



**15th meeting of the Conference of the Contracting Parties
to the Convention on Wetlands**

**“Protecting wetlands for our common future”
Victoria Falls, Zimbabwe, 23-31 July 2025**

COP15 Doc.22.2

**Consolidation of existing Resolutions:
Draft consolidated resolution on water, water-related and water-
management-related matters**

Note from the Secretariat:

In paragraph 10 of Resolution XIV.5 on *Review of Resolutions and Recommendations of the Conference of the Contracting Parties*, regarding the review and consolidation of current Resolutions, the Conference:

“10. DECIDES to establish, subject to available resources, an iterative process for the consolidation of Resolutions of the COP, as follows:

- a) the general objective of the consolidation is to facilitate the understanding and implementation of Resolutions by combining into a single Resolution the texts from existing Resolutions that deal with the same subject, or sub-subject, using the words from the existing Resolutions as far as possible, while eliminating discrepancies and inconsistencies, clarifying the meaning, standardizing the terms used, correcting grammatical errors, updating parts that are out of date and eliminating parts that are defunct;
- b) after each meeting of the COP, the Standing Committee will select a small number of subject categories (generally two to four) from the list of categories of Resolutions in Annex 2 of the present Resolution, for which the Secretariat (or its consultant) will prepare draft consolidated resolutions for consideration at the following COP;
- c) the document presenting each draft consolidated resolution will indicate the origins of the texts presented and explain any differences from the existing Resolutions;
- d) draft consolidated resolutions will not include any new concepts, policies, rules or guidance that have not previously been agreed by the COP;
- e) the text of each draft consolidated resolution will indicate that it repeals the Resolutions that are being consolidated and that it is designed to replace;

- f) each draft consolidated resolution prepared by the Secretariat will be presented to the Standing Committee, which will guide the Secretariat and approve the draft to be submitted for adoption by the Conference of the Parties when it is satisfied that the draft has been correctly prepared;
- g) as the process of consolidation of Resolutions is not intended to revise the substance of decisions previously made by the Conference of the Parties, the Rules of Procedure for considering and adopting draft consolidated resolutions will be different from those for consideration of other draft resolutions in the sense that, as a general rule, the substance should not be presented for discussion as it has in principle already been agreed by the Parties. The primary decision to be made by the Conference is whether the consolidation has been correctly done; and
- h) the process of consolidation of Resolutions will continue until the Contracting Parties are satisfied with the consolidation work done and can be continued when the Parties have identified a need for more consolidation work.”

Pursuant to paragraph 10.b) of the Resolution, the Standing Committee at its 62nd meeting (SC62) selected through Decision SC62-25 “Water, water-related, and water-management-related” among the categories for which draft consolidations would be prepared for consideration at SC63.

The Secretariat accordingly submitted in document SC63 Doc.16.4¹ the draft consolidated resolution for the Committee to approve as having been correctly prepared and to be submitted for adoption by the Conference of the Contracting Parties at its 15th meeting (COP15).

Pursuant to paragraph 10.c) of the Resolution, the Secretariat included as Annex A of document SC63 Doc.16.4 an explanatory table indicating the origins of the texts presented and explaining any differences from the existing Resolutions.

In Decision SC63-22, the Standing Committee approved the draft consolidated resolution as amended in line with the Committee’s discussion, and instructed the Secretariat to submit it for consideration and adoption at COP15. The committee’s discussion is recorded in paragraphs 67 and 68 of the report of SC63².

As noted in document SC63 Doc.16.4, the Annexes to this draft consolidated resolution are as follows:

- Annex 1 is the Annex to Resolution X.19.
- Annex 2 is the Annex to to Resolution XII.12.

¹ See <https://www.ramsar.org/document/sc63-doc164-review-consolidation-current-resolutions-consolidation-resolutions-water-water>.

² See <https://www.ramsar.org/document/report-decisions-63rd-meeting-standing-committee>.

Draft consolidated resolution on water, water-related and water-management-related matters

