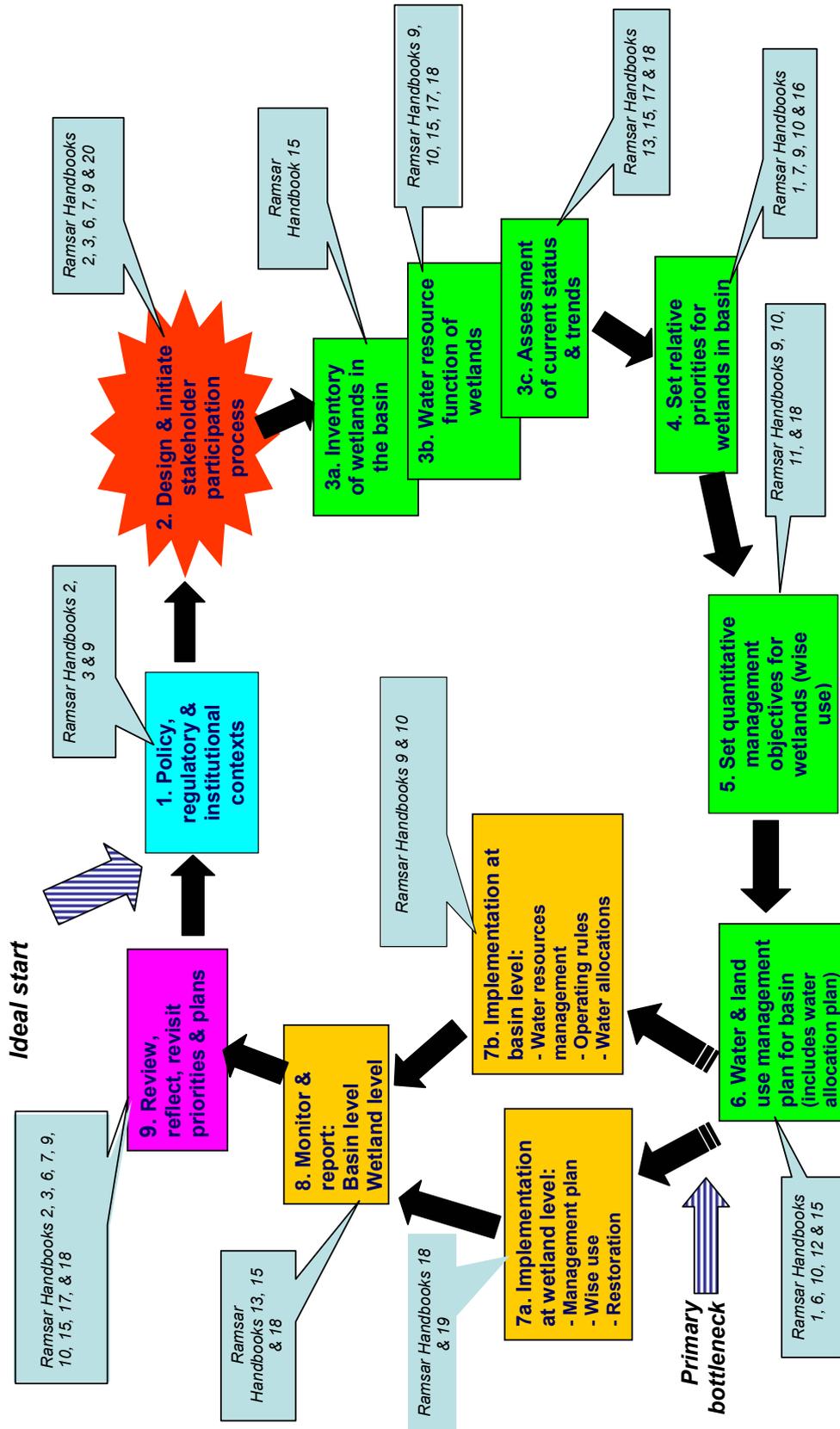
Source: Resolution IX.1 C(i)

47. A generic version of the Critical Path approach is provided in Figure 1. For further information on how the Critical Path approach can be further developed to suit a specific national or river basin situation, readers may consult the report of the original project on which the “Critical Path” approach was based, available in Dickens *et al.* (2004). Figure 1 also shows the cross-references from steps in the critical path to existing, more detailed Ramsar guidance that is applicable for each of the steps.
48. The Critical Path cycle consists of a series of 10 steps, arranged within several phases:
 - i) A **preparatory phase at national level** (Step 0), providing an enabling and supportive policy, legislative, and institutional environment for river basin management that can be adequately integrated the conservation and wise use of wetlands;
 - ii) A **preparatory phase at river basin level** that involves review and possible revision of policy, legislative and institutional aspects related to river basin management (Steps 1 and 2);
 - iii) A **planning phase** involving hydrological, biophysical and socio-economic surveys, assessments and decision-making activities (Steps 3 to 6), leading to the development of a river basin management plan;
 - iv) An **implementation phase**, involving parallel implementation of the river basin management plan and any related wetlands management plans (Steps 7a and 7b);
 - v) A **review phase** involving operational review activities (monitoring, data analysis, reporting and response – Step 8) as well as more strategic review of longer-term progress against objectives and plans (Step 9), leading to further development or revision of policies, objectives and plans.

3.2 Synchronisation with the water sector and other sectors

49. The Critical Path approach is focused on wetlands and their role in a basin: this wetland-focused cycle should be recognized as being nested within or closely linked to other spatial and economic planning and management cycles. Understanding the status and progression of these other cycles, particularly the water sector’s cycle of water resources planning and

Figure 1. Generic version of the “Critical Path” approach, modified from the same figure in Resolution IX.1 Annex C(i) (2005). Note that stakeholder participation and CEPA processes should continue throughout the entire cycle.



management, assists in synchronizing the wetlands cycle with these other cycles, sharing of information between sectors, and avoiding duplication of work.

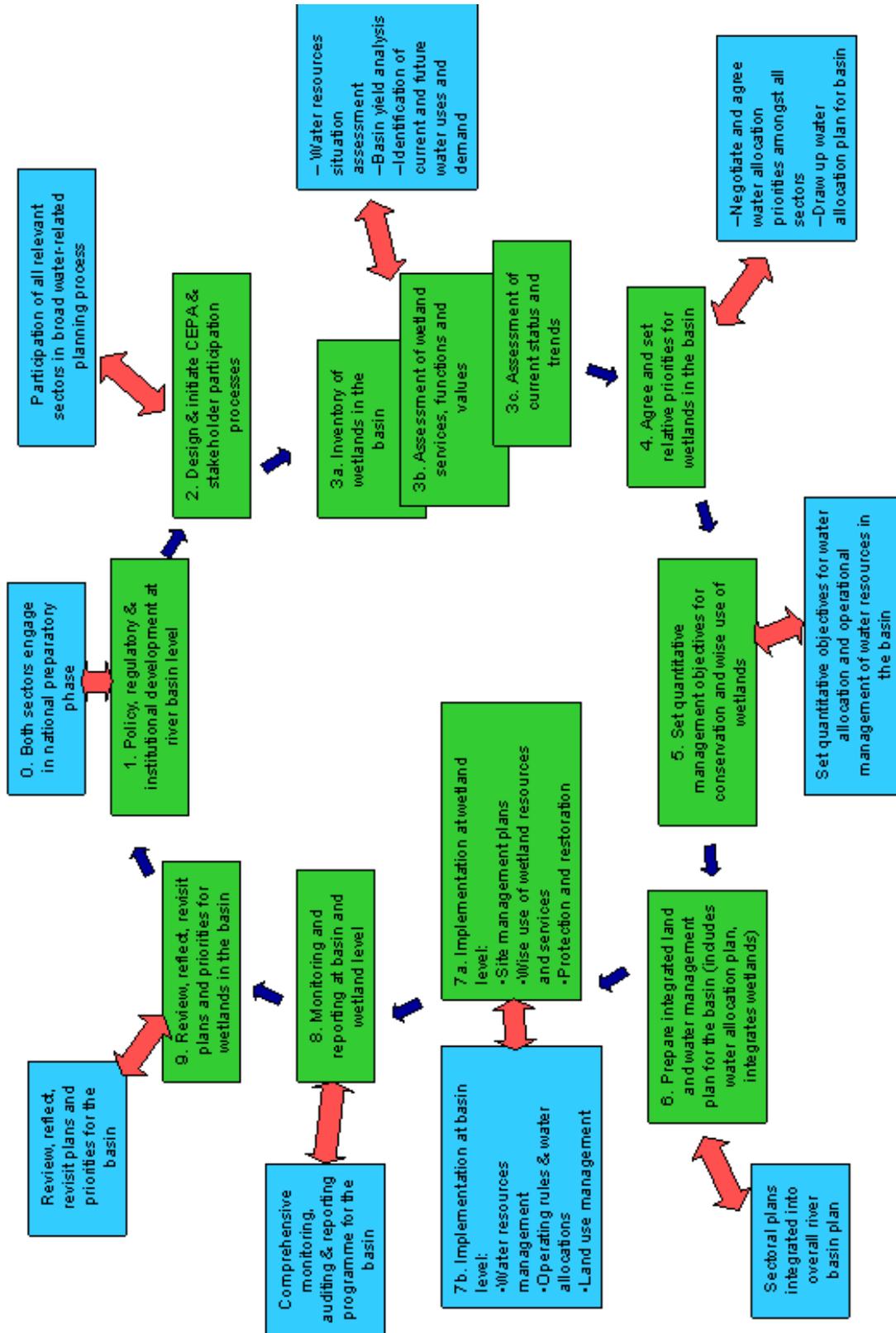
50. Ideally, the Critical Path cycle should be started at the beginning (Step 1 in Figure 1) in a river basin, and completed in full and in sequence, but basins and situations are different and flexibility should be promoted. In many cases, larger-scale water and land management at basin level may have been going on for some time in parallel with, or more or less independently from, wetland management at site level, and the wetland level cycle may not be synchronized with river basin management cycles. Hence the most practical approach is to identify where each sector is in its planning and management cycle, and start from there in a process of gradual integration and synchronisation.
51. If other sectoral processes are well-structured but perhaps significantly ahead of the wetlands sector's planning and management process, then rapid or desktop execution of steps in the Critical Path should be considered in order for the wetlands sector to "catch up" and at least get wetland needs and values onto the water agenda in the basin. Critical Path steps can be executed more fully in the second iteration of the cycle.
52. Specialist CEPA initiatives from the wetlands sector can support the building of links and synchronization between the wetlands Critical Path and other sectoral processes. If the other sectoral processes are not well-structured, then focused CEPA initiatives could help to identify and clarify current processes in other sectors, in order for the wetlands sector to link with them.
53. Figure 2 provides a graphical representation of generic water sector planning and implementation processes for water resources management at river basin level, and how these are generally related to the wetland management planning and implementation cycle indicated in the Critical Path approach. Contracting Parties should consider ways to identify the various sectoral processes that are already in place or should be put in place in the future at national and river basin levels. The sectoral cycles shown in Figure 2, and the connections between these cycles, can then be adapted to suit local river basin situations.

See Handbook 6,
Wetland CEPA

4. Integrating wetlands into river basin management: getting started

54. It is likely that almost every new initiative to integrate wetlands into river basin management will involve some degree of "retrofitting" of wetland-related aspects into existing river basin management activities. In these cases, it will be necessary to take into account ongoing river basin management activities, review them, resolve the most acute obstacles, and gradually begin integrating wetlands through revision of land use and water resources management plans, programmes and regulations.
55. Existing river basin management activities may have led to significant structural modifications that affect river basins and water resources within basins, such as large dams, flood controls, and other modifications of the natural hydrological regime. Where possible, the operation of such structures should be adapted in order to take into account the protection

Figure 2: Synchronisation of planning and management processes in the wetlands and water sectors



and management of wetlands, particularly in terms of environmental water requirements.

56. The critical path approach is a cyclical one, because it is also an adaptive approach to management: learning and new understanding gained in the first cycle should be fed back into improving future application. Several of the case studies documented in the Ramsar Technical Report [on river basin management] demonstrate that moving towards integrated river basin management is a long-term, iterative process, one that requires patience and commitment from all stakeholders and sectors.
57. An integrated river basin management initiative can arise from an urgent need to resolve serious local water management problems, or it might arise from the desire to take a more inclusive, integrated approach to the early stages of planning for water resources developments in a relatively unimpacted river basin. It might be a bottom-up process, having been initiated at a local or sub-basin level as people try to solve local water and wetland problems, or it might be a top-down process of national policy implementation. In all likelihood, all of these factors might be present to some degree. The key to improving integration of wetlands into river basin management is to recognize the wide range of interests, concerns, local situations and possible solutions, and to take a progressive, step by step approach to implementation that builds commitment and willingness from all parties.
58. If a process seems blocked, perhaps due to inability of stakeholders to agree on priorities, then two key places to revisit are Steps 2 and 4 (see Figure 1). In these steps, the priorities for wetlands are identified, discussed and decided. If the stakeholder process has not been sufficiently inclusive or participatory, this could lead to perceived failure of the legitimacy of



Tonle Sap, Cambodia. Photo: Taej Mundkur.

objectives. If the priorities that are set for wetlands in a basin are not practical or feasible, for example in terms of the amount of water that must be released from a dam, then this will probably lead to failure to recognize the wetland objectives and hence failure to implement them.

59. Although it appears to be a strongly sequential and thus constraining process, in fact the maxim of the Critical Path is “**Start anywhere, just get started**”. The value of applying this approach is that, even when a specific implementation process seems to have broken down completely, either at individual wetland level or at river basin level, it may not be necessary to stop and begin the process from scratch again. In cases such as this, the Critical Path can be used as an analytical tool to identify gaps, obstacles and bottlenecks related to water or river basin management issues, solve the most acute of these, and hopefully get implementation back on track and progressing again.

5. Integrating wetlands into river basin management: scientific and technical guidance at national level

5.1 Preparatory phase at national level

60. The national preparatory phase shown in Figure 1 is not strictly part of the Critical Path at river basin level, but this national preparatory phase is an essential factor for successful implementation of river basin management plans. In this phase, Parties need to be concerned with primarily national-level policy, legislative and Communication, Education, Participation and Awareness (CEPA) initiatives related to integrated river basin management. It is in the preparatory phase that a supportive, enabling environment is established at national level, one that can ensure a relatively smooth transition from planning to implementation at river basin level.
61. In general, national initiatives in the preparatory phase should be consistent with the guiding principles set out in Box A, *Principles for integration of the conservation and wise use of wetlands into river basin management*, particularly with regard to flexibility. National policy and legislation should support the development of solutions, objectives and plans at river basin level that are best suited to local conditions and can meet the needs of local people.
62. National policy and legislation should be enabling, providing frameworks for:
 - consistency in processes for setting river basin management objectives in different river basins;
 - equity in access to ecosystem services associated with land and water resources in river basins; and
 - strategic direction that recognizes national interests which may extend beyond river basin boundaries, such as biodiversity, water allocation, agricultural production, and economic development.
63. Reviewing policy and legislation can be a lengthy process, especially if substantial reform is indicated. Although such review can be undertaken in parallel with the other implementation steps 1 to 5 at river basin level (see Figure 1), implementation of a river basin management plan and associated

Additional Information

Why is the national preparatory phase important?

In many cases, including some of those described in the forthcoming Ramsar Technical Report on case studies of river basin management, specific projects may have been initiated to address localised problems associated with water or wetlands through participatory, integrated processes. These projects may have commenced in the absence of existing national policy to support integrated river basin management. Sometimes, once the initial localised problem has been addressed, these initiatives continue to evolve from the “bottom up” into broader and more inclusive processes, which could be considered as prototypes of integrated river basin management initiatives. Without a supportive and enabling environment in place at the national level, however, many bottom-up river basin management processes do not get beyond the planning phase, since there is no formal regulatory or institutional context within which the plans can be implemented, even though there may be broad commitment to implementation from the stakeholders in the river basin itself.

For example, environmental water requirements for wetlands in the river basin can be assessed with the help of specialists, but without the ability to convert these assessments to actual water allocations that are enforceable within the existing legal framework (which may be conventional or customary), the assessed environmental water requirements are not likely to be fully implemented. In addition, there should be a public institution in place with the mandate and authority to implement plans that may require oversight and possibly enforcement, for example, of water abstraction. Also, there will be little possibility of funds and resources being available for implementation of river basin management plans if there is no national supporting programme, or no legal mechanism for raising funds for implementation within the river basin.

The national preparatory phase does not have to be completed before any initiatives can begin at river basin level. Indeed this national attention to more integrated river basin approaches is often triggered as a result of successful localised initiatives or projects at sub-basin or small basin level. Equally often, however, the national attention is focused on institutional development for more integrated river basin management approaches only after serious water management problems have become evident (Cap-Net tutorial, http://www.archive.cap-net.org/iwrm_tutorial/p_20_1.htm).

Sometimes it is helpful to take a more iterative “learn-by-doing” approach and allow national policy, legislation and institutional arrangements to be developed in parallel with a phase of pilot implementation of integrated river basin management in one or two selected river basins.

Source: Information for this box contributed by Heather MacKay

wetland management plans will probably be compromised if this step is not sufficiently advanced, and preferably substantially completed, by the time implementation begins in the river basin (Step 7b in Figure 1).

64. There are four issues to be addressed in the national preparatory phase of the Critical Path:
 - policy and legislation in the relevant sectors, including processes for cross-sectoral planning and harmonization of policies;
 - institutional development;
 - CEPA;

- mechanisms for ensuring adequate capacity (financial, human, technical) for implementation of river basin management processes.
65. These same issues are also addressed within the preparatory phase (Steps 1 and 2) at river basin level, but the focus at river basin level is much more local.