1. RECALLING Resolution VI.23 on Ramsar and water, Resolution VII.18 on Guidelines for integrating wetland conservation and wise use into river basin management, Resolution VIII.1 on Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands, Resolution VIII.40 on Guidelines for rendering the use of groundwater compatible with the conservation of wetlands, Resolution IX.3 on Engagement of the Ramsar Convention on Wetlands in ongoing multilateral processes dealing with water, Resolution X.19 on Wetlands and river basin management: consolidated scientific and technical guidance, and Resolution XII.12 on Call to action to ensure and protect the water requirements of wetlands for the present and the future, adopted at the 6th, 7th, 8th, 10th and 12th meetings of the Conference of the Contracting Parties;
2. REALIZING that a number of related decisions have been adopted previously which provide guidance for the Contracting Parties on wetland policy formulation (Resolution VII.6), reviewing laws and institutions (Resolution VII.7), involving local communities and indigenous people in wetland management (Resolution VII.8), promoting communication, education and public awareness related to wetlands (Resolution VII.9), incentives (Resolution VII.15), impact assessment (Resolution VII.16), wetland restoration as part of national planning (Resolution VII.17), and international cooperation under the Ramsar Convention (Resolution VII.19), all of which are relevant to the process of the allocation and management of water for maintaining the ecological functions of wetlands;
3. REALIZING ALSO that, at its eighth meeting, the Conference of the Contracting Parties adopted further guidance that is relevant to the allocation and management of water for maintaining the ecological functions of wetlands, notably the New Guidelines for management planning for Ramsar sites and other wetlands (Resolution VIII.14), Principles and guidelines for wetland restoration (Resolution VIII.16), impact assessment (Resolution VIII.9), Agriculture, wetlands and water resource management (Resolution VIII.34), The impact of natural disasters, particularly drought, on wetland ecosystems (Resolution VIII.35), and Guidelines for rendering the use of groundwater compatible with the conservation of wetlands (Resolution VIII.40);
4. RECOGNIZING the important hydrological functions of wetlands, including groundwater recharge, water quality improvement and flood alleviation, and the inextricable link between water resources and wetlands;
5. FURTHER RECOGNIZING the paucity of hydrological data which exists for the determination and quantification of the hydrological functions of wetlands;
6. REALIZING the need for planning at the river basin scale, which involves integration of water resource management and wetland conservation;
7. AWARE of the Preamble to the Articles of the Convention, which recognizes the fundamental ecological functions of wetlands as regulators of water regimes and as habitats supporting a characteristic flora and fauna, especially waterfowl;
8. NOTING Decision IV/4 of the Convention on Biological Diversity (CBD), which identified the Ramsar Convention as its lead partner for actions concerning the conservation and wise use of

wetlands, and particularly inland water ecosystems, including actions concerning the allocation and management of water for the maintenance of inland waters biodiversity;

9. AWARE of the Report of the World Commission on Dams, which includes information on the evaluation and assessment of water allocations, and specifically on environmental flow releases from dams, in the decision-making process for large dams, and of Resolution VIII.2 on the same subject adopted at the eighth meeting of the Conference of the Parties (Valencia, 2002);
10. RECOGNIZING the vital contribution made by wetlands on many occasions to ensure the allocation of water required for human well-being, including food and water security, and in flood control and poverty alleviation; but ALSO AWARE of the increasing demands being placed upon freshwater resources in many parts of the world and the threat this poses for maintaining wetland ecosystem functions and their biodiversity;
11. FURTHER AWARE of the importance placed on freshwater resources in the United Nations Special Session of the General Assembly to review and appraise the implementation of Agenda 21, and in the subsequent Commission on Sustainable Development meeting in May 1998, which as part of its report relating to Strategic Approaches to Fresh Water Management recommended support for the implementation, inter alia, of the Ramsar Convention;
12. RECOGNIZING the importance of the whole water cycle and the link existing between ground and surface water for their use and management, not only in arid and semi-arid regions but also in humid regions;
13. TAKING INTO ACCOUNT the urgent need to decrease the loss and degradation of aquatic ecosystems through policies of sustainable development and conservation of biodiversity;
14. ALSO TAKING INTO ACCOUNT that maintenance of the ecological integrity of most wetlands, especially those located in arid and semi-arid zones, is closely linked to the supply of groundwater;
15. AWARE of the importance that the use of groundwater has had for the economic development and improvement of welfare in many regions (mainly because of irrigated agriculture);
16. EQUALLY AWARE of the negative impact that can be caused to wetlands because of uncontrolled development and lack of planning for groundwater;
17. EMPHASIZING that examples of the solution of conflicts between the use of groundwater and conservation of wetlands (for example, in the Mediterranean basin) can serve as exportable models for other areas facing the same problems;
18. TAKING INTO ACCOUNT that on occasions some regions suffer from inefficient management and regulation in the use of groundwater;
19. AWARE of the difficulties of rendering the interests of the users (primarily farmers) compatible with conservation criteria for those areas, because environmental problems are not taken into account;
20. RECOGNIZING that many of these conflicts may be stimulated by certain subsidies for agriculture and other types of economic incentives, including for tourism;