5.2 Policy and legislation at national level

Sectoral and over-arching policy and legislation

66. The water sector is arguably the most important place to begin when introducing policy shifts to promote and support integrated river basin management. Water policies need to be harmonized with related policies where they exist, such as National Wetland Policies, National Environment Plans, National Biodiversity Strategies, international agreements and legislative frameworks. The shift towards integrated water resources management on a river basin scale also requires the development of appropriate supporting economic instruments, incentives and tools that are suited to particular national and river basin situations.
67. Complete revision of existing laws and policies is not always necessary for initiating integrated river basin management approaches. More substantive sectoral reform of policy and legislation can be undertaken in an incremental manner later, but should be considered before river basin management institutions are significantly advanced in the planning phase of their work.
68. If integrated river basin management approaches are being formally introduced in a country for the first time, it is usually helpful to begin with a desk-top review of existing sectoral policies and legislation, in order to ensure that there is sufficient policy and legislative support for river basin level initiatives to proceed and to resolve the most significant conflicts where these are evident. Parties should ensure that relevant existing institutions are given a mandate to commence the planning phase at river basin level (steps 1 to 6 of the Critical Path as shown in Figure 1).
69. The principles of identifying the supporting and conflicting elements of policy and law apply equally to statutory as to customary law, although the challenges of integrating statutory and customary systems and providing for a pluralistic legal environment can be significant.
70. Initial desktop review of national policy and legislation should cover:
- policies and laws from various national sectors (such as water, agriculture, environment, economic development, forestry and forest management, social development) that positively support the integration of wetland management with river basin management, and that generally contain shared principles and objectives;
 - policies, laws and regulations from various national sectors that conflict with the objectives of integrating wetland management and wise use into river basin management, and where revision or reform may be necessary; and

*See also Handbook 3,
Laws and institutions*

Additional Information

New trends in water legislation

South Africa

In 1994, South Africa embarked on a process of major reform of the water sector, including water services as well as water resources management. The National Water Act of 1998 has far-reaching implications for the protection and management of wetlands, as does the legislation. South African water law recognizes riverine, wetland, estuarine, and groundwater ecosystems, which must be protected in order to ensure maintenance of the desired goods and services that water resources can provide.

A key legal measure for protection of water resources and their associated aquatic ecosystems is the Reserve – defined in the National Water Act as the quantity and assurance of water, as well as the quality of water, required to fulfil basic human needs and protect aquatic ecosystems to secure ecologically sustainable development. The water required to meet the Reserve is the only right remaining under South African law – all other water use is authorized through schedules, general authorizations, or limited-period licenses with various conditions attached. The Reserve for a water resource must be determined and taken into account before any water use can be considered for authorization.



South Africa's water law recognizes the need to use water resources sustainably for the benefit of people; subsistence cultivation at the Kosi Bay Ramsar Site in South Africa. *Photo: Donovan Kotze*

For the protection of wetlands, the South African water legislation provides an immensely valuable tool which complements environmental and conservation policy by ensuring priority and protection for the water-related aspects of wetlands, and by formally recognizing the important role that wetland ecosystems play in maintaining the full suite of goods and services associated with water, not just water for abstraction and offstream use.

(Contributed by Heather MacKay, Water Research Commission, South Africa)

Tanzania

Tanzania's National Water Policy of 2002 details the national strategy for sustainable management of water resources and provision of water services. It includes among its objectives the improved management of ecosystems and wetlands, integrated planning and management of water resources, environmental flows, and the need for these in order to maintain riparian biodiversity, wetland systems and aquatic life. Water is first allocated to basic needs, followed by the environment and then the economy.

(Contributed by Petro Masolwa, WWF-Tanzania Programme Office)

Scotland

The Scottish Parliament from its inception has had a keen interest in the water environment, and an awareness of the need to reform various aspects of water law. In approaching the transposition of the EU Water Framework Directive (WFD), two particular issues were the lack of any statutory or comprehensive framework for river basin management and the lack of any comprehensive abstraction control regime. The overall objective of the WFD is to achieve “good” water quality, as defined, with the focus on ecological water quality as well as chemical water quality.

The Scottish Environment Protection Agency (SEPA) is the environmental regulator and the lead authority charged with taking forward the RBM process in Scotland, and there was a view within SEPA that Scotland should be at the forefront of implementing the WFD. It was decided to use primary legislation to implement the WFD, not Ministerial regulation as has happened in England, and also to take the opportunity to reform water pollution control legislation and move towards a “state of the art” regime. All uses of the water environment – abstractions, impoundments, discharges, and river works – are now controlled in one set of integrated rules, the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR). The definition of “the water environment” in Scots law includes wetlands. This will mean that water uses affecting wetlands will be controlled by CAR, just as they will where they affect surface and ground waters.

(Contributed by Sarah Hendry, University of Abertay Dundee, Scotland)

- policies, laws and regulations that can be used for sanctions or enforcement purposes during the implementation phase if necessary, such as pollution prevention, land use planning controls, and resource exploitation limitations.
71. The following specific issues should be considered and addressed in national sectoral policy and legislation. In formulating effective overall policies on these issues, Contracting Parties should consider the options for promoting flexibility at river basin level where this is administratively feasible and technically appropriate:
- i) Determination, allocation and delivery of water for the maintenance of all ecosystems, including meeting the requirements of marine and coastal ecosystems;
 - ii) Issuance of permits for individual and bulk water abstraction and use;
 - iii) Domestic and industrial water use, treatment of effluent and the safe discharge of effluent;
 - iv) Agricultural water use, mitigation of effects of large water management structures, return of water, limitations of pesticide and other agrochemical use;
 - v) Determination of water quality standards for use for various purposes;
 - vi) Rules and regulations regarding abstraction and use of groundwater;
 - vii) Economic and financial policies and instruments related to drinking water supply, agriculture, industrial and other water uses;
 - viii) Land and water conservation;
 - ix) Integration of water and wetland biodiversity conservation imperatives within the national socio-economic development agenda;
 - x) Invasive species that might have an impact on water or wetlands;

- xi) Delegation of certain regulatory or enforcement responsibilities to appropriate institutions at river basin level;
- xii) Application of Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), and Social Impact Assessment (SIA) tools for spatial planning and development initiatives which could impact on water resources and wetlands within river basins.

Cooperation and collaboration between sectors

- 72. Providing an enabling environment for collaboration, integration and joint planning between the water and wetlands sectors, and indeed with other sectors such as agriculture and land use, requires attention to the policy and regulatory contexts in all related sectors.
- 73. Conflicting policy objectives should be resolved and mechanisms provided in the policies and regulations of each sector to allow better integration of decision-making and operational procedures, whether through consultative or statutory processes.
- 74. Ideally, all the relevant sectors should coordinate their strategic planning at national level around sets of shared policy objectives. These shared policy objectives could include identification of specific river basins, sub-basins, or wetlands that are essential for meeting national biodiversity conservation targets, for sustaining rural livelihoods, or for urban water supply.
- 75. River basin organizations can be effective focal points for achieving both the necessary vertical integration from basin level down to site level and the horizontal integration between different agencies, land and water users, and interest sectors. However, significant institutional reform or restructuring is not a prerequisite for ensuring effective cross-sectoral cooperation at national level, since much can be achieved through less formal means such as the facilitation of cross-sectoral communication and agreement between different sectors on how overlapping responsibilities will be shared or assigned. It is essential that such agreements regarding cooperation and coordination are formalised within the national governance system, for example in joint White Papers or cross-sectoral Memoranda of Cooperation.
- 76. The following guidelines should be noted:

Guidelines Box B. Guidelines for Contracting Parties relating to national policy and legislation for integrated river basin management

- B1. Review national policy and legislation in all key sectors to identify the key barriers at national level to integrated river basin management and promotion of integrated land and water use planning/management, and work to overcome those barriers.
- B2. Develop consultative processes at national and river basin level which involve the various sectors and institutions responsible for, at least, water management, environmental protection, agriculture, and forestry and forest management programmes.
- B3. Develop a comprehensive national water policy or national river basin management policy for integrating wetland conservation into river basin management to benefit management goals, such as water supply, flood management, pollution mitigation and

the conservation of biological diversity. Ensure that this policy addresses the regulation of activities within river basins and the integration of wetland management into local policies and strategies/action plans, and that where appropriate, the policy addresses the need to avoid, minimize or compensate (for example, through conservation offsets) possible negative effects on wetlands of activities within river basins.

- B4. Incorporate wetland management issues into existing water or river basin management policies and also into National Wetland Policies and similar instruments (see Resolution VII.6 (also available in Ramsar Handbook 2, [4th] edition) and Resolution VIII.1 (Ramsar Handbook [10, 4th edition])).
- B5. Review existing legislation and, as appropriate, develop new legislation to facilitate the implementation of key policy issues related to integrated river basin management, including introduction of economic incentives and disincentives and regulation of activities which may negatively affect water management. (See Resolution VII.7 on *Laws and Institutions* in Ramsar Handbook 3, [4th] edition.)
- B6. Develop policy and legislation as needed to support the application of appropriate economic instruments and incentive measures (see Resolutions VII.15 and VIII.23), to promote water demand management, water conservation and more efficient and socially acceptable allocation of water resources.
- B7. Develop mechanisms to facilitate the transfer of resources from downstream beneficiaries to the protection and management of upper catchments and other critical areas.
- B8. Ensure that water allocations for wetland ecosystems are addressed in national water policy and legislation and in policy and regulation for Environmental Impact Assessments related to water resource developments. (See Resolution VIII.1 and Ramsar Handbook [10, 4th edition].)
- B9. Review national policy relating to protected areas in order to strengthen the options for protection of headwaters, upper catchments and critical wetland areas through their inclusion in protected area systems.
- B10. Review national policy relating to the needs of marine and coastal wetland ecosystems, particularly in relation to their freshwater requirements and the potential for inclusion in protected area systems, to ensure that these needs can be incorporated into river basin management where appropriate.

5.3 Institutional development

- 77. One of the key challenges in implementing integrated approaches to river basin management is the division of management responsibilities for one river basin between different administrative authorities, resulting in fragmented approaches to water resources planning and management. It is important to realise that water resource planning and management is a multidisciplinary, multi-sectoral process and it has therefore to be promoted as a collaborative framework among all the relevant agencies operating nationally and those involved within the river basin itself, as well as local communities. The development of institutions and administrative units in water resource management should preferably coincide with river basins' boundaries instead of political boundaries.

Additional Information

A single system of water management in the European Union: the Water Framework Directive

On 23 October 2000, the European Union (EU) adopted its operational tool for a modern water policy: Directive 2000/60/EC, commonly referred to as the “Water Framework Directive” (WFD). The Directive has the following key aims:

- expanding the scope of water protection to all waters, surface waters and groundwater,
- achieving “good status” for all waters by a set deadline,
- water management based on river basin management,
- “combined approach” of emission limit values and quality standards,
- getting the prices right,
- getting citizens involved more closely,
- streamlining legislation.

Since these objectives must be integrated for each river basin, the coordination of a number of existing measures to tackle particular pollution problems at EU level is required. To this end, detailed objectives are established for the river basin. Subsequently, an analysis of human impact is conducted to determine how far from the objectives each body of water is. At this stage, if full implementation of the existing legislation will solve the problem, the objective of the WFD is attained. If it will not, then the Member State must identify additional measures to satisfy all established objectives. These might include stricter controls on polluting emissions from industry and agriculture or urban waste sources.

Historically, there has been a dichotomy in approaches to pollution control, with some controls concentrating on what is achievable at source, through better technology, and some dealing with the needs of the receiving environment, in the form of water quality standards. A consensus has developed that both are needed in practice, and the WFD formalizes this combined approach. It requires all source-based controls to be implemented as a first step, and sets out a framework for developing further such controls. On the effects side, the WFD coordinates all the environment objectives in existing legislation and provides the new overall objective of good status for all waters. In some cases this may require additional measures. All the elements of this analysis must be set out in a detailed account of how the objectives for the



Floodplain restoration along the Isar River, Germany, pictured here, was carried out by the Bavarian Water Management Agency and is very much in line with the aims of the EU Water Framework Directive. Photo: Tobias Salathé / Ramsar

river basin (ecological, quantitative and chemical water status, protected area objectives) are to be reached within the required timescale.

The River Basin Management Plan will include the results of the above analysis, specify the river basin's characteristics, and provide a review of the impact of human activity on the status of waters in the basin, as well as an estimation of the effect of existing legislation to meet the "good quality" objectives, and a set of additional measures, where needed. An economic analysis of water use within the river basin must be carried out. This is to enable a rational discussion on the cost-effectiveness of the various possible measures. Member States are required to ensure that the price charged to water consumers reflects true costs, although in less-favoured areas, deviations from this may be possible so that basic services are provided at an affordable price.

It is essential that all interested parties are fully involved in preparatory discussions and in the preparation of the River Basin Management Plan. The greater the transparency in the establishment of objectives, imposition of measures, and reporting of standards, the greater the care Member States will take to implement the legislation in good faith.

The Water Framework Directive rationalizes the EU water legislation by replacing earlier Directives on a broad range of water issues. For more information, visit http://ec.europa.eu/environment/water/index_en.htm.

Following extensive consultations, Water Framework Directive River Basin Management Plans should have been available in all River Basin Districts across the EU by December 2009. While there are delays in some parts of the EU, and in several countries consultations are still ongoing, or the river basin management plans have not yet been established, the plans that are available can be downloaded from http://ec.europa.eu/environment/water/participation/map_mc/map.htm.

A number of international River Basin Districts (including the Danube, Elbe, Rhine, Ems, Meuse, Scheldt/l'Escaut and Odra) have also published River Basin Management Plans, which can be downloaded from http://ec.europa.eu/environment/water/participation/map_mc/map.htm.

78. Realignment of administrative water resource management units to coincide with river basin boundaries in this way may require substantive changes to national policy in the water sector and also in the local government sector. It may be more useful to take an incremental approach at national level, which starts with enabling cooperative governance arrangements in order to improve alignment of administrative boundaries and responsibilities with river basin boundaries.
79. Initially, the relevant institutions and agencies can work out locally suitable arrangements for cooperation and coordination, with input from a consultative forum or fora composed of local stakeholders and interest groups. This may suffice until such time as national policy and legislation is in place to allow the formal constitution of river basin management agencies within each river basin.
80. A formal river basin management agency would ideally be a public sector institution with executive responsibilities for river basin planning and management, to which certain agreed powers and duties have been

Additional Information

Use of the terms “river basin management institutions” and “river basin management agencies”

Integrated river basin management requires institutional development at levels from international (for transboundary and shared river basins) down to highly localised. At international level, institutions may include Joint Commissions, River Basin Authorities or Boards. At local level, there may be a need for highly localised organizations responsible for everyday operations and management within a sub-area of a basin, or for highly localised fora through which stakeholders can interact with and participate in river basin management.

In this Guidance, the term “river basin management institutions” is a broad term covering the full range of institutional structures and processes that might be involved in river basin management, from international to local. When the text refers to a formally constituted public organization whose mandate covers management of a single river basin, then the more specific term “river basin management agency” is used.

Source: Information for this box contributed by Heather MacKay, STRP

delegated, for example to allocate water within the basin or to enforce local water quality discharge standards.

81. Institutional development can be encouraged to progress gradually from consultative fora to fully functional river basin management agencies in a “bottom-up” way, or river basin management agencies can be established through a more “top-down” process initiated and supported from national level. In practice, countries have taken different approaches, depending upon their capacity for implementation and on the degree of political support for the development of river basin management institutions.
82. It is important for national policy and legislation to support flexibility in institutional arrangements at river basin level, to allow for variability in local conditions. Certain issues need to be considered in national policy and legislation in order to ensure that river basin management institutions are designed and established in a way that reflects local needs, priorities, and biophysical and socio-economic situations, while also operating in a manner that is consistent with national policy, planning, regulatory and fiscal frameworks.
83. As noted in the previous section, establishing formal river basin management organizations is not a prerequisite for success, but the lack of some form of coordinating body can complicate the implementation of integrated land and water management at basin level.
84. Parties should work towards national policy and legislation that:
 - recognizes the critical role of wetlands in water resources management and river basin management and the need to integrate the wise use of all wetlands into river basin management;
 - supports meaningful participation of local and national stakeholders in planning, decision-making and implementation at river basin level;

- promotes and ensures equity amongst stakeholders in planning and decision-making related to access to land and water resources and associated ecosystem services;
- describes the range of river basin management institutions that will be needed to support integrated river basin management and clarifies their roles, responsibilities and relationships with one another;
- ensures that river basin management institutions will have the technical, infrastructural and human resource capacity to undertake the necessary technical work programmes to support integrated river basin management;
- ensures that river basin management institutions will have the administrative capacity to discharge certain delegated powers and duties, including for example setting and enforcement of regulation, collection and management of revenues, fees and penalties associated with water management within the basin;
- provides for accountability and adequate oversight of river basin management agencies in the execution of their duties and responsibilities;
- provides for the establishment of an independent body to consider and adjudicate appeals in cases where stakeholders feel that agreed procedures have not been followed.

85. The following guidelines should be noted:

Guidelines Box C. Guidelines for Contracting Parties for the establishment of river basin management institutions and strengthening of institutional capacity for integrated river basin management

- C1. Promote the establishment of appropriate mechanisms to bring together all major groups involved in river basin management such as government, municipalities, water regulatory bodies, academic institutions, industries, farmers, local communities, NGOs, etc., to participate in the management of river basins.
- C2. Review existing legislation and, as appropriate, develop new policy and legislation to facilitate the establishment of the necessary coordination and collaboration mechanisms and river basin management institutions (See Resolution VII.7 on *Laws and Institutions* in Ramsar Handbook 3, [4th] edition).
- C3. Make multi-stakeholder river basin management institutions responsible for preparing river basin management plans.
- C4. Develop national policies and programmes to strengthen the capacity of river basin management institutions (see also Guidelines Box F related to implementation capacity and Guidelines Box D related to CEPA).

5.4 Communication, Education, Participation and Awareness (CEPA)

CEPA and participation in river basin management

86. The role of communication and awareness initiatives, at various levels from policy and technical through to the general public, cannot be overestimated. A free flow of information, appropriately packaged, greatly reduces resistance to change and helps people to see the benefits of working towards multiple social, environmental and economic objectives in a river basin.
87. An important element within the concept of integrated river basin management is that planning and management institutions work with and for the entire community of water users in a river basin, including wetland users and wildlife, as well as relevant stakeholders outside the river basin. In order to identify the needs and concerns of all water users, broad participation in the planning and management of water resources is an important goal.
88. This participation has “vertical” and “horizontal” aspects. Both need to be addressed in the preparatory and planning phases of integrated river basin management.
- Vertical participation refers to the structured participation of representative stakeholder agencies, organizations, groups or individuals in river basin management activities at different levels, i.e. between the central river basin management institution at basin level and stakeholders “on the ground”, and between the central river basin management institution at basin level and national sectoral agencies, as well as international bodies in the case of shared river basins.
 - Horizontal participation refers to the structured participation of agencies, organizations, groups or individuals across all the relevant sectoral boundaries to develop shared objectives for river basin management. Horizontal participation could occur, for example, between the water, wetlands, agriculture, biodiversity and health sectors, whether the participation is at village level between individual citizens, at local government level between departments, at national level between ministries, or at international level between missions.
89. CEPA (Communication, Education, Participation and Awareness) is an essential underpinning aspect of effective participation in integrated river basin management by public sector institutions, interest groups, government and non-government organizations, and local stakeholders. All Parties are expected to have national wetlands CEPA programmes in place, and these programmes should be reviewed to ensure that specific CEPA issues related to effective integrated river basin management are addressed.
90. In the preparatory phase, it is necessary to consider what national policy, programmes and possibly legislation might be needed to enable effective, broad-based and equitable participation in river basin management. Parties should ensure that both vertical and horizontal participation and collaboration are formally supported in the mandates, planning and decision-making processes and budgets of the various institutions responsible for or participating in integrated river basin management.

*See also Handbook 6,
Wetland CEPA*

Vertical communication and participation: between institutions and local people

91. The importance of consultation and participation in river basin management and water resource planning is now widely recognized and accepted. A management shift has taken place with a greater role being provided for civil society. Recent experience has shown that effective collaboration between agencies and local people increases the chance of success in achieving and implementing effective river basin plans. Early consultations with the public can also help identify previously unknown uses and values of resources in the basin and help determine the relative importance of different values.
92. The understanding of what consultation and participation mean in practice differs however, and so does related terminology. In the context of IRBM, *stakeholder participation* is considered the most widely accepted and most inclusive term, as this can range from individuals and associations of individuals up to (public and private) sectors, governments and government institutions, to international organizations.
93. As Ramsar Handbook 5 on *Participatory Skills* says: “Stakeholders are taken to be bearers of separate interests and/or contributions for the management of a wetland, with a particular focus on *interest groups* within local and indigenous communities. By the same token, the government agencies responsible for wetland management and local authorities may also be considered as stakeholders.”
94. The Ramsar Handbook also provides the following guiding principles for stakeholder participation:
- Incentives for local and indigenous people’s involvement and wise use are essential: everyone must benefit in the long term (refer to Section II, Chapter 2.1 of Ramsar Handbook [7, 4th edition] for more detailed information)
 - Trust among stakeholders is essential and must be developed (refer to Section II, Chapter 2.2)
 - Flexibility is required (refer to Section II, Chapter 2.3)
 - Knowledge exchange and capacity building are fundamental (refer to Section II, Chapter 2.4)
 - Continuity of resources and effort is important (refer to Section II, Chapter 2.5)

See also Handbook 7,
Participatory skills

Horizontal communication and participation: across sectoral boundaries

95. In the past, there has been a general lack of awareness of the cross-sectoral nature of water problems and the need for a new development paradigm towards integrating the technical, economic, environmental, social and legal aspects of water management. Awareness has significantly improved recently, due in part to intensive communication and education efforts in the water and wetlands sectors at global, national and local levels. However, it is still challenging to work across sectoral boundaries, whether this is at international level in a shared river basin, at national level between the relevant policy sectors, or at river basin level between local sectoral stakeholder groups.

Additional Information

What is CEPA in river basin management ?

CEPA is an umbrella term that stands for Communication, Education, Participation and Awareness. In most international cooperation agreements, CEPA is recognized as the set of social instruments that is required to build understanding, support, and participation of different stakeholders for policy issues and interventions.

The need for wetland CEPA was first recognized by the Ramsar Convention in the wise use guidelines adopted at COP4 in 1990, and the first CEPA Resolution, Resolution VI.19, *Education and public awareness*, was adopted at COP6 in 1996. Resolution VII.9, *The Convention's Outreach Programme 1999-2002: Actions to promote communication, education and public awareness to support implementation of the Convention on Wetlands (Ramsar, Iran, 1971)*, adopted at COP7, recognized CEPA as a central element in implementing the Convention, and its annexed guidelines assisted Parties in developing a strategic approach to wetland CEPA during the triennium. See more information in Ramsar Handbook 6: *Wetland CEPA*.

What role does CEPA play in river basin management?

- CEPA is strategic and effective when it supports policy, and should therefore be planned as an integral aspect of any project, programme or policy, preferably from the beginning.
- CEPA is a process and requires flexibility and commitment for long periods of time.
- CEPA is not just education or information provision (although these are part of it): it is about building trust and relationships, networks, which may last much longer and serve multiple purposes when other wetlands or river basin management issues arise.
- CEPA is not a panacea and never functions effectively as a standalone intervention in river basin management – it should always be planned and used in combination with other instruments, such as economic, legal or technical.

Ramsar Handbook 7, 4th ed., in Section II, demonstrates how both local and indigenous people and government can benefit from participatory management arrangements. Development of trust among stakeholders is essential. The Okavango case study [Ramsar Technical Report on river basin management case studies] provides good demonstration material on this, as stakeholder consultation and dialogue have been a cornerstone of the planning in the Okavango River Basin. Without it and without the proper tools, the objectives of planning and the following of the principles of accountability and ownership would have been difficult to achieve.

Further reading on CEPA and stakeholder participation:

Ramsar CEPA Planning Tool. Ramsar is currently developing new guidance on planning for CEPA interventions. This new tool should provide authorities as well as wetland site managers with support on how to develop the most effective approach for wetland CEPA. The tool is available on the Ramsar Web site at http://www.ramsar.org/pdf/outreach_actionplanning_guide.pdf.

CEPA Toolkit. IUCN's Commission on Education and Communication (CEC) recently developed a CEPA toolkit for the Convention on Biological Diversity. While primarily targeted at professionals charged with implementing National Biodiversity Strategy and Action Plans, the toolkit is a dynamic resource for local adaptation and many lessons can be learned for the water and wetlands sectors as well (www.cepatoolkit.org).

IWRM Tutorial. Cap-Net is an international network for capacity building in Integrated Water Resources Management. It is made up of a partnership of autonomous international, regional

and national institutions and networks committed to capacity building in the water sector. CAP-Net provides a tutorial on IWRM, freely accessible at: www.archive.cap-net.org/iwrmtutorial/mainmenu.htm.

The Cap-Net site provides links to several other resources, such as on Change and Stakeholder participation. Just two examples:

Electronic learning guidebook on Participatory Irrigation Management http://www.cap-net.org/captrainingmaterialsearchdetail.php?TM_ID=13>

Gender Mainstreaming in Integrated Water Resources Management - Training of Trainers Package http://www.cap-net.org/captrainingmaterialsearchdetail.php?TM_ID=101

Source: Information for this box contributed by Gwen van Boven, SPAN Consultants

96. Cross-sectoral communication is particularly important for the water and wetlands sectors. Ramsar's water-related guidance, particularly on river basin management and water allocation and management (see Ramsar Handbooks [9 and 10] and the forthcoming Ramsar Technical Reports on environmental water requirements), is aimed at providing supporting material for the Ramsar implementing authorities in each Contracting Party to use in persuading or influencing the water sector to change the way they do, or have done, river basin management so as to better maintain and protect wetland ecosystem services.
97. Most wetland managers at site or country level, however, may not be fully familiar with such daily operational practices of river basin management, and they will have difficulty assisting the water managers to integrate the water requirements of wetland ecosystems into water resources planning and to implement these requirements in water management practices.
98. Frequently the two sectors fail to find common ground due, not to a mismatch in values or intentions, but rather to an inability to describe, quantify and communicate interests, objectives and operational requirements. In order to ensure understanding and foster collaboration and cooperation between sectors, wetland managers and water resource managers must find a common language in which to set shared objectives for water resources and wetlands.
99. Bridging this particular communication gap between sectors often requires specialist communication, education and public awareness efforts at technical and policy levels, in addition to ongoing CEPA initiatives aimed at general awareness amongst the public and broad stakeholder groups.
100. Wetland managers need sufficient understanding of the technical and operational aspects of water resources management to understand:
 - i) first, how to articulate and quantify the requirements of wetland ecosystems using scientific and hydrological parameters which are compatible with those used in river basin management; and
 - ii) second, how to work with water managers to develop basin operating rules, including location of new water infrastructure and water offtakes,

Additional Information

Cross-sectoral collaboration and participation in river basin management

“If you want to do it fast, do it alone; if you want to do it well, do it together”.

If the process is managed well, participation can bring benefits to all involved parties, both government and non-government, at international level or among local interest groups. Whichever extent of participation is chosen, some guidelines apply that will help streamline the process as effectively and efficiently as possible.

Be pro-active. Often, project design does not include details about which people or institutions will be involved, at what stages, or what their roles and responsibilities will be. However, in every RBM context, which should by nature be integral and cross-sectoral, any project or policy will benefit from a careful planning of the participatory process, so that it will optimally support the key moments in that project or policy. Planning ahead will allow for pro-active inclusion of people and institutions, help bring their knowledge and experiences on board from an early stage onwards, and ensure that their needs and interests are integrated in the final design of the approach, thus avoiding surprises during its implementation. In other words, the benefits of pro-active design of participatory processes are plentiful. The Okavango case study illustrates the effects of participatory approaches being part of the project design [see Ramsar Technical Report on river basin management case studies].

Communicate. Consider the following situations. While the wetland manager may expect to fully take part in decisions on water management, the water authorities may have planned to consult him only on the ecological needs and then to take their decisions by themselves. A provincial government may announce a participatory approach in groundwater management, until it appears that the farmers want something else than is planned in the provincial capital. The Ministry of Environment may wish to integrate water- and environment-related issues, only to find out that the Ministry of Water has already concluded its next five-year plan, and no further changes can be made.

In all cases, we may assume that all parties worked with good intentions, but they started out with different expectations about the extent to which different stakeholders could participate in planning and decision making. This created misunderstandings and disappointment, and a loss of trust in the possible outcome of the cooperation. Integration of issues is not achieved, and beyond that, this misunderstanding may lead to a deterioration of relationships at a broader scale as well.

Managing expectations is just as important as the participatory process itself. Communicate clearly about the process that is envisioned: who will be involved at which stage, and what will be each party's power of decision-making? Here we find ourselves at the crossroads of CEPA and participation. With CEPA, we can make sure that people know when they can influence decision-making and when they cannot. As long as everyone understands the possibilities as well as the limitations of their involvement, the risk that conflicts will arise over different expectations will be minimal, and the acceptance of these limitations will often be surprisingly high.

Participate across sectors. Most frequently, stakeholder participation is organized along vertical lines: national governments consulting with regional management boards, or water associations with their local members. Often these types of participation focus on technical and operational matters. However, participation may also refer to horizontal lines: integrating cross-sectoral competencies would require such cooperation, as would mainstreaming of environment in water management policy. Initially this often relates more to managerial and diplomatic levels that need to ensure joint decision-making across sectors or departments, as a prerequisite for cross-sectoral

implementation of integrated approaches in water and wetlands management. Organizing such cross-sectoral stakeholder participation often requires the establishment of mechanisms to bring people together, as these usually do not traditionally exist. These mechanisms could take the form of a joint working group, a cooperation platform, or others.

Participate internally. Internal institutional operations greatly influence coordination with external partners. For example, when one of the participating stakeholders keeps sending new representatives to project meetings because of internal problems with continuity, it could become very difficult for the project to build up joint approaches and experiences. Also, when a representative comes without a mandate from his organization, his contribution may not be as constructive. Likewise, if the representative finds his colleagues and bosses uninterested in what he has agreed during the meeting, it is unlikely that his organization will act according to these agreements. These examples show how internal commitment and internal communication is essential for external success. Good exchange, learning and sharing within each participating institution or organization is therefore required for successful communication and cooperation with partners.

Source: Information for this box contributed by Gwen van Boven, SPAN Consultants

as well as flow regimes that represent the optimal allocation of water between multiple uses, including ecosystem maintenance.

101. Similarly, water managers, particularly those working at the river basin scale, require knowledge and quantitative understanding not only of the water resource functions and ecosystem services of wetlands, and how to deliver the water required to maintain these services, but also of [the ways in which various scientific parameters are used to describe ecosystem water requirements, in terms of the quantity, quality, timing and geographic location in the watershed of those water requirements]. The Ramsar Technical Reports on environmental water requirements being prepared by the Scientific and Technical Review Panel (STRP) will provide more detail and examples of these issues.
102. The following guidelines should be noted:

Guidelines Box D. Guidelines for Contracting Parties on national policy and programmes for Communication, Education, Participation and Awareness (CEPA) activities related to integrated river basin management

(Refer also to Resolutions VII.8 and [X.8])

- D1. Promote the protection and restoration of wetland areas, and their biodiversity, within river basins.
- D2. Design and implement communication, education, participation, and awareness programmes on the importance of wetland conservation to support water resources management, consistent with the guidelines set out in the Convention's CEPA Programme 2009-2015 (Resolution X.8).

- D3. Provide training for water resources managers and wetland managers at all levels to understand and implement the concepts of integrated water resource management and integrated river basin management, including the importance of wetlands in river basin management.
- D4. Develop awareness campaigns to minimise activities that lead to the degradation of river systems, such as excessive and incorrect use of inappropriate pesticides and fertilisers, poor sanitation, drainage of wetlands, and clearance of forests in the river basin.
- D5. Identify, design and implement community-based demonstration projects and provide additional economic incentives to the local communities to encourage river basin management practices that integrate wetland conservation and wise use.
- D6. Document and promote sustainable wetland and river basin management practices developed through traditional knowledge and skills.
- D7. Promote appropriate communication, education, participation, and awareness programmes as effective tools for integrated management of river basins. (See Resolution X.8 on the Convention's CEPA Programme 2009-2015.)
- D8. Support capacity building of community-based organizations and NGOs to develop skills for participating in monitoring and management of resources within river basins.

Guidelines Box E. Guidelines for Contracting Parties on national policy related to stakeholder participation in integrated river basin management

(Refer also to Resolution VIII.36: Participatory Environmental Management as a tool for management and wise use of wetlands)

- E1. Develop consultative processes which involve the various sectors and institutions responsible for water management, environmental protection, and agriculture (at least) in harmonization of their policies and national sectoral plans to address the conservation, utilization and management of water resources and wetlands.
- E2. Ensure that national water policy provides mechanisms to identify and involve stakeholders in planning and management of river basins and their wetlands, including review of land tenure arrangements where this might be necessary.
- E3. Develop appropriate national policies and programmes to support and facilitate: i) the active participation of stakeholders; ii) responses by river basin management institutions to the particular needs of stakeholders; and iii) sharing of authority and responsibility for resource management according to arrangements that are agreed by all parties.

5.5 Capacity for implementation of integrated river basin management

- 103. If river basin management agencies and wetland management institutions do not have sufficient capacity to undertake planning and implementation activities, there could be significant delays between the end of the planning phase and the start of the implementation phase at river basin level.

104. The longer such implementation is delayed after the planning has been substantially completed, the greater will be the risk of failure of a river basin management initiative, and the greater the dissatisfaction of people who have a stake in the implementation.
105. The following are aspects of overall capacity for implementation which should be considered in the preparatory phase at national level and in the planning phase at river basin level (Step 6 in Figure 1):
- **Infrastructural capacity** includes the physical infrastructure such as pumps, pipes, dams, treatment works, gauging stations, monitoring equipment and networks, and other tools for managing land, water resources, and wetlands in river basins.
 - **Institutional capacity** includes not only the establishment of the necessary institutions, the granting of their mandates, powers and duties, and inter-institutional arrangements, but also the necessary administrative infrastructure such as buildings, communication networks, administrative procedures, and business processes.
 - **Competency** includes principally the human resources needed to implement integrated river basin management, as well as the integration of wetlands specifically into river basin management. Development of competency should address not only the skills, knowledge and attitudes of personnel but also longer term training and capacity building needs in the relevant education sectors. (Also see the relevant sections and guidelines related to CEPA.)
 - **Information and knowledge capacity** includes information systems for collection and management of data collected through international, national and river basin monitoring networks; the use of this data to generate information for management purposes as well as for increasing general awareness; and the application of knowledge to develop, adapt and refine river basin management activities and the way in which wetlands are integrated into such activities.
 - **Financial capacity** for implementation is essential and underpins the preceding aspects of implementation capacity. Early consideration should be given to how river basin management activities, and the integration of wetlands into these activities, will be supported financially, and how the financial sustainability of river basin management institutions will be assured. Decisions on which mechanisms will be used to provide long-term financial support for activities and institutions, at both national and river basin levels, will significantly determine the design of river basin management institutions; their administrative, infrastructural and human resources capacity; the scope of their operations, powers and duties; and ultimately the state of wetlands, land and water resources in the river basins for which these institutions are responsible.
106. In planning for implementation, it is necessary to consider all the aspects of implementation capacity described in the preceding paragraph. Lack of these capacities, or weak capacity in one or more of these aspects, can

pose severe constraints to wetland management, particularly in developing countries.

107. Public sector capacity can potentially be complemented by empowering local people to plan, manage and control the wetlands in their own landscape. This requires the building of awareness of wetland values and the roles of wetlands in the wider river basin, and also requires willingness on the part of local people to take responsibility for their wetlands and for the land and water use practices that can affect wetlands. Strong CEPA programmes, with extension support in the field, are essential for sustaining such local capacity. (Also see the relevant sections and guidelines related to CEPA).
108. The necessary enabling policy, legislation and financial mechanisms should be put in place at national level to support the development of capacity for implementation. These mechanisms should be agreed upon and established in good time, so as not to delay implementation at river basin level.
109. The following guidelines should be noted:

Guidelines Box F. Guidelines for Contracting Parties for establishing adequate implementation capacity for integration of wetlands into river basin management

- F1. Develop supporting policy or initiatives to secure adequate financial resources for ensuring effective operation of organizations charged with planning and management of water resources, river basin management and wetland conservation and, as appropriate, seek resources from alternative sources and financial arrangements.
- F2. Recognizing that socio-economic development is often critically dependent on the protection of aquatic ecosystems, encourage different sectors (such as conservation, water, economic development) to collaborate in allocating or securing sufficient resources to implement policies and legislation for integrated water resources management and integrated river basin management.
- F3. Establish national policy and regulatory mechanisms so that where appropriate, river basin management institutions can raise or have access to the funds needed for integrated river basin management, or alternatively they can seek these resources from the development assistance community.
- F4. Assess the competency and human resources requirements for implementation of river basin management and wetland sectors, and ensure that appropriate training and capacity-building programmes and policies are established in order to meet these requirements in a timely manner.
- F5. Promote the inclusion of staff within river basin management institutions who have expertise in the ecological functions of wetlands.
- F6. Strengthen and maintain the capabilities of local institutions (universities, research institutions, and water management agencies) to undertake comprehensive water demand assessments which include ecological water demands, as well as to undertake other scientific and technical studies needed to support integration of wetland conservation and wise use into river basin management.

6. Integrating wetlands into river basin management: scientific and technical guidance at river basin level

110. This section provides descriptions and explanations of each of the major components of the Critical Path at river basin level (see Figures 1 and 2) and covers:

- the preparatory phase - Steps 1 and 2,
- the planning phase - Steps 3, 4, 5 and 6,
- the implementation phase - Steps 7a and 7b, and
- the review phase - Steps 8 and 9.

6.1 General sequencing in the preparatory and planning phases

111. The activities in Steps 1 (policy, regulatory and institutional contexts), 2 (CEPA and stakeholder participation process), 3 (inventory, assessment and technical studies), 4 (setting priorities) and 5 (setting objectives) are arranged in a general sequence of initiation. However, in practice most of these steps can be undertaken in parallel, as long as all are at an adequate level of completion prior to Step 6 (water and land use management plan for the basin).

112. An obstacle can arise if the activity of agreeing on, and setting priorities for, wetlands in a basin (Step 4) does not include all the relevant stakeholders, including water and land users, as well as responsible agencies or authorities, in a legitimate decision-making process. Thus it is essential that policy, regulatory and institutional issues be resolved such that the relevant authorities can work together, and that a credible, inclusive stakeholder participation process can be established and sustained, with stakeholders having been helped to understand the relevant technical and strategic issues.

113. Inventories and specialist desk and field studies, covering ecological, hydrological, economic and social aspects (Step 3), can commence at an early stage in the process. It should be recognized, however, that the level of detail and resolution required in these studies will be influenced by the processes of determining priorities and quantitative objectives in Steps 4 and 5, which in turn will require a certain degree of numerical confidence, depending on the sensitivity and importance of the wetlands and the associated water resources. If the priorities that are set for wetlands in a basin are not practical or feasible, for example in terms of the amount of water that must be released from a dam, then this will probably lead to failure to recognize the wetland objectives and hence failure to implement them. Hence there may be some iteration required between Steps 3, 4 and 5.

114. If some or all of Steps 1 to 5 have not been addressed sufficiently before commencing the development of a management plan for the basin in Step 6, then it is likely that wetland requirements, particularly for water quantity and water quality, will not be recognized adequately. This could prove an obstacle to implementation of wetland management plans at site level.

115. This obstacle can be overcome by returning to undertake Steps 1 to 5 and then coming back to Step 6. However, this does not necessarily mean stopping the whole planning process in order to fill in the missing steps: rather, the missing steps can be addressed by desktop or rapid field study,

on the understanding that the necessary detail can and will be provided in the next iteration of the Critical Path cycle.

6.2 Preparatory phase at river basin level

Step 1a: Establishing supporting policy, legislation and regulation at river basin level

What is this step and why is it important?

116. The purpose of this step is to ensure that any policies, legislation and regulation that may be relevant at river basin level, such as those administered by local governments, are aligned in such a way as to support integration of wetlands into river basin management and the collaborative management that is required for successful implementation.
117. As is true for the national preparatory phase, complete revision of all local policy and regulation related to wetlands, land use and water resources is not necessary in order to initiate planning for integrated river basin management. However, there should be adequate supporting policy and regulation to ensure that all elements of the agreed river basin management plan can be implemented once the planning phase has been completed.
118. As a minimum, an initial desktop review should be conducted of all the relevant overlapping policy and regulation that is operative in the river basin, ranging from national to local, including customary practices at community level if relevant, and any relevant international agreements in a shared river basin. The review should also include existing spatial planning policies, land use plans and water resource management plans for parts of the basin or the entire basin.
119. Inconsistent or conflicting policy and regulatory elements should be identified, so that these can be revised in time to ensure a smooth later transition from the planning phase to the implementation phase. As the planning phase progresses, and especially in Steps 4, 5 and 6, the emerging elements of the integrated river basin management plan should be checked once more against the review of local policy and regulation in order to ascertain whether any additional revision of local policy, regulation and planning procedures may be needed to support implementation of the proposed river basin plan.

How does this step relate to others in the Critical Path?

120. Step 1 at river basin level can proceed before the national preparatory phase has begun, or the two may be undertaken in parallel. However, at least some attention to the national policy and legislative environment is likely to be necessary, to ensure that all the necessary aspects of a river basin management plan can be implemented and that suitable institutional arrangements (including funding) can be established at river basin level to support such implementation.

Who is involved in this step?

121. This step may be initiated by a national government agency, if the river basin management process is being led by a national policy initiative or if a river basin management agency has not yet been established.
122. Alternatively, this step is sometimes initiated by a responsible agency at river basin level, such as a local government concerned about the management of the river basin or a wetland management agency or organization concerned about the management of a specific wetland or wetlands in the river basin.
123. In some cases, this step may be initiated by a non-government organization, a community organization, a particular interest group or a research group, possibly with external donor support. However, more formal revisions to legislative, regulatory, planning or administrative procedures will require the participation and commitment of the responsible local and national government agencies.

Additional information and guidance related to this step

124. Refer to Handbooks 2, 3 and [9] ([4th edition, 2010]) for further detailed guidance, and see also Resolution VIII.23, *Incentive measures as tools for achieving the wise use of wetlands*.
125. The following guidelines should be noted:

Guidelines Box G. Guidelines for Contracting Parties on establishing supporting policy, legislation and regulation at river basin level

Parties should also refer to guidelines in Box B for national policy and legislation.

- G1. Review all relevant sectoral plans, policies and regulations that are in effect at local and river basin level, including local customary practices and laws, and review land tenure arrangements where this might be necessary, in order to identify the key barriers to integrated river basin management and promotion of integrated land and water use planning/management, and work to overcome those barriers. (See also Guideline B1.)
- G2. Develop consultative processes which involve the various sectors and institutions within the river basin who are responsible for water management, environmental protection, agriculture, and land use. (See also Guideline B2.)
- G3. Incorporate wetland management issues into existing management plans, policies and regulations relevant to the river basin, and also incorporate water resource management issues into management plans and policies for wetlands in the river basin. (See also Guideline B4.)
- G4. Within an appropriate national policy framework, develop and implement locally applicable incentive measures to promote water conservation and more efficient and socially acceptable allocation of water resources within the river basin. (See also Guideline B6.)
- G5. Within an appropriate national policy framework, develop and implement mechanisms to facilitate the transfer of resources from downstream beneficiaries to the protection and management of upper catchments and other critical areas. (See also Guideline B7.)

- G6. Ensure that water allocations for wetland ecosystems are addressed in water resources plans and water allocation schedules for the river basin. (See also Guideline B8.)
- G7. Ensure that the needs of marine and coastal wetland ecosystems, particularly in relation to their freshwater requirements, are addressed in river basin management plans and water allocation schedules where appropriate. (See also Guideline B10.)

Step 1b: Establishing appropriate institutional arrangements at river basin level

What is this step and why is it important?

126. The purpose of this step is to ensure that appropriate institutional capacity is established within the basin to plan for and implement integrated river basin management, whether through the formation of an entirely new organization or through a collaborative arrangement between existing organizations and groups with overlapping responsibilities and interests.
127. New institutional arrangements, at international, national or local levels, are sometimes politically difficult to implement from scratch, and it is necessary and generally better to begin working with the existing range of responsible and interested institutions. Memoranda of cooperation, or cooperative policy, can be used to formalize relationships when necessary. As relationships and understanding grow, the structure and function of new institutions, which would be more effective for implementing integrated river basin management, should become clear. Subsequent institutional reform and restructuring will then have more support.
128. Since every river basin is different in its socio-economic, biophysical and governance aspects, there is no single "right" institutional arrangement for river basin management. Ideally, there should be a consistent national framework and policy for establishment, oversight and operation of river basin management institutions at river basin level, but local flexibility should be encouraged.

How does this step relate to others in the Critical Path?

129. Much of the planning phase in the Critical Path can be undertaken without a river basin management agency necessarily being in place, since collaborative agreements, memoranda of cooperation and other cooperative processes can suffice. However, before the implementation phase (Step 7b) commences, a suitable institution or group of collaborating institutions should preferably be in place at river basin level, with delegated authority where appropriate, and with the necessary resources (including human resources, infrastructure, and funding) having been secured, to ensure the viability and sustainability of these institutions.

Who is involved in this step?

130. Experiences from the case studies (see Ramsar Technical Report on river basin management) indicate that a common strategy when initiating this step is for an independent agent to act as a facilitator amongst all the relevant institutions at basin and local levels, to assist them in communication and collaboration across sectoral boundaries. Typically, an

independent agent might be a contracted consultant, a non-governmental organization representative, a donor agency staff person or consultant, or a civil society or community organization representative. Using an independent agent can be a very effective approach for getting all the responsible organizations and groups together and beginning to work collaboratively.

131. However, in many cases, independent facilitation in the early stage of Step 1b is supported by time-limited grant funding through the national government, an external donor, or a community-based group. While this provides significant flexibility and efficiency, it can also leave implementation very vulnerable if the river basin management plan has not been taken up formally into the policy mandates and business cycles of the existing responsible institutions, or if suitable public sector institutional capacity has not been firmly established, once the grant funding ceases.

Additional information and guidance related to this step

132. Refer to Handbooks 2, 3, [7 and 9] [4th edition, 2010] for further detailed guidance.
133. The following guidelines should be noted:

Guidelines Box H. Guidelines for Contracting Parties on establishing appropriate institutional arrangements at river basin level

Parties should also refer to guidelines in Box C related to national policy and programmes for establishment of river basin management institutions.

- H1. Establish appropriate mechanisms to bring together all major relevant groups, such as government, municipalities, water regulatory bodies, academic institutions, industries, farmers, local communities, NGOs, etc., to participate in the management of the river basin. (See also Guideline C4.)
- H2. Develop and implement programmes to strengthen the capacity of river basin management institutions (see also Guidelines Box F related to implementation capacity; Guidelines Boxes D and I related to CEPA).

Step 2: Developing Communication, Education, participation and Awareness (CEPA) programmes and stakeholder participation processes at river basin level

What is this step and why is it important?

134. The purpose of this step is to design, plan and initiate a broad programme of stakeholder participation at river basin level, supported by a range of targeted as well as ongoing CEPA activities and products. The objectives of such a programme would be:
- to ensure that stakeholder interests, particularly those related to wetlands and wetland services, are identified and addressed in river basin management policy, planning, decision-making, implementation, monitoring and review; and

Additional Information

Task Force on Integrated River Basin Management for the Yangtze River

The Yangtze is the third longest river in the world, with a length of 6,300 kilometres and a catchment of 1.8 million km². It runs through eleven provinces of China, and more than 400 million people depend upon it for their livelihoods and well-being.

Nonetheless, the Yangtze is undergoing serious threats from a number of directions. The key issues include the loss of natural wetland functions due to fragmentation and degradation; upstream erosion leading to accelerated downstream siltation; lack of knowledge amongst decision-makers about the functions and values of wetlands; the failure of development and land-use policies; and various institutional conflicts.

After the devastating floods of 1996 and 1998 (in 1998 alone, more than 4,000 people lost their lives and damage reached an estimated US\$ 25 billion), the Chinese government issued the so-called '32 character policy' aimed at reducing flood threats by working with nature rather than fighting it. Interventions include:

- A ban on logging in the upper catchments;
- Returning cultivated steep slopes to forest;
- Relocating settlements from flood-prone areas to higher ground safe from flooding;
- Restoring wetlands in the Yangtze floodplain;
- Reinforcing embankments;
- Maintaining river courses, e.g. by dredging.

River systems are by nature integrated systems, but too frequently they have been managed by many isolated stakeholders. Cross-sectoral and cross-boundary conflicts are often the main obstacles to river basin management. The Yangtze is a good example, because there are four river-wide authorities: the Yangtze River Resource Commission, the Yangtze Fishery Management



Ensuring the wise use of the montane Sanjiangyuan Wetlands, pictured here, one of several sources of water for the Yangtze river, will contribute to the integrated management of the Yangtze Basin.

Photo: Yang Xing.

Commission, the Yangtze Navigation Commission, and the Yangtze Water Resource Protection Bureau.

In order to remedy this situation, in 2002 the Government of China established an Integrated River Basin Management Task Force for the purpose of promoting the public welfare of river basins in China through better governance of water resources, ecosystem management and biodiversity conservation, and environment management through information sharing, demonstration and public participation.

The IRBM Task Force, composed of six national and six international experts in relevant subjects, was given a number of priority tasks intended to reach this goal – 1) assess existing laws and regulations and make recommendations to state legislation authorities; 2) review existing river basin management practices and assess their coordination, and report both at the national level and on the Yangtze River basin in particular; 3) promote relevant economic tools such as water rights, water pricing, subsidies, compensation, tradable permits, and green taxation; 4) promote stakeholder participation and community involvement; 5) provide a platform for information sharing, and finally, 6) establish and promote communication tools including workshops and publications.

The approach to coordination that emerges from this IRBM Task Force will be an important test of China's capacity for institutional change. Elsewhere in the world IRBM has been a decades-long undertaking to break down institutional barriers and address system-wide management needs, and most countries are just beginning to take the kind of ecosystem-based approach being encouraged by this Task Force. This is a path-breaking effort within China, and hopes are very high for its success.

At the end of 2004, the task force concluded its mission by making four recommendations to the State Council calling for: institutional and legislative development; public participation in decision-making; financial incentives; and innovation in technology development. To facilitate the implementation of the recommendations, the Yangtze Forum was established. This provides a platform for all major stakeholders to consult with each other on the recommendations as well as to share information and knowledge on the development of the river basin.

- to promote, facilitate and support the meaningful participation of stakeholders in all aspects of river basin management.

How does this step relate to others in the Critical Path?

135. Although, for convenience, this is noted as a single discrete step in Figure 1, in fact the participation of interested, affected and accountable stakeholders is a process that should continue throughout the cycle of the Critical Path.
136. At different steps, different stakeholders may need to be involved, and the process may take various forms from awareness-raising through participatory appraisal, consultation, participation and formal negotiation. For example, in Steps 1a and 1b, the principal stakeholders may be the relevant government and regulatory agencies, perhaps also including concerned non-governmental and community groups. In Step 4, individual water users and landowners may be involved, along with sectoral agencies and conservation groups, in negotiation and consensus-seeking processes.
137. Participation is included in Step 2 because the participatory process should be designed early in the cycle and properly resourced. Training, as well as the preparation of information and learning materials, may be needed well

Additional Information

CEPA in the river basin management cycle

Policy or project making at basin level is a cyclical, iterative process of – generally – four main stages. These stages could be linked to the Critical Path steps as follows:

1. Identification phase / Agenda setting - refer to Critical Path Steps 1, 2 and 3
2. Formulating policy - CP Steps 4, 5 and 6
3. Implementation - CP Steps 7a and 7b
4. Management and control - CP Steps 8 and 9

During each stage, CEPA can play a different role to support the specific requirements at that moment in the project or policy. The managers of the project can use this cycle to decide which CEPA techniques or approaches would be best to use. This can be done from the beginning of the process, but if one has already progressed to a later stage, this cycle could still provide guidance.

Phase 1: Identification of the issue: agenda setting (Critical Path Steps 1, 2, 3)

CEPA serves to identify problems early by listening to people. Is the issue equally important to all stakeholders? How do they perceive the challenges ahead? Does everyone share the same interests or may issues arise over conflicting interests? During this phase, CEPA can help create awareness of a problem and draw attention both to the need for solutions and to the limitations of the context in which any solutions will have to be implemented. When linking this to the Critical Path flow, we see that CEPA could support setting the policy, regulatory and institutional context (CP step 1), help to design and initiate the stakeholder participation process (CP Step 2), and support inventory work (CP Step 3).

CEPA methods used:

- Bringing stakeholders together
- Stakeholder consultations
- Surveys (opinion, attitude)
- Media analysis
- Information meetings and briefings

Phase 2: Formulating the policy or project (Critical Path Steps 4, 5 and 6)

At this stage, CEPA can serve to raise awareness or understanding of the policy proposals and the issues. Based on the scientific and social assessments that have been done, objectives can be set and solutions proposed. CEPA can help explain why certain interventions are not possible and others are necessary, explain what the implications of selected approaches will be, and help identify the roles and responsibilities of different stakeholders. In this way, CEPA would support priority setting (CP step 4), management objective setting (CP step 5), and the development of water and land use management plans (CP step 6).

Methods:

- KAP (Knowledge, Attitude, Practice) surveys
- Consensus negotiation
- Communication strategy design
- Integration of communication in mix of policy instruments

Phase 3: Implementing the policy or project (CP Steps 7a and 7b)

The aim of communication is now to inform target groups on how to proceed, to communicate the core message of the policy (or project) and accompanying measures. CEPA would here

support CP Step 7a (Implementation at wetland level) as well as CP Step 7b (implementation at basin level). The CEPA strategy that was designed under phase 2 would assist that implementation by keeping people informed of progress, and it would fill gaps in knowledge (which were identified through the KAP surveys in the formulation phase) by communicating the core of the measures that are being implemented. It continues the stakeholder participation process and enlists the assistance of NGOs, unions, and other organizations that may function as intermediaries between government and larger sections of society.

Methods:

- Information campaigns
- Development of specific materials
- Marketing, education
- Training
- Stakeholder communication, networking
- Cross-sectoral dialogue

Phase 4: Management and control (CP Steps 8 and 9)

At this stage communication serves to sustain changed attitudes and behaviour by providing feedback on how the implemented policy or project has been understood and perceived by partners and the public. As such it will support CP Step 8: monitoring and reporting and CP Step 9: review, reflect, and revisit priorities & plans for wetlands. It helps explain and consolidate the achievements or, alternatively depending on the situation, needs for further continuation and (renewed) commitment.

Methods:

- Networking
- Information monitoring
- Information provision
- KAP surveys

This last stage is something that may continue alongside all other stages, providing the feedback loops that will help monitor the quality of the project or policy. It will also feed directly into the new agenda-setting phase in response to a concluded cycle that will need following up.

Source: Information contributed by Gwen van Boven, SPAN Consultants

ahead of the key planning step of setting priorities (Step 4). In addition, it is important to allow enough time to identify all the relevant stakeholders, well before key implementation decisions are taken.

138. Ensuring that stakeholders can participate fully in river basin management is particularly important when the protection and wise use of wetlands, land and water resources in the basin depend upon the commitment and willingness of those stakeholders to implement agreed actions within the river basin management plan, such as maintenance of riparian vegetation, compliance with limits on resource utilisation, compliance with water quality standards, or implementation of agreed management practices.

Who is involved in this step?

139. This step can be undertaken or initiated by an independent facilitator or expert group supported by external or grant funding. However, partly to ensure long-term stability of the process, and partly to ensure its legitimacy and representativity, it is preferable for the lead agent to be a public sector

institution or organization responsible for river basin management. This does not necessarily require a river basin management agency to have been established prior to initiating the CEPA step, but there should at least be collaborative institutional arrangements in place at river basin level, in order to provide a legitimate framework and official support for stakeholder participation.

Additional information and guidance related to this step

140. Refer to Ramsar Handbooks [6, 7 and 9] ([4th edition, 2010]) for further detailed guidance.
141. The following guidelines should be noted:

Guidelines Box I. Guidelines for Contracting Parties on CEPA programmes and stakeholder participation processes at river basin level

- I1. Apply the Guidelines in Box D relating to CEPA programmes, incorporating wetlands, water resources and land use information specific to the river basin, in order to develop tailored CEPA materials, campaigns, programmes, and training initiatives.
- I2. Apply the Guidelines in Box E relating to sectoral cooperation and stakeholder participation in river basin management, ensuring that i) consultative processes are suited to the local socio-economic conditions in the river basin and that ii) the participation of stakeholders is supported where necessary by appropriate funding, capacity building, consensus-building, and conflict resolution mechanisms.

6.3 Planning phase at river basin level

Step 3: Undertaking wetland-related inventories and assessments to support river basin planning

What is this step and why is it important?

142. This step involves the collation, collection and preparation of appropriate information related to the biophysical, ecological and socio-economic aspects of the river basin. The purpose of this step is to provide a sufficient basis for agreeing on priorities (Step 4) and management objectives for the river basin (Step 5), particularly those objectives related to wetlands and wetland ecosystems within the basin.
143. This step has three components that are specifically wetland-related:
 - i) Step 3a: Inventory of wetlands, including wetland-related services in the river basin;
 - ii) Step 3b: Assessment of the functions and values of wetlands and wetland-related services in the river basin, including assessment of the hydrological and water resource functions of wetlands, the ecological functions of wetlands within the broader ecoregion, and the socio-economic functions and values of wetlands (such as those related to human health, food and water security, livelihood and poverty reduction, adaptation to climate change, and cultural practices);

Additional Information

Sources of data on world watersheds

There now exists a wealth of freely available geographic data on many aspects of river basins, such as relief, hydrology, land cover, vegetation, soils and population. Examples of some sources of data are provided here.

Water Resources eAtlas: Watersheds of the world

The *Water Resources eAtlas* presents information about issues in water resources management in an easy and comprehensible way. Produced in 2003 by IUCN, the International Water Management Institute (IWMI), the Ramsar Convention Secretariat and the World Resources Institute (WRI), it was launched at the 3rd World Water Forum in Japan. The eAtlas, available on-line and in hard copy, provides vital water resources information for 154 basins and sub-basins around the world. Basin profiles include **land cover and land use variables** (such as percentage cover of wetlands, forests, irrigated cropland, urban and industrial areas etc.), **basin indicators** (such as basin area, average population density, number and size of dams etc.) and **biodiversity information and indicators** (such as number of Ramsar Sites, number of fish species, number of endemic bird areas, percent protected area etc.). The CD is available on-line here: <http://www.wri.org/publication/watersheds-world-cd>.

CIESIN

The Center for International Earth Science Information Network (CIESIN) provides interactive data access and mapping tools via the Internet. CIESIN was established in 1989 as an independent non-governmental organization to provide information that will help scientists, decision-makers, and the public better understand the changing relationship between human beings and the environment. See <http://www.ciesin.columbia.edu/index.html>.

African Water Resources Database

The African Water Resource Database (AWRD) is a set of data and custom-designed tools, combined in a geographic information system (GIS) analytical framework aimed at facilitating responsible inland aquatic resource management with a specific focus on inland fisheries and aquaculture. The AWRD data archive includes an extensive collection of datasets covering the African continent, including: surface waterbodies, watersheds, aquatic species, rivers, political boundaries, population density, soils, satellite imagery and many other physiographic and climatological data. The AWRD was designed based on recommendations of the Committee on Inland Fisheries for Africa (CIFA) and is both an expansion and an update of an earlier project led by the Aquatic Resource Management for Local Community Development Programme (ALCOM) entitled the "Southern African Development Community Water Resource Database" (SADC-WRD). The database can be accessed here: <http://www.fao.org/fishery/collection/awrd/en>.

- iii) Step 3c: Assessment of current status and trends in the wetlands and wetland-related services, as well as the degree to which the wetlands are potentially fulfilling their identified functions.

- 144. Wetlands can be managed in ways that deliver not only a range of water resource management objectives, such as maintaining the reliability and quality of water supplies, recharging groundwater supplies, reducing erosion, and protecting people from floods, but also a range of services considered valuable in other sectors, such as health, agriculture, tourism and fisheries.

145. It is important to have good information on where the wetlands are in the river basin, what their functions are, what services they provide, and what the values are of those services and functions to people in the basin and outside the basin. Having this information available makes it possible to assess the role that wetlands could play in the management of water resources within the basin, as well as in other related sectors.
146. Numerous studies throughout the world have shown that it is almost always more cost-effective to maintain natural wetlands than to drain or convert the wetlands to other (often marginal) uses and then try to provide the same services through structural control measures such as dams, embankments, water treatment facilities, etc. In many cases it has also been found cost-effective to restore or even create wetlands to provide these services and functions rather than to create expensive engineering structures.
147. There are various methodologies in use for systematically addressing the roles and values of wetlands in spatial planning, land use management, and river basin management. Parties can review these for suitability in the case of each river basin, depending on the local situation in terms of complexity of land use, size of the basin, data availability, and technical capacity within the institutions responsible for the planning phase.

See also Ramsar
Technical Report 3,
Valuing wetlands

How does this step relate to others in the Critical Path?

148. This is a step that can be initiated relatively early, and it can run in parallel with the preparatory phase (policy and institutional development as well as initiation of participation and consultation processes). The scope of work and the level of technical detail required for these studies is partly influenced by priority-setting in Step 4 - while rapid assessment techniques are often appropriate to determine the relative importance and functions of wetlands within a river basin, it may be necessary to return to Step 3 to undertake more detailed or intensive field studies on specific wetland ecosystems that are considered priorities within the river basin due to their importance or sensitivity. Nevertheless, Step 3 can begin with desktop studies if necessary, later progressing to much more detailed field work, according to a fieldwork and measurement programme that is informed by planning priorities.
149. An important component of the technical studies in Step 3 is to consider the water quantity and quality requirements of wetland ecosystems within the river basin, since this information will be needed in Step 4 for setting relative priorities within the basin, particularly for water resources planning purposes. Initial estimates and assessments of Environmental Water Requirements should be undertaken in Step 3 if this information is not yet available. Later, more intensive studies and detailed field work may be required in order to refine these assessments for conversion to formal water allocations in Step 5.
150. There is an important point of synchronisation and integration with broader water sector planning and management cycles at this point in the cycle (see Figure 2). Ideally, the wetlands-related inventory and assessment steps should be undertaken at the same time as a broader water resources situation assessment and hydrological yield analysis or yield estimation for the river basin. This provides opportunities for information about the

water quantity and quality requirements of wetlands, as well as the water resources functions and values of wetlands, to be fully integrated into water resources planning studies and the preparation of water use and water demand scenarios. These scenarios will then reflect more accurately the true costs and benefits of various water management options, particularly in relation to water allocations for maintaining wetland ecosystems and their associated ecosystem services.

151. Specialised and highly targeted CEPA processes and products may be required, in order to bridge any technical gaps between the two sectors at this point (see discussion on communication between the water and wetlands sectors). For example, there may be a need to ensure that spatial, hydrological and geographic data are easily transferable and that the scale and resolution of information from both sectors are compatible.
152. In Step 3, Parties should consider initiating a Strategic Environmental Assessment (SEA) process for the river basin. If SEA is initiated early in Step 3, then the information requirements of the SEA process can be addressed when developing the scope and terms of reference for the technical studies that are part of Steps 3a, 3b and 3c. The SEA process can complement and support the river basin planning process by providing a basis for decisions regarding priorities and objectives for the basin. SEA can also help to provide a planning baseline against which to evaluate project-specific Environmental Impact Assessments (EIA) and Cost-Benefit Analyses (CBA) in the implementation phase (Steps 7a and 7b). Guidance on EIA and SEA can be found in Ramsar Handbook [16] ([4th edition]).

See also Handbook
16, Impact
assessment

Who is involved in this step?

153. This step is primarily a technical task and should involve suitably qualified scientific and technical specialists in the gathering and preparation of the information. However, it is important also to involve stakeholders in this step in order to ensure that as much local knowledge as possible is made available, whether that knowledge is traditional or from other scientific studies. Involvement of local universities, research organizations, and technical personnel from local government departments will enhance the breadth and value of information collected, and it will help to ensure credibility as well as providing opportunities to build capacity for future collaboration in the implementation phase.

Additional information and guidance related to this step

154. For more information on inventory and assessment of wetlands, refer to Ramsar Handbooks ([4th] edition) [13] (*Inventory, assessment and monitoring*); [15] (*Wetland inventory*); and [12] (*Coastal management*).
155. For more information on understanding and quantifying groundwater-wetlands interactions, see Ramsar Handbook [11, 4th edition] (*Managing groundwater*).
156. For more information on valuation of wetlands and their associated services, see Ramsar Technical Report no. 3 (*Valuing wetlands*).
157. For more information on determination of environmental water requirements, see Ramsar Handbook [10, 4th edition] (*Water allocation and*

management), the forthcoming Ramsar Technical Reports on *Determination and implementation of environmental water requirements*, *Determination of environmental water requirements for estuaries, coastal and nearshore wetlands* and *Determination of environmental water requirements for rivers*; and Resolution VIII.2 (*Recommendations of the World Commission on Dams*).

158. For more information on Strategic Environmental Assessment (SEA), see Ramsar Handbook [15] (*Impact assessment*) and Resolution X.17 on EIA and SEA.

159. The following guidelines should be noted:

Guidelines Box J. Guidelines for Contracting Parties relating to inventory, assessment and enhancement of the role of wetlands in river basin management

- J1. Review information on functional and biodiversity assessment methodologies and the ways in which these can be applied to improve integration of wetlands into river basin management; adapt these to local situations.
- J2. Undertake studies to identify the ecosystem services and the functions and benefits to water management that are provided by the wetlands within each river basin, ensuring that such studies address interactions between groundwater and wetlands as well as environmental water requirements of wetland ecosystems.
- J3. Based on the findings of inventory and assessment of wetlands, protect urgently through appropriate actions the remaining wetland areas that contribute to water resource management. (See also Guideline B9 relating to protected areas.)
- J4. Consider the rehabilitation or restoration of degraded wetlands, or the creation of additional constructed wetlands within river basins, to provide services related to water management (refer to Resolutions VII.17 and VIII.16).
- J5. Ensure adequate consideration in river basin management programmes of non-structural flood control methods that take advantage of the natural functions of wetlands (for example, restoring floodplain wetlands or creating flood corridors) to supplement or replace existing flood control infrastructure.

Assessment of current and future supply and demand for water

160. An essential component of decision-making in river basin management is knowledge of both current and future supply of and demand upon water resources in a river basin, taking into consideration the possible impacts of climate change. Current and future assessments of the resource need to focus on the human uses of water (such as irrigation, hydro-electricity, and domestic or industrial water supply) as well as the water required to sustain wetland ecosystems within different parts of a river basin. Water demands and environmental water requirements should be defined in terms of water quantity as well as water quality.

161. Environmental water requirements can be more complex to quantify than human demands, and consequently they have often been ignored or underestimated in projected water demands. Ignoring environmental

Additional Information

Economic instruments, including Payment for Ecosystem Services in Watersheds

Economic instruments have become important tools to support implementation of river basin management plans. Previously, economic tools focused mostly on negative incentives to enforce or change behavior, such as the imposition of fines or penalties for pollution or non-compliance with regulations. More recent developments in this field have led to a range of tools which provide for incentive-based measures to change water use and behaviour as well as to affect policy.

These include tools to quantify and assess the value of ecosystem services associated with wetlands and water, and tools to incentivize restoration of watersheds and wetland ecosystems.

Some further reading and sources of information on such tools include, inter alia:

Emerton L & Bos E (2004). **Value: Counting ecosystems as water infrastructure**. Downloadable from <http://data.iucn.org/dbtw-wpd/edocs/2004-046.pdf>

Katoomba Group, United Nations Environment Program, Forest Trends (2008). **Payments for Ecosystem Services: Getting Started. A Primer**. UNEP, Nairobi, Kenya. http://www.unep.org/pdf/PaymentsForEcosystemServices_en.pdf

Smith, de Groot, Perrot-Maitre & Bergkamp (2006). **Pay: Establishing payments for watershed services**. IUCN, Gland, Switzerland. Downloadable from <http://data.iucn.org/dbtw-wpd/edocs/2006-054.pdf>

United States Environmental Protection Agency **Ecosystem Services Research Program: Wetlands Research** <http://www.epa.gov/ecology/quick-finder/wetlands-research.htm>

UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (2007). Recommendations on Payments for Ecosystem Services In Integrated Water Resources Management. http://www.unece.org/env/water/publications/documents/PES_Recommendations_web.pdf

Website for The Economics of Ecosystems and Biodiversity (TEEB), which includes links to case studies and additional information. <http://www.teebweb.org/>

water requirements may lead to major environmental, economic and social problems associated with loss of ecosystem services, such as collapse of fisheries or downstream saline intrusion. It is also important to recognize that the greatest damage to the environment may occur during extreme events rather than from the average situation.

162. Socio-economic systems are constantly changing, and therefore it is often necessary to develop a range of future demand scenarios and to develop flexible sustainable use strategies that can be adapted to a range of circumstances. Linked to the assessment of water demands is the identification and resolution of the significant water-related problems arising from the demand patterns identified in the scenarios. These problems should not be restricted to issues related to human activities but should also include ecological problems such as adaptation to reduced water supply or quality within certain ecosystems.

163. Water demand, in excess of the water required to meet basic human needs for drinking, cooking and personal hygiene, can be significantly influenced by incentives for sustainable water and wetland use. Provision of incentives for practising environmentally sustainable water use can help to minimise the impacts on wetland areas. Such incentives should recognize the importance and value of other ecosystem services supplied by wetlands, services that might be lost or reduced as a result of abstracting water to meet demands for water supply or allowing waste discharges in order to meet demands for waste disposal options.
164. Water demand management policies should encourage the optimization of water use, while also recognizing the significant public health-related value of access to safe, reliable water. Within a sectoral policy context, incentives for sustainable use of water resources need to be provided. Equally, environmentally unsound or inequitable incentives that are encouraging unsustainable practices need to be identified and removed. (Refer to Resolution VII.15 and Resolution VIII.23.)
165. The following guidelines should be noted:

Guidelines Box K. Guidelines for Contracting Parties relating to the identification of current and future supply and demand for water

- K1. Undertake assessments of current and potential future water supply and demand for water resources within the river basin to meet both ecological and human requirements and identify areas of potential shortage or conflict.
- K2. Undertake assessments to establish the economic and social costs that are likely to result if the ecological water demands are not met. (See also Handbook [10] (*Water allocation and management*); Resolution VIII.1 and Resolution VIII.2.)
- K3. Based on the above assessments, develop mechanisms to solve problems and conflicts over water quantity and quality at both national and river basin levels within the country. (See also Guidelines E1 and I2.)
- K4. Within an appropriate national policy framework, develop appropriate water demand management strategies to assist in sustaining the ecological functions and values of water resources and wetlands in the river basin. (See also Guideline B6.)
- K5. Review relevant incentive/perverse incentive measures and consider removing those measures that lead to destruction/degradation of wetlands in the river basin; introduce or enhance measures that will encourage restoration and wise use of wetlands. (Refer to Resolutions VII.15, VII.17, VIII.16 and VIII.23.)

Step 4: Setting agreed priorities for wetlands in the basin

What is this step and why is it important?

166. This step involves consideration of all the wetlands and wetland ecosystems in the river basin, including their interconnections with each other and with water and land resources in the basin. This should be a broadly consultative process, based on the information gathered during Step 3 on biophysical, ecological and socio-economic processes and priorities in the

basin, to identify the relative importance of the range of ecosystem services currently or potentially provided by all the wetlands in the river basin. Such consultation may need to extend to international level, particularly in the cases of shared river basins or where particular wetland ecosystems in the river basin are important for regional or global conservation purposes (such as wetlands on international flyways or wetlands on the Ramsar List).

167. Some wetlands might be afforded a higher protection status than others, due to their importance in conservation, hydrological, economic, social or cultural terms, their sensitivity, or the dependence of local populations upon their services. The protection status of a wetland is likely to influence the development of water and land use objectives not only in the immediate surrounding area of the wetland, but possibly also in the broader river basin. Hence, it is necessary to take a strategic view of the whole river basin and the wetlands within the basin in order to reconcile and integrate sectoral needs and demands with the needs for protection and management of the basin's wetlands.
168. The protection and restoration of wetlands is an important element of strategic planning within each river basin, not only because the wetlands provide services that can assist with water management, but also because wetlands are critical ecosystems that deserve protection and restoration in their own right. (Refer also to Resolutions VII.17 and VIII.16.)
169. Many wetland-dependent species require management in the river basin context to ensure their survival. In most countries, the protection of habitats and wildlife is conducted according to administrative boundaries and not river basin boundaries. This can lead to protection measures for one site or species being nullified by activities elsewhere in the river basin which, for example, block migration of the fish species or water flow to the wetland site. The restoration of degraded wetlands is one of the most important possibilities for reversing the trend of declining biological diversity within river basins.
170. The List of designated Ramsar sites provides a tool for recognizing and agreeing on wetlands of international importance, which in turn will convey a high protection status in the river basin management plan, but similar tools are needed to recognize wetlands of regional, national or local importance, or those of hydrological importance within a basin. Note also that not all wetlands which qualify as internationally important have as yet been designated by Contracting Parties, and the importance of any such sites not yet designated should also be taken into account.
171. Several planning approaches and frameworks have been developed and applied in structured planning processes that facilitate the integration of wetland services, functions and values into river basin management. Parties are encouraged to review those that are available and assess their suitability for local situations and different river basins.

How does this step relate to others in the Critical Path?

172. Step 4 is an essential precursor to Step 5. Outcomes of Step 4 should provide information on relative priorities, qualitative management objectives, and management strategies for wetlands in the river basin. This information

Additional Information

Spatial planning approaches to facilitate the integration of wetlands into river basin management

Various spatial planning approaches are available which can be applied to develop structured planning processes and to facilitate the integration of wetland services, functions and values into river basin management.

These approaches include, amongst others:

- the “ecosystem approach” which has been adopted by the Convention on Biological Diversity, and which is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. See <http://www.cbd.int/ecosystem/>
- the “Mountains to the Sea” implementation planning framework which was commissioned by WWF for the Parties to the Convention on Biological Diversity (CBD) to assist them adopting a ‘mountains to the sea’ or ‘ridge to reef’ approach for applying, through one integrated platform, the convention’s thematic and cross-cutting programmes, and, to do so within the framework of the ecosystem approach. See http://wwf.panda.org/about_our_earth/about_freshwater/freshwater_resources/?uNewsID=57580
- Systematic conservation planning for aquatic biodiversity, which has been applied in several countries. (For a review of this topic, see Nel *et al.* (2008). Progress and challenges in freshwater conservation planning. *Aquatic Conservation: Marine and Freshwater Ecosystems* Vol 19(4), pp474-485).

should reflect a multisectoral, multi-stakeholder agreement on how the river basin and its resources will be managed to meet, in a sustainable manner, sectoral needs and demands. The qualitative objectives developed in Step 4 form the basis for derivation of quantitative and detailed river basin management objectives in Step 5.

173. The relative priorities for protection and restoration of wetlands in the river basin should also inform the prioritisation of implementation actions later in the implementation phase (Steps 7a and 7b). Ensuring that activities in Step 4 are formalized, participatory and well-informed will greatly assist in prioritizing implementation actions later, including the use of financial resources as well as the allocation of water.

Who is involved in this step?

174. In order to facilitate the achievement of consensus on the river basin management plan in Step 6, it is important that this step 4 includes all stakeholders and that it is well structured and formalized, with appropriate records of decisions on the relative priorities of all wetlands in the river basin.
175. The following guidelines should be noted:

Guidelines Box L. Guidelines for Contracting Parties for prioritizing the protection and restoration of wetlands and their biodiversity

- L1. Assess the status of wetlands and their biodiversity in each river basin and, where indicated, undertake the actions needed to provide better protection measures, taking into account the importance and value of the ecosystem services provided by these wetlands as well as the need for protecting wetlands whose functions and services are important for water resources management. (See also Guidelines B9 and J3.)
- L2. In assessing the status of wetlands in each river basin, consider the inclusion of key sites in the List of Wetlands of International Importance (Ramsar List).
- L3. Ensure that management plans for Ramsar sites and other wetlands are prepared taking into consideration the potential off-site impacts from within the river basin, as well as the site-specific issues. (Refer to Resolution 5.7, Ramsar COP5.)
- L4. Review and, where necessary, adjust regulations and procedures for conservation of wetland-related biodiversity, especially for fish and other aquatic species, to protect rare species and prevent over-exploitation of more common species.

Step 5: Setting quantitative management objectives for wetlands in the basin

What is this step and why is it important?

- 176. In this Step 5, the priorities agreed for wetlands in the preceding Step 4 should be translated into practical, measurable, implementable and enforceable management objectives for wetlands in the river basin. The wetland objectives should address all of the aspects necessary for protection, management and wise use of wetlands in the river basin, including water quantity and quality, land use, habitat protection, resource utilisation and exploitation, restoration, and biodiversity conservation.
- 177. The wetland objectives arising from Step 5 should then be integrated into the broader river basin management plan (Step 6) through the development of specific targets, timelines, action plans and operating rules for the river basin that can give effect to the wetlands objectives.
- 178. In setting quantitative management objectives for wetlands in the river basin, it is particularly important to maintain the natural characteristics (water quantity and water quality) of water regimes as far as possible. Wetland ecosystems depend on the maintenance of the natural water regimes such as flows, quantity and quality, temperature, and timing to maintain their biodiversity, functions and values. The construction of structures that prevent the flow of water, and of channels that carry water out of the floodplain faster than would occur naturally, result in the degradation of natural wetlands and eventual loss of the services they provide. In this respect, Parties should note Resolution VIII.1, *Guidelines for the allocation and management of water for maintaining the ecological function of wetlands*.

How does this step relate to others in the Critical Path?

- 179. The quantitative management objectives provide the baseline against which to assess environmental impacts of current and future land and

water developments (in implementation Step 7). These objectives also need to be integrated into the business planning of the responsible land, water and wetlands management agencies, as well as into any community or customary use agreements and into other sectoral policies.

Who is involved in this step?

180. This is primarily a scientific task, but it requires the participation of responsible agencies as well as affected stakeholders.

Additional information and guidance related to this step

181. Refer to Ramsar Handbooks [9, 10 and 18, 4th edition], and Ramsar Technical Report (in prep.), *Determination and implementation of environment water requirements*, for further detailed guidance. See also Handbook [10] (*Water allocation and management*) and Resolution VIII.2.

182. The following guidelines should be noted:

Guidelines Box M. Guidelines for Contracting Parties relating to the maintenance of natural water regimes to maintain wetlands

- M1. Undertake studies to determine appropriate flow regimes for meeting the environmental water requirements of wetland ecosystems in the river basin, including water quantity and water quality, considering minimum flows, taking into account natural seasonal and inter-annual variability and allowing for an adaptive approach to implementation and refinement of these flow regimes.
- M2. With this information, establish the optimum flow allocations and regimes in the river basin to maintain key wetlands and other key ecological services and functions of river basins.
- M3. In situations where available information on biological parameters and physical habitat is inadequate for a definitive determination of the environmental water requirements of wetlands, use the precautionary principle to maintain the natural situation as closely as possible.
- M4. Develop sustainable water allocation plans for the various resource users within the river basin, including allocating water to maintain wetlands.
- M5. Regulate and monitor the impacts of land use in the river basin (agriculture, urban development, forestry, mining) and major infrastructure developments (levees, embankments, roadways, weirs, small dams and cuttings) undertaken within river and flood corridors and near wetlands.

Step 6: Preparing an integrated land and water management plan for the basin

What is this step and why is it important?

183. This step involves the development of an integrated plan for management of wetlands, land and water resources in the river basin, according to the priorities and needs agreed upon in Steps 4 and 5. Whether this is an initial concept plan (based on desktop studies and containing limited detail) or a

comprehensive operational plan for land, water and wetland management in the basin, ideally there should be a formal plan, signed off by all the responsible sectoral agencies, and with one institution formally accepting the lead role in implementation.

184. There is no single best way to set out such an integrated plan, and each country or basin should consider what format and structure would be most appropriate for its own situation. If a statutory river basin management institution has been established, and has been given the responsibility for preparation of the river basin management plan, then that institution may prepare a single plan that addresses the roles and responsibilities of all the relevant sectors. Alternatively, each sector might prepare a plan for its own activities and responsibilities, but these sectoral plans should be coordinated at river basin level.
185. A river basin management plan, whether simple or detailed, should include certain elements in order to facilitate later implementation:
 - The plan should clearly set out targets, timelines, action plans, operating rules and responsibilities, based on the outcomes of Steps 4 and 5.
 - The plan should include an appropriate monitoring and reporting programme for the basin that is designed to deliver information related to the actual management objectives that have been agreed upon for the river basin.
 - The plan should provide specific information on how the responsible institutions and agencies will respond to information arising from the monitoring and reporting programme.
 - The plan should indicate how resources and funding will be made available to support ongoing river basin management activities, both for institutional coordinating functions as well as for on-the-ground implementation such as habitat restoration projects.
 - There should be a clear statement regarding the process of review of the plan: how often the overall basin plan will be reviewed and the processes to be followed for review and revision when revision is indicated.
186. The river basin plan should include a plan and programme for implementation. This is particularly important, to avoid subsequent delays between the planning and implementation phases. See also the section 5.1 above on the preparatory phase at national level.
187. Many technically sound river basin management initiatives do not get beyond the planning stage into implementation. While it is recognized that some of the obstacles to implementation are political, and some are technical, a significant factor in promoting successful transition from planning to implementation is to have a practical implementation programme in place before the end of the planning phase. This implementation programme should be realistic and designed to be feasible within the constraints of the human resource capacity, technical capacity, and financial capacity of the river basin management institutions at national and river basin levels.

188. The implementation programme should take account of possible needs for phased implementation, especially in basins that are very large, or where institutional capacity is limited, or where significant problems must be addressed that are associated with long-term degradation of wetlands, land and water resources. Implementation could be phased geographically, i.e., at different times in different sub-basins, or it could be phased sectorally, i.e., addressing certain sectoral priorities before others, depending on the priorities agreed in Step 4.

How does this step relate to others in the Critical Path?

189. This is a step at which it is essential that the different sectoral planning and management processes are synchronized and integrated, or at least coordinated. This is another key step at which specialist CEPA programmes and products may be needed, to support cross-sectoral communication, collaborative planning, and harmonization of sectoral objectives.

Who is involved in this step?

190. This step should be led by the river basin management institution who has the mandate for preparation of the integrated river basin management plan. While technical specialists may be needed to assist in drawing up the plan, the responsible institution should “own” the plan and should coordinate with the other sectoral agencies and institutions that will give effect to the integrated plan through their own sectoral implementation programmes.

Additional information and guidance related to this step

191. Refer to Ramsar Handbooks 1, [9, 12, 15 and 18, 4th edition], for further detailed guidance. See also Guidelines Box F above.

Planning for implementation: assessing and minimising the impacts of land use and water development projects on wetlands and their biodiversity

192. The impacts of existing land use and water development projects on river systems and wetlands in a river basin need to be monitored and controlled through the coordination and integration of regulations and guidelines on forestry, agriculture, mining and extraction, urban development and water management, and water use. In many cases the implementation of such regulations and guidelines may lead to advantages for the land and water users themselves - through improved economic efficiency, enhanced production, and better health and quality of life.
193. It is necessary to ensure that appropriate enforcement and compliance mechanisms are in place and are being effectively implemented in support of the integrated river basin management plan.
194. Proposed new land use and water development projects should be considered against the integrated management objectives for the river basin, to ensure that the agreed river basin management objectives are not compromised by the impacts of new projects and developments. In a number of cases it has been found that the social and economic losses as a result of degradation of wetlands due to land use and water development projects have been significantly greater than the benefits gained from the projects themselves.

Additional Information

Impacts of land use and water development projects

Almost all land uses and development projects, through their use of water, their production of pollutants, or changes to the land surface or soils in the river basin, will have some impact on water quantity and quality and hence could affect wetlands. Water development projects can also have significant impacts, primarily through changes to the hydrological regime in a river basin.

The land uses that can impact most significantly upon rivers and wetlands are forestry, agriculture, mining and extraction activities, industry, and urbanisation. Inappropriate forestry practices, especially in the upper watershed, can lead to increased soil erosion and reduced water retention capacity. Agricultural activities can also cause significant levels of pollutants from agro-chemicals and agricultural wastes. Upland agriculture through land clearing and subsequent operation can have a major negative impact on water quality and can also lead to significant changes in flood and dry season flows. Lowland agriculture can lead to the drainage or conversion of floodplain wetlands, resulting in a loss of biodiversity and natural functions and benefits. In many developing countries, irrigation is the main justification for abstracting water from rivers.

The impact of mining and industrial activities is mainly through the release of pollutants, some of which may be highly toxic and may persist in the environment for very long times, even after the original mining or industrial activity has ceased. In addition, industrial activities or mining can instantly jeopardise entire river basins and all the associated wetlands and biodiversity through accidental spills. Mining and extraction activities can also have very significant impacts on groundwater hydrology and surface water hydrology through modifications to local topography and soils.

Urban areas have impacts through encroachment on wetlands, either directly or through associated infrastructure such as roads, ports, water supply and flood control. In addition the human populations they support bring increased demands on resources and direct pollution.

Water resource development projects are generally aimed at modifying the natural water flows in a river basin for purposes such as storing water through drought periods, preventing floods, transferring water to irrigated agricultural areas, providing industrial and domestic water supply, improving navigation, and generating electricity. Such projects have frequently been developed through the construction of engineered structures such as dams, diversion canals, channelisation of rivers, flood levees, etc. Many such projects, by modifying the natural conditions that have allowed wetlands to develop, have had a significant negative impact on wetlands and associated biodiversity.

Some of the most significant impacts of such projects include: reduction in river flows, blocking of pathways for migratory fish and other aquatic species, increased water pollution levels, disruption of timing of natural floods which maintain wetlands; reduction of sediment and other nutrient input into floodplain wetlands, drainage or permanent inundation of riverine wetlands, and salinisation of surface and groundwater.

Source: Ramsar Handbook 7, 3rd edition.

195. A range of assessment techniques is available to identify social and environmental costs of land use and water development projects and activities. These include Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), Cost Benefit Analysis (CBA), and Participatory Rural Appraisal (PRA). It is important that the relevant assessment

techniques be applied within a regulatory or formal context and in broadly consultative processes involving all stakeholders. The assessments should provide all the information necessary for approval or refusal of a project, including the information needed to determine appropriate licence conditions and mitigation requirements, including the periods before, during and after the project lifespan.

196. In order to fully assess the costs and benefits of proposed new projects, it is important to have good information on the values of wetlands and their services, as well as the potential social and economic costs of losing those services. Some of this information should have been gathered during the studies described in Step 3.
197. Another very helpful framework against which to assess potential project impacts is a Strategic Environmental Assessment (SEA) for an entire river basin (see also Step 3). If the SEA framework is in place, this can greatly facilitate the consideration of project proposals, definition of the scope of work for project-specific EIA, SEA and CBA.

Additional information and guidance related to this aspect

198. Refer to Handbook [10] (*Water allocation and management*), Handbook [11] (*Managing groundwater*), Resolution VIII.2 (*Report of the World Commission on Dams*) and Resolution X.17 (*Environmental Impact Assessment and Strategic Environmental Assessment: updated scientific and technical guidance*).
199. The following guidelines should be noted:

Guidelines Box N. Guidelines for assessing and minimising the impacts of land use and water development projects on wetlands and their biodiversity

- N1. Develop integrated land use plans for each river basin as a means to minimise the impact of different activities and land uses on the river and wetland systems as well as local residents. (See also Guidelines B3 and B9.)
- N2. Develop and enforce appropriate regulations to control land uses, especially forestry, agriculture, mining or urban waste management, so as to minimise their impact on river and wetland ecosystems. (See also Guideline B3.)
- N3. Carry out Environmental Impact Assessment (EIA) and Cost Benefit Analysis (CBA) studies for land use or water development projects which may have significant impacts on rivers and wetlands, using independent multidisciplinary teams and in consultation with all stakeholders, and consider alternative proposals including the no-development option.
- N4. Disseminate the findings of any EIA and CBA in a form that can be readily understood by all stakeholders.
- N5. Ensure that there are adequate control and mitigation measures to minimise or compensate for impacts if land use or water development projects are allowed to proceed.

- N6. Ensure that proposals for water development projects are carefully reviewed at their initial stages to determine whether non-structural alternatives may be feasible, possible, and desirable alternatives.
- N7. Take all necessary actions in order to minimise the impact of land use or water development projects on wetland biodiversity, ecosystem services, and socio-economic benefits during the construction phase and longer-term operation.
- N8. Ensure that the project design/planning process includes a step by step process to integrate environmental issues, especially initial biodiversity/resource surveys and post-project evaluation and monitoring.
- N9. Incorporate long-term social benefit and cost considerations into the process from the very initial stages of project preparation.

6.4 Implementation phase at river basin level

Step 7: Implementation at river basin and wetland levels

What is this step and why is it important?

200. Step 7 addresses parallel, coordinated implementation of the river basin management plan at two levels: river basin level (Step 7b) and wetland level (Step 7a). At wetland level, the responsibility for implementation may lie with a single sector (the wetlands sector), and possibly even with a single agency or institution. At river basin level, the lead institution may be a statutory river basin management agency or an institution or group of institutions working in collaboration. Whatever institutional arrangements are in place, implementation of the management plan at basin level will require coordination and integration among all the relevant sectors.
201. It can be very challenging to implement two kinds of instruments, a basin-level plan and a wetland-level plan, in parallel and in a way that ensures integration, consistency and synchronisation of activities at the necessary times and places.
202. Typical problems arising in implementation include:
- Sectoral spatial and temporal planning scales are often very different, depending on the sector and the objectives, and separate agencies may be responsible for the lead in each case.
 - Business planning and budget cycles amongst the sectoral agencies may not be matched.
 - Effective communication channels for data, information, policy and responses to problems may not have been established.
203. These problems are amongst the aspects that should be considered in the preparatory phase at river basin level, and appropriate solutions should be developed during the planning phase to facilitate coordination of implementation activities later.

How does this step relate to others in the Critical Path?

204. This step is dependent on the preparatory and planning phases having been completed to an appropriate level of detail. Three critical gaps in particular that can lead to problems in this step are:
- inadequate provisions for implementation capacity (see section 5.5 above);
 - failure to establish adequate institutional arrangements within the public sector to give effect to aspects of the river basin management plan (such as enforcement of discharge permits, operation of dams and other hydrological control structures, or collection of fees and tariffs) (see section 5.3 above and Step 1b);
 - inadequate attention in the planning phase to the design and support for an appropriate implementation programme (see Step 6).
205. Implementation is more likely to progress, especially in the early stages, if a realistic and clear implementation programme has been included in the river basin management plan, and has been taken up into the plans and programmes of all the relevant sectors whose activities influence land, water and wetlands within the basin.

Who is involved in this step?

206. Sometimes the day-to-day problems of working in parallel can be addressed through a joint working group that is fully inclusive of the various agencies and interest groups. This could have the status of, for example, the governing board of a river basin management agency if one is in place, or it may be a much less formal working group of technical officials who meet often to discuss and resolve operational problems.
207. Whatever the level at which the joint working group is established, it needs political support from the highest levels of all the organizations and agencies that are members of the working group. If this political support is not forthcoming, then committed technical field officials can often address most operational problems, but their work may be greatly hampered by legal challenges (for example, related to water allocations) and lack of organizational policy guidelines.

Additional information and guidance related to this step

208. Refer to Ramsar Handbooks [9, 10, 16 and 18, 4th edition], and Ramsar Technical Report (in prep.) on *Determination and implementation of environment water requirements* for further detailed guidance.

6.5 Review phase at river basin level

209. There are two levels of review:
- At the operational level (Step 8), monitoring results can and should feed back very quickly into refined management objectives or remedial actions, without necessarily requiring substantive review of the formal basin and wetland management plans.

- Formal strategic review (Step 9) of wetland and basin management plans should be conducted on a regular basis. Five to ten years is an appropriate time period, but it can be matched to business planning cycles as appropriate. As a result of this review, management priorities and objectives may be substantively revised (rather than just refined) to take account of changing ecological, social or economic conditions.

Step 8: Operational review activities: Monitoring and reporting

What is this step and why is it important?

210. The long-term sustainability of monitoring networks, the management and storage of the data, and the preparation and dissemination of reports are critical issues for implementation. Adaptive ecosystem management approaches generally rely on the inclusion of explicit monitoring and reporting steps to close the cycle. This step provides the “glue” which holds the whole Critical Path together. Yet monitoring and reporting activities are often those for which the least time and money is budgeted, and they are often the first to be cut back when budgets are tight.
211. It is likely that some of the management objectives will be social or economic, related to livelihood protection and enhancement. Monitoring programmes will then also need to provide information to track progress on these objectives, as well as on more widely-understood hydrological and ecological objectives. Performance criteria against which to evaluate the progress and management of planning and implementation activities are also necessary.
212. Reports presenting information on status, trends and progress may need to be packaged in different ways for different audiences such as politicians, agency managers, stakeholders, and community interest groups. Here, CEPA processes and products play an important role in preparing information for consultation, decision-making and planning at various levels in the river basin.

How does this step relate to others in the Critical Path?

213. Monitoring programmes need to be designed against the priorities and objectives set in Steps 4 and 5. There is little value in monitoring if the resulting information cannot be used to assess achievement of or progress towards the agreed management objectives for the river basin and for the wetlands within the basin.
214. Information will also be needed in the more strategic part of the review phase (Step 9) to guide review and possible revision of plans and objectives. The design of reports to support this activity should be considered as an important aspect of the monitoring and reporting programme.
215. Monitoring of the responses of ecosystems in the river basin to management interventions (such as the implementation of flow regimes to deliver environmental water requirements) is essential in order to follow an adaptive management philosophy successfully. The scientific understanding gained from monitoring these responses is critical in refining and optimizing management interventions during the strategic review in Step 9.

Additional Information

Involving local communities in monitoring wetlands within river basins

Many programmes to involve community groups in wetland and river basin management already exist, and they provide not only valuable data but also excellent opportunities for education at all levels, from school children to politicians. Some examples are:

- The GREEN programme <http://www.earthforce.org/GREEN> offers resources for community education and monitoring, and promotes an action-oriented approach to education based on a successful watershed (river basin) education model.
- The Water Monitoring Alliance (www.watermonitoringalliance.net/) is made up of organisations involved in the collection, analysis, reporting and dissemination of information on water in all its uses. The Alliance is a cooperative partnership among organisations working at the international, regional, national and local levels.
- Ribbons of Blue/Waterwatch aims to provide teachers and their students with practical, hands-on learning experiences focusing on the sustainability of local waterways, wetlands and their ecosystems. <http://www.ribbonsofblue.wa.gov.au/>.

Who is involved in this step?

216. It is possible that some of the necessary data might already be collected on a routine basis by one or more of the responsible sectoral agencies at river basin, national, regional or even international level. In such cases, the need at river basin level might be to identify who is monitoring, where they are monitoring, what they are measuring and how often, and then to initiate a process of coordination and collaboration to enhance the sharing and transferability of relevant information wherever possible. In other cases, there might be few or no other relevant monitoring programmes in place, and the river basin management institution will need to develop and implement its own programme.
217. It is important to identify, as early as possible but at least in the river basin management plan (Step 6), who will take on the responsibility for managing data and information for the river basin as a whole. This function could be undertaken by, for example, a local university on behalf of the river basin management institution, or by a dedicated department within the river basin management institution. Whoever takes on the responsibility should have adequate long-term technical, infrastructural, and competency capacity to do so, and the necessary human and financial resources should be secured.
218. The local community can also play an important role in managing and monitoring wetlands and rivers. Community-based monitoring programmes have the potential to generate very useful information for river basin management, and they can be excellent for early warning of potential problems. However, the greatest value of community-based monitoring programmes may be in raising awareness and interest amongst communities and individuals, which can lead to behavioral changes that can significantly benefit wetlands and water resources in a river basin.

Additional information and guidelines related to this step

219. Refer to Handbooks [9, 11, 13 and 18, 4th edition], for further information.

Step 9: Strategic review activities: Review, reflection and revisiting of plans and priorities

What is this step and why is it important?

220. Like monitoring, this is an essential step whose importance is generally greatly underestimated.

221. If carried out properly at both operational and strategic levels, this review step supports effective “learning-by-doing”, which is the foundation principle of adaptive management of ecosystems.

How does this step relate to others in the Critical Path?

222. This step relates to the Critical Path in two ways.

- First, this step closes the cycle when undertaken as a retrospective review of a full cycle of river basin management. Having adequate and appropriate information available for a strategic review step depends upon all the preceding steps having been undertaken to a level that is sufficient to inform dialogue and decision-making on future priorities for the river basin.
- Secondly, this step opens the cycle when undertaken as the starting point for “retrofitting”, i.e., attempting to begin integrating wetlands for the first time into an already existing river basin management process.

223. In a case where such “retrofitting” is planned, it is often helpful to begin with as full a strategic review (Step 9) as is possible with the available information. All available information related to management of the river basin, past and current, should be gathered and synthesised for such an assessment. This should include biophysical, ecological, socio-economic and institutional, as well as relevant information on the activities, plans and information held by other sectoral agencies.

Who is involved in this step?

224. The preparation of a situation assessment can often be undertaken by an independent individual or organization, possibly with external support or with support from a relevant sectoral agency intending to lead the initiation of river basin management planning. Most often, this would be a water sector agency or institution, at national or river basin level.

225. In a strategic review, the responsible river basin management institution should lead the dialogue and decision-making activities associated with this step. Preparation of the information required to support dialogue and decision-making could be carried out with assistance from external specialists if the institution does not have sufficient capacity.

Additional information and guidance related to this step

226. Refer to Ramsar Handbooks 2, 3, [6, 7, 9, 10, 15, 17 and 18, 4th edition], and Ramsar Technical Report (in prep.), *Determination and implementation of environment water requirements*, for further detailed guidance.

Additional Information

A century of managing the Grand River Basin

“The scope and thrust of watershed management has evolved significantly since Ontario’s first conservation authorities were created in the late 1940s. In the 1950s, ‘watershed management’ usually meant single-issue flood management programs. Today, ‘watershed management’ means integrated, ecosystem-based watershed management initiatives that include consideration of stream morphology, groundwater, terrestrial habitat, wetlands, woodlots, and environmentally significant or sensitive areas” (Conservation Ontario, 2003).

A timeline of events in the Grand River catchment is presented below, showing some of this evolution.

Early 1900s: Severe water problems associated with flooding, drought and degraded water quality experienced in southern Ontario, particularly in Grand River basin.

Grand River Improvement Association formed as flood prevention alliance and lobby group to appeal to province for aid in controlling river.

1930s: Report on Grand River Drainage (Finlayson Report) recognizes low flow as health hazard and considers problems of water supply, sewage disposal and flood control.

Grand River Conservation Commission (GRCC) formed, to carry out studies and undertake projects to ensure sufficient supply of water for municipal, domestic and manufacturing purposes and to control floods.

1940s: Province of Ontario passes Conservation Authorities Act, which states that best unit for conservation work is watershed. Grand Valley Conservation Authority (GVCA) formed, composed of 69 watershed municipalities which focus on activities not covered by GRCC (e.g. land acquisition, stewardship programmes, reforestation, erosion control, etc.).

1950s: *The Grand River Conservation Report - Hydraulics* produced, a watershed-wide management plan.

1960s: Grand River Conservation Authority (GRCA) results from amalgamation of GRCC and GVCA. Adopts resource management plan to integrate land and water projects, with initial emphasis on water control through multi-purpose dams and channel works.

1970s: Ontario Treasury Board report – “Review of Planning for the Grand River Watershed” – helps further cooperative watershed management among provincial ministries, agencies and municipalities and recommends carrying out comprehensive water management plan.

Ontario Ministry of the Environment leads multi-agency team to deal with water quality, water supply and flooding issues in Grand River basin.

1980s: Grand River Basin Water Management Plan complete. Cooperative planning project so successful that municipalities and Conservation Authority fully implement plan, resulting in 75% reduction in average annual flood damages, return of self-sustaining sport fishery to the river, and a water supply strategy.

Review of Conservation Authorities Program in Ontario recognizes overlapping responsibilities among provincial agencies and Conservation Authorities, without recommending substantive changes.

1990-1993: Participatory process produces *The Grand Strategy for Managing the Grand River as a Canadian Heritage River*. Advocates adaptive, on-going and flexible collaborative approach, based on consensus, commitment, co-operation and community involvement.

Provincial funding cuts announced.

Association of Conservation Authorities produces discussion paper acknowledging fragmented nature of resource management in Ontario and need to reduce overlapping institutional structure. Recommends that Province focuses on strategic planning aspects of resource management, and that Conservation Authorities coordinate and implement integrated watershed management.

1994-1997: *The Grand Strategy* accepted by Canadian Heritage Rivers Board making Grand River a Canadian Heritage River. Strategy's initial focus on management of human heritage features and recreation broadens to more holistic approach to address pressing watershed resource issues.

Given political realities, GRCA commences organizational and administrative restructuring reducing general membership to 26, leading to better direction for Conservation Authority activities, and greater participation and communications among municipalities. Strategic planning process also undertaken, keeping with *The Grand Strategy* values, beliefs and principles and focusing on improving watershed health and addressing cross-boundary issues.

Province reduces its funding support to Conservation Authorities by 70% following elections of Progressive Conservative Party.

1997-2002: Under umbrella of *The Grand Strategy*, GRCA works with partners to address approaching issues and determine priorities for action, including pollution, wastewater treatment, wise use of water, groundwater protection, Fisheries Management Plan, community-based plans for forest, wildlife and natural heritage management, etc.

Today, the Grand River watershed is one of the fastest growing areas in Canada. Associated threats are rising costs for treating wastewater, agricultural intensification and industrialization leading to diminishing health and resiliency of the natural environment. To deal with these critical issues, *The Grand Strategy* has evolved into a collaborative process that identifies problems, develops creative solutions, pools resources, implements action, monitors results and evaluates progress on an ongoing basis. It includes participation from federal and provincial governments, municipalities, First Nations, business, organisations, educational institutions and the general public. While the issues of fragmented jurisdictions and funding still exist, a spirit of cooperation and joint problem solving assists in surmounting institutional barriers and making things happen "on the ground". Within *The Grand Strategy* network, information is shared and resources are pooled. Progress is documented and celebrated through monthly newsletters, special events and an annual Registry of Accomplishments.

Based on: **Conservation Ontario. 2003. *Watershed Management in Ontario: Lessons Learned and Best Practices*** http://www.conservation-ontario.on.ca/projects/pdf/reports/PHASE%20I/lessons_learned_best_practices.pdf.

Veale, Barbara. 2004. "Watershed Management in Grand River Watershed" in *Towards a Grand Sense of Place: Writing on changing environments, land-uses, landscapes, lifestyles and planning of a Canadian Heritage River*. pp. 261-276. Gordon Nelson (ed.), Environments Publications: Heritage Resources Centre, University of Waterloo, Waterloo, Ontario. 331 pages.

Veale, Barbara (2004). A review of the Grand Strategy 1994-2004. Grand River Conservation Authority, Cambridge Ontario. 52pp + appendices. <http://www.grandriver.ca/chrs/10YearReport.pdf>

7. Integrating wetlands into river basin management: international cooperation and partnerships

227. All of the principles, guidelines and information provided in the preceding sections, dealing with the phases of integrated river basin management, are applicable to shared and/or transboundary river basins. Transboundary river basins include those basins that are shared by two or more countries, and also those basins whose management may be shared between different administrative units, for example between states in a federal system. In the context of this guidance, transboundary basins are not limited to rivers and can include transboundary aquifers and lakes.
228. Section 7.1 addresses special issues related to internationally shared river basins, i.e. those which are shared between one or more countries. Section 7.2 deals with international partnerships for implementing integrated river basin approaches more generally, whether the river basins themselves are shared or not.
229. The challenges associated with communication, participation, collaboration and institutional arrangements in the management of shared river basins, and in the management of wetlands within shared river basins, are more complex but not very different in nature to those same challenges in river basins that lie entirely within a single political or administrative boundary.
230. In a shared river basin, more time and attention might be needed to effect harmonization of laws and policies, as well as other international agreements, in the preparatory phase. CEPA and participatory processes may need to consider multiple languages and cultures within a shared basin. Sectoral planning processes will need to take account not only of the needs and priorities of other sectors, but also of other countries that share the basin.
231. Even though it is challenging, collaborative management of shared river basins has the potential to be a “catalyst for cooperation” (WWAP, 2006) rather than a source of conflicts.

7.1 Special issues related to shared river basin and wetland systems

See also Handbook 20, International cooperation

232. In cases where a river basin is shared between two or more Contracting Parties, the Ramsar Convention’s Article 5 makes it clear that these Parties are expected to cooperate in the management of such resources.
233. The declaration of the Second World Water Forum, in Paris in March 1998, emphasized that riverine countries need to have a common vision for the efficient management and effective protection of shared water resources. The Africa Water Vision 2025 (UN Water/Africa, undated) takes the view that “water basins serve as a basis for regional cooperation and development, and are treated as natural assets for all within such basins”.
234. There is a range of possible institutional arrangements that might facilitate cooperation between countries that share a river basin. The most formal arrangement might be the establishment of an international river basin organization or commission, created by several basin countries to facilitate

Additional Information

Implementation of the Ramsar Convention at basin scale: building a partnership to save Lake Chad Basin

Lake Chad is located in the eastern part of the Sahel region of Africa at the southern edge of the Sahara desert. The lake and its active hydrological basin constitutes an immensely important freshwater resource, being Africa's fourth largest lake (in surface area) after Lakes Victoria, Tanganyika and Nyassa, and its importance for human development is intensified by the fact that the lake lies in a dry area with temperatures exceeding 45°C from April to June in some parts of the basin.



Since 1972, due to the drought in the Sahel, there has been a serious reduction in the size of the lake, with devastating consequences for the Lake Chad ecosystem which have yet to be fully assessed.

Fortunately, right after the independence of the countries sharing the Basin, the Lake Chad Basin Commission (LCBC) was created by the Fort Lamy (now N'Djamena) Convention signed on 22 May, 1964, by the Heads of State of the four countries which share the lake, namely Cameroon, Chad, Niger and Nigeria. In 1994 and 2000, the Member States increased to five and six with the admission of Central African Republic and Sudan respectively. The major purpose of the Lake Chad Basin Commission is to promote an integrated management of the resources of the basin through continued support of regional cooperation, coordination of regional programmes, planning, mobilization and follow-up of national projects with regional implications.

Integrated Management Solution of the Lake Chad Basin Ecosystem

As part of its mandate of fostering regional cooperation through ensuring the wise, efficient and sustainable exploitation of the resources of the conventional basin, the LCBC has embarked on a number of projects in partnership with international organizations and national and local stakeholders aimed at integrated management of the Lake Chad Basin. The project of the Global Environment Facility (GEF) on the "Reversal of Land and Water Degradation Trends in the Lake Chad Basin", [which began] in September 2003, offer[ed] opportunities for the enhancement of integrated river basin management efforts in the Lake Chad basin and perhaps a model for other regional initiatives.

In addition, the agreed "Lake Chad Vision 2025" is consistent with the "Action Plan for Managing Africa's Wetland" as part of the Environmental Initiative of New Partnership for Africa's Development (NEPAD). In order to help in realizing this Vision, in November 2002 the LCBC signed a Memorandum of Cooperation with the Secretariat of the Ramsar Convention that will advance the decision of the Tenth Summit of the LCBC Heads of State in July 2000, to designate the entire Lake Chad as a Transboundary Ramsar Site under the Ramsar Convention in a partnership between the LCBC, Ramsar, and WWF Living Waters Programme.

The progress of the LCBC shows a sophisticated recognition of the interdependence between the sustainable use of freshwater resources and the conservation and sustainable management of freshwater ecosystems (wetlands), one which may provide a model for the work of other basin commissions in Africa and beyond.

For more information, visit <http://lakechad.iwlearn.org/>

consultation, negotiation and broad coordination, with appropriate statutory and regulatory powers delegated to it by the member countries.

235. Less formal arrangements might include bilateral and multilateral joint technical groups, established for the purpose of sharing information about the basin and its management and for cooperating on implementation at technical levels, such as in joint monitoring programmes.
236. As a minimum, countries sharing a river basin are encouraged to establish frequent specific contacts in order to exchange information on wetlands and river basin management. Opportunities for information exchange and collaboration include:
 - establishing networks for monitoring and exchanging data on the water quality and quantity in the basin;
 - a joint analysis of information on the quantity and type of water used for various purposes in each country;
 - exchange of information on protection measures for groundwater, upper catchments and wetlands;
 - sharing of information on structural and non-structural mechanisms for regulating flow for navigation and flood prevention;

Additional Information

The Danube Commission and its River Basin Management Expert Group

The Danube River is a source of life for 83 million people living in its 800,000 sq km basin, covering 18 European countries. The river irrigates the fields along its course, feeds the surrounding population on fish, and carries people and goods along its 2,857 km long course. Its natural beauty inspires poets, painters and composers – for centuries, it has attracted conquerors and influenced the course of history. However, recent times have been dominated by cooperation. On the basis of the UN-ECE Convention on the Protection and Use of Transboundary Waters (Helsinki Convention), a corresponding agreement, the Danube River Protection Convention (DRPC), was developed and signed in Sofia in 1994. DRPC was designed to encourage the Contracting Parties to intensify their water management cooperation in the field of water protection and use. It became the overall legal instrument for cooperation and transboundary water management in the Danube River basin.

With the entry into force of DRPC in 1998, the International Commission for the Protection of the Danube River (ICPDR) was established as the main decision-making body under the Convention. It represents a common platform for the sustainable use of the basin's resources in relation to its aquatic ecology and for a coherent and integrated river basin management. The ICPDR, through its River Basin Management Expert Group, has coordinated the development of a comprehensive management plan for the entire Danube river basin using the principles of the EU Water Framework Directive. Of the 13 main Danube states, a majority are currently EU Member States; they cooperate with four additional states in the lower Danube basin, thus assuring the best ways of transfer and exchange of technology and know-how. ICPDR is providing a basin-wide platform for the coordination necessary to develop a River Basin Management Plan (RBMP) which provides a programme of measures to ensure that environmental objectives (such as the achievement of good water status by 2015) are met on time. The Roof Report, containing information on issues of multilateral importance and the basin-wide coordination arrangements, was submitted to the EC in 2004 and an analysis of river basin characteristics, pressures and impacts in 2005.

- joint planning related to regional protected area systems covering inland as well as coastal wetland ecosystems;
 - development of scientific programmes to address migration of aquatic biota such as mammals and reptiles within and between river basins;
 - establishment of programmes to support equitable sharing of water resources.
237. The aim should be the preparation of technical reports on the river basin, including information on the needs of the local inhabitants in each part of the basin as well as existing or potential problems in parts of the river basin that require separate or collaborative efforts to deal with them.
238. In some cases, several countries within a region may wish to collaborate on issues and programmes of regional interest, such as equitable allocation of water, power generation, protected area networks or transport planning, that affect or are affected by conditions in a number of neighbouring river basins, even if these basins themselves each lie entirely within one country. In such cases, the guidance on international cooperation and partnerships is equally relevant.

In 2000, the ICPDR established an Ecological Expert Group to support activities related to the conservation and sustainable management of riverine ecosystems in the Danube basin, as well as those terrestrial and wetland ecosystems directly depending on them. Some of the ecological experts participating in this group are also Ramsar focal points at national level. Where this is not the case, mutual exchange of information between the Danube experts, often coming from the water management sector, and Ramsar focal points, often representing the nature conservation sector, is crucial. It has identified local wetland pilot projects to be submitted to the UNDP/GEF Danube Regional Project and raised awareness among local NGOs about available grants and training material. With the reorganization of work of the ICPDR in 2006, the Ecological Expert Group's mandate was not renewed. It is therefore important that the River Basin Management Expert Group fully integrates the ecological and wetland aspects in their work; the Ramsar National Focal Points in Danube basin countries need to engage actively with them. Furthermore, experts of WWF International's Danube-Carpathian Programme, the International Association for Danube Research (IAD), and others support the work of the national experts substantially.



The Ecological Expert Group of the ICPDR supports activities related to the conservation and sustainable management of riverine ecosystems in the Danube basin, as well as those terrestrial and wetland ecosystems directly depending on them. Some members of the Expert Group are pictured here on a visit to the Danube Floodplain National Park, Austria, 2002, during the 5th meeting of the group. Photo: Tobias Salathé/Ramsar.

For more information visit www.icpdr.org.

7.2 Partnerships with relevant conventions, organizations and initiatives

239. In order to undertake an effective approach to promoting the integration of wetland conservation and wise use into river basin management, it is important that the Contracting Parties to the Ramsar Convention be aware of, and take into consideration, the related activities of other international conventions, organizations and initiatives.
240. The sustainable use of freshwater has been identified as a critical component of Agenda 21 and as such has been the focus of a series of meetings under the auspices of the United Nations Commission on Sustainable Development and other UN agencies. Other relevant recent and current international initiatives include:
- the Global Water Partnership, which provides a framework to coordinate efforts to promote integrated water resource management, especially in developing countries;
 - the Vision for Water, Life and the Environment, developed under the auspices of the World Water Council;
 - the establishment of the United Nations Decade of Water (<http://www.un.org/waterforlifedecade/index.html>);
 - the outcome of the World Summit on Sustainable Development in Johannesburg in 2002, which called for the development of integrated water resources management and water efficiency plans in all countries by 2005, with support to developing countries;
 - the Transboundary River Basin Initiative (TRIB) project, initiated by the United Nations Development Programme.
241. It is important that guidelines and activities under the framework of the Ramsar Convention serve as a linkage and input to other relevant initiatives at the international level.
242. Several other conventions and agreements are relevant in terms of these Guidelines at the global and regional level:
- The Convention on Biological Diversity (CBD), which has identified the conservation of the biodiversity of inland waters as a particular priority. CBD has adopted a Joint Work Programme with the Ramsar Convention to address this matter. CBD decision IX/19, paragraphs 2 and 3, refers specifically to the importance of improved international cooperation regarding the allocation and management of water and urges its Parties to strengthen relevant international cooperative arrangements for this.
 - Various international or transboundary watercourse conventions and agreements exist that require states to avoid, eliminate or mitigate significant harm to other watercourse states. These assist states to establish rules with regard to the changes in use of an international watercourse and cover issues such as EIA, consultation, joint protection of watercourse ecosystems, pollution control, introduction of alien species, prevention of erosion, siltation, and salt water intrusion. These are general frameworks for the protection and ecologically sound management of transboundary surface waters and groundwaters in

both lakes and rivers. Further details of the relevance, utility and legal nature of two important United Nations watercourse conventions are provided by the CBD (Brels, Coates and Loures, 2008).

- The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and the Washington Declaration were adopted in 1995 and UNEP was tasked to lead the coordination effort and hosts the GPA Coordination Office. It addresses the linkages between freshwater and the marine environment. The comprehensive, multi-sectoral approach of the GPA also reflects the desire of Governments to strengthen the collaboration and coordination of all agencies with mandates relevant to the impact of land-based activities on the marine environment, through their participation in a global programme.

243. At the regional and river basin level there are a great number of multilateral and bilateral agreements which provide a basis for cooperation in the management of shared water resources. UNEP (2002) [has] conducted a review of such agreements.

Guidelines Box O. Guidelines for Contracting Parties for the management of shared river basins and wetland systems, and partnership with relevant conventions, organizations and initiatives

- O1. Identify and describe shared river basins, document the key issues of common concern in the basin (diagnostic study), and develop formal joint management arrangements or collaboration for development and implementation of action plans to deal with such issues.
- O2. Where appropriate, establish or strengthen bi- or multi-state river basin management commissions to promote international cooperation for shared water resources and wetland management.
- O3. With regard to shared river basins, Contracting Parties should inform the Ramsar Secretariat of the establishment of any joint management arrangements and also of actions by other party or non-party states which may lead to changes in the ecological character of sites included in the List of Wetlands of International Importance (Ramsar List) in their own portion of the basin.
- O4. Ensure that these guidelines, and other related guidelines under the Ramsar Convention, are brought to the attention of the relevant international conventions, organizations and programmes, with a view to ensuring that the objectives of the Ramsar Convention are reflected in the activities of these other initiatives.
- O5. Ensure close coordination at the national level between the Ramsar Administrative Authorities and the focal points for other international conventions and agreements related to these subjects.
- O6. Ensure, as appropriate, adequate consideration of wetland-related issues in the operation of any regional agreements related to shared river basins and water resources.

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Relevant Resolutions

Resolution IX.3

(adopted by the 9th Conference of Parties, Kampala, Uganda, November 2005)

Engagement of the Ramsar Convention on Wetlands in ongoing multilateral processes dealing with water

1. ACKNOWLEDGING the United Nations “World Water Development Report”, showing the worsening water crisis due to water mismanagement and RECOGNIZING that global climate change and variability are likely to exacerbate this crisis;
2. RECALLING the commitments made by governments in the United Nations Millennium Declaration and at the 2002 World Summit on Sustainable Development to reduce by half by the year 2015 the proportion of people who are unable to reach or to afford safe drinking water and the proportion of people without access to basic sanitation; to develop by 2005 integrated water resources management and water efficiency plans; and to achieve by 2010 a significant reduction in the current rate of loss of biological diversity;
3. ALSO ACKNOWLEDGING the vital contribution that wetlands make to the protection, purification, retention and provision of water resources for water and food supplies and their key role in groundwater recharge and flood control on which the well-being of people and their livelihoods depend, and AWARE of the decision adopted by the Commission on Sustainable Development at its 13th session (CSD13) in April 2005, which emphasized the same themes;
4. FURTHER ACKNOWLEDGING that CSD13 decided on a follow-up on water and sanitation by devoting, in 2008 and 2012, a separate segment of CSD review sessions to monitoring and following up the implementation of decisions taken at CSD13 on water and sanitation and their interlinkages;
5. AWARE of the Global Water Partnership and the range of tools and technical guidance it provides on integrated water management;
6. WELCOMING the outcome of the FAO-Netherlands conference on “Water for Food and Ecosystems – Make it Happen” on the implementation of actions for an integrated approach to balancing water resources for food production and proper ecosystem functioning, which highlighted the necessary components of such an approach, *viz.* scientific knowledge base, enabling environments, and valuation methodologies for water ecosystem benefits/services;
7. AWARE of the findings of the Millennium Ecosystem Assessment (MA) that global wetlands account for almost half of the total value of all ecosystems combined, but that wetland ecosystems seem to be deteriorating at a faster rate than any other ecosystem, and aware of the MA conclusions that the survival of wetlands and related ecosystems and their important contributions to global development depend upon the achievement of a balance between the human need for ecosystem benefits/services and the need for continued functioning of wetland ecosystems;
8. RECOGNIZING that wetland ecosystems play a critical role in water management;
9. RECOGNIZING the crucial role wetlands play in relation to poverty reduction and natural disaster preparedness, mitigation and adaptation as reflected in Resolutions IX.9 and IX.14;

10. RECALLING the analysis of all regional COP9 preparatory meetings of the Parties to the Ramsar Convention of the possibilities and limitations for regional cooperation in the management of transboundary / cross-border water resources and of Ramsar sites and the migratory species and populations which depend upon them;
11. RECOGNIZING the momentum provided by the international organizations associated globally with the Ramsar Convention, whose initiatives aim at achieving the wise use of wetlands with the involvement of all sectors; and
12. ALSO RECOGNIZING the contributions to the global and regional water debates/meetings/sessions of the three World Water Forums held in Marrakech, Den Haag and Kyoto, and PLEASED by the prospective celebration of the Fourth Water Forum in Mexico in March 2006;

THE CONFERENCE OF THE CONTRACTING PARTIES

13. AFFIRMS that the conservation and wise use of wetlands is critical for the provision of water for people and nature, and that wetlands are a source, as well as a user, of water, in addition to supplying a range of other ecosystem benefits/services;
14. ALSO AFFIRMS that priorities for water management should reflect the goals of safekeeping and maintaining water resources, as well as maintaining the ecological character of wetlands;
15. CALLS on Contracting Parties to bring Resolutions VI.23, VII.18, VIII.1, and COP9 Resolution IX.1 Annex C and its appendices and the "*Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands*" (Ramsar Handbook 12) to the attention of national, regional and local authorities in charge of water management for their integration into, and their multisectoral implementation through, national Integrated Water Resources Management plans so as to include an ecosystem approach consistent with the Ramsar Convention;
16. UPHOLDS the principle that governments should commit to informing and organizing the meaningful participation of all sectors of society in decision-making on the conservation, distribution, use and management of water at local, regional and national levels;
17. RENEWS its call to governments and institutions at all levels to ensure that the maintenance of wetlands and their functions are fully taken into account in the design, planning and implementation of water-related projects, poverty reduction strategy papers, and coastal zone planning;
18. CONFIRMS the need to consider an enhanced focus on collaboration amongst Contracting Parties to the Ramsar Convention on the issue of wetland conservation for the wise management of water resources;
19. REQUESTS the Ramsar Secretariat to cooperate with the Secretariat of the Fourth World Water Forum (Mexico, 2006) and other relevant global and regional water initiatives in the future in order to ensure that the importance of wetland ecosystem benefits/services is recognized in the Forum outputs as a key element to effectively managing water resources whilst maintaining the ecosystem functioning of wetlands;
20. INSTRUCTS the Ramsar Secretariat to promote and implement, with Contracting Parties, relevant and key elements of the decision taken at CSD13 on Integrated Water Resources Management, including *inter alia* enhancing the sustainability of ecosystems that provide essential resources and benefits/services for human well-being and economic activity and developing innovative means of financing their protection; protecting and rehabilitating catchment areas for regulating water flows and improving water quality, taking into account the critical role of ecosystems; and supporting more effective water demand and

water resource management across all sectors, especially in the agricultural sector; and ALSO INSTRUCTS the Secretariat to report to the 34th meeting of the Standing Committee on an action plan for the Convention in promoting these themes in order for the Standing Committee through the Secretary General to provide input to the CSD report-back session in 2008; and

21. FURTHER INSTRUCTS the Secretariat to prepare a report for COP10 on the Convention's activities in promoting these themes.
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Resolution X.19

(adopted by the 10th Conference of Parties, Changwon, Republic of Korea, 2008)

Wetlands and river basin management: consolidated scientific and technical guidance

1. AWARE of the suite of technical and scientific guidelines and other materials prepared by the Scientific and Technical Review Panel (STRP) to support Contracting Parties in their implementation of wetland conservation and wise use;
2. NOTING that the 9th Meeting of the Conference of the Contracting Parties (COP9) instructed the STRP to prepare further advice and guidance for consideration by Contracting Parties at COP10, focusing on the immediate and high priority tasks set out in Annex 1 to Resolution IX.2;
3. THANKING the STRP for its work in preparing the advice and guidance annexed to this Resolution, as well as for the supporting technical reviews and reports being made available to Contracting Parties and others as COP Information Papers and Ramsar Technical Reports; and
4. ALSO THANKING the government of Sweden for its financial support to the Panel and Working Groups for the preparation of this advice and guidance and the technical reports, and EXPRESSING GREAT APPRECIATION to the many organizations and individuals that have provided significant in-kind support to the work of the Panel, including through supporting the time and work of its members and observers and through providing to the Panel information and case studies related to river basin management;

THE CONFERENCE OF THE CONTRACTING PARTIES

5. NOTES the "Consolidated Guidance for integrating wetland conservation and wise use into river basin management" provided in the annex to this Resolution, and INVITES Contracting Parties to make good use of it as appropriate, adapting it as necessary to suit national conditions and circumstances, within the frameworks of existing regional initiatives and commitments, in the context of sustainable development and in accordance with national institutions and legal frameworks;
 6. CONFIRMS that the "Consolidated Guidance for integrating wetland conservation and wise use into river basin management" in the annex to this Resolution updates and wholly supersedes the earlier guidance on this matter adopted as the annex to Resolution VII.18 and as Annex Ci to Resolution IX.1;
 7. INVITES Contracting Parties to draw this "Consolidated Guidance for integrating wetland conservation and wise use into river basin management" to the attention of all relevant stakeholders, including *inter alia* government ministries, departments and agencies, water
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and basin management agencies, non-governmental organizations, and civil society, and FURTHER INVITES Contracting Parties to encourage these stakeholders to take these guidelines into account, together with those of the Ramsar Toolkit of Wise Use Handbooks, in their decision-making and activities that relate to the delivery of the wise use of wetlands through the maintenance of their ecological character;

8. INSTRUCTS the Scientific and Technical Review Panel to undertake, as a priority task during the next two triennia, a review of the operative paragraphs of all adopted Resolutions concerning water and wetlands interactions; to make recommendations concerning consolidation, updating and retirement of aspects of these Resolutions in relation to recent developments; and to prepare for COP12 consideration a new draft Resolution concerning water and wetlands issues;
9. INSTRUCTS the Ramsar Secretariat to disseminate widely the “Consolidated Guidance for integrating wetland conservation and wise use into river basin management” annexed to this Resolution, including through amendment and updating of the Ramsar Wise Use Handbooks as well as through a proactive approach towards other relevant multilateral environmental agreements (MEAs), especially the Convention on Biological Diversity and the UNECE Water Convention, as well as the secretariats of regional and sub-regional bodies involved in management of shared river basins¹, and to build the capacity, especially in developing countries, of National Focal Points to use and widely mainstream this guidance in their countries; and
10. REQUESTS the Secretariat to invite the relevant MEAs, subregional and regional bodies mentioned in paragraph 9 above to report on actions taken in relation to this Resolution and the annexed guidance.

1 Note: The terms “shared river basins” and “transboundary river basins” have both been used in previous Ramsar Resolutions and are both in wide usage in different parts of the world. For the purposes of this Resolution and its annexed guidance, the term “shared” is used to refer to river basins in which groundwater and surface water flow across or between two or more countries. However, the term “transboundary” river basins is also commonly used to describe river basins whose management is shared by different administrative units, for example between two or more local authorities, within the same country. In this guidance, it is used in this sense. The use of these expressions and the aforementioned explanation do not imply acceptance by all Parties [and differs from the use in designating Transboundary Ramsar Sites]. The reading of this Resolution and its annexed guidance shall be in accordance with Principle 2 of the Rio Declaration.

The Ramsar Convention 'toolkit' for the conservation and wise use of wetlands, 4th ed. (2010)

Convention pillar 1: Wise Use

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| Handbook 1 | Wise use of wetlands Concepts and approaches for the wise use of wetlands |
| Handbook 2 | National Wetland Policies Developing and implementing National Wetland Policies |
| Handbook 3 | Laws and institutions Reviewing laws and institutions to promote the conservation and wise use of wetlands |
| Handbook 4 | Avian influenza and wetlands Guidance on control of and responses to highly pathogenic avian influenza |
| Handbook 5 | Partnerships Key partnerships for implementation of the Ramsar Convention |
| Handbook 6 | Wetland CEPA The Convention's Programme on communication, education, participation, and public awareness (CEPA) 2009-2015 |
| Handbook 7 | Participatory skills Establishing and strengthening local communities' and indigenous people's participation in the management of wetlands |
| Handbook 8 | Water-related guidance An Integrated Framework for the Convention's water-related guidance |
| Handbook 9 | River basin management Integrating wetland conservation and wise use into river basin management |
| Handbook 10 | Water allocation and management Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands |
| Handbook 11 | Managing groundwater Managing groundwater to maintain wetland ecological character |
| Handbook 12 | Coastal management Wetland issues in Integrated Coastal Zone Management |
| Handbook 13 | Inventory, assessment, and monitoring An Integrated Framework for wetland inventory, assessment, and monitoring |
| Handbook 14 | Data and information needs A Framework for Ramsar data and information needs |
| Handbook 15 | Wetland inventory A Ramsar framework for wetland inventory and ecological character description |
| Handbook 16 | Impact assessment Guidelines on biodiversity-inclusive environmental impact assessment and strategic environmental assessment |
| Convention pillar 2: Ramsar sites designation and management | |
| Handbook 17 | Designating Ramsar Sites Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance |
| Handbook 18 | Managing wetlands Frameworks for managing Ramsar Sites and other wetlands |
| Handbook 19 | Addressing change in wetland ecological character |
| Convention pillar 3: International cooperation | |
| Handbook 20 | International cooperation Guidelines and other support for international cooperation under the Ramsar Convention on Wetlands |
| Companion document | |
| Handbook 21 | The Ramsar Convention Strategic Plan 2009-2015 Goals, strategies, and expectations for the Ramsar Convention's implementation for the period 2009 to 2015 |

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Handbook 9

River basin management



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