21. STRESSING that the analysis of these issues and the solution of conflicts require a completely transparent environment, scientific rigour and, above all, participation of all actors involved in the management and use of water resources;
22. ACKNOWLEDGING the United Nations “World Water Development Report” of 2003, showing the worsening water crisis due to water mismanagement and RECOGNIZING that global climate change and variability are likely to exacerbate this crisis;
23. 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;
24. 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;
25. 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;
26. AWARE of the Global Water Partnership and the range of tools and technical guidance it provides on integrated water management;
27. 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, namely scientific knowledge base, enabling environments, and valuation methodologies for water ecosystem benefits/services;
28. 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;
29. RECOGNIZING that wetland ecosystems play a critical role in water management;
30. 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;
31. 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;

32. 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;
33. 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;
34. THANKING the STRP for its work in preparing the advice and guidance annexed to the present 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;
35. RECOGNIZING that wetlands have vital ecosystem functions and provide a wide range of ecosystem services, which contribute to human well-being and the state of the environment, and that consequently their conservation and wise use are fundamental in order to continue to offer these services;
36. BEARING IN MIND that the report *The Economics of Ecosystems and Biodiversity for Water and Wetlands* highlights that ecosystems, in particular wetlands, are essential in providing water-related ecosystem services and SIMILARLY, that it urges a major shift in attitudes to wetlands, to recognize both their value in delivering water, raw materials and food which are essential for life, and the crucial role they play in maintaining people's livelihoods and the sustainability of the world's economies;
37. NOTING Decision X/28 of the Convention of Biological Diversity (CBD) on *Inland waters biodiversity*, and, in particular, AWARE of the concern regarding major anthropogenic changes that are ongoing in the Earth's water cycle on global, regional and local scales, due to the excessive and inefficient use of water and land-use change; that the limits of sustainability of both surface water and groundwater resources have already been reached or surpassed in some regions; that these trends are becoming more pronounced in some areas through climate change; and that the water-related stresses on biodiversity and ecosystem changes are rapidly escalating;
38. RECALLING the Changwon Declaration on human well-being and wetlands (Resolution X.3), which recognizes explicitly that the increasing demands for, and over-use of, water jeopardize human well-being as well as the environment, and that there is often not enough water to meet our direct human needs or to maintain the wetlands we require, and ALSO RECALLING the issues of fundamental importance for the future of the Convention indicated in Resolution X.1, which identifies the lack of water resources for wetlands and the increasing demand for water extraction as the main factors that generate continuous change and lead to the deterioration and disappearance of wetlands and their services;
39. AWARE of Resolution XI.10, which revealed concern over the globally increasing number of energy development plans that, by changing water fluxes and sediment transport, interrupting connectivity, and creating barriers for species migration, could have adverse effects on the ecological character of wetlands, including on wetland species and ecosystems, on the potential for wetlands to produce a wide range of ecosystem services, on their biodiversity, and on the status of water quantity and quality;

40. RECOGNIZING the need to balance the multiple functions provided by water which include human consumption, food production, energy services as well as the support of wetland ecosystems, fisheries and biodiversity conservation;
41. RECALLING the Outcome of the Rio +20 Conference (Brazil, 2012) which recognized that energy plays a critical role “in the development process, as access to sustainable modern energy services contributes to poverty eradication, saves lives, improves health and helps provide for basic human needs”, and which emphasized the need to take further action to provide these services in a “reliable, affordable, economically viable and socially and environmentally acceptable manner in developing countries”;
42. NOTING the fact that ensuring the availability of the water required by wetlands will promote both their biodiversity and the sustainable use of their components; and STRESSING, in particular, that knowing wetlands’ water requirements will favour the integration of biodiversity values into development planning processes and strategies, contribute to the sustainable management of water in agricultural areas, and maintain the impacts of the use of natural resources within ecological limits in order to guarantee biodiversity conservation;
43. RECOGNIZING that the allocation and protection of the water requirements of wetlands can help improve the integrated management of water resources, and in particular river basins, by harmonizing water-use and land-use strategies, maintaining the renewal of the water cycle and the link existing between ground and surface water, both enabling their management, and helping to establish adaptation conditions that allow climate variability;
44. RECALLING that Resolution X.24 on *Climate change and wetlands* (2008) recognizes the potentially serious impacts of climate change for ensuring the continued conservation and wise use of wetlands and similarly, that it calls on the Contracting Parties to manage their wetlands in such a way as to increase their adaptation to climate change and extreme climatic events, and to ensure that in their climate change responses, such implementation does not lead to serious damage to the ecological character of wetlands;
45. NOTING Resolution VII.7 on *Guidelines for reviewing laws and institutions to promote conservation and the wise use of wetlands*, which URGES each Contracting Party to review its laws and institutions to ensure they are aimed not only at the wise use of wetlands and eliminating obstacles to conservation, but also at adopting measures that can serve as positive incentives for the effective implementation of the wise use obligation, such as the allocation of water to wetlands;
46. ALSO RECOGNIZING the need for the Contracting Parties to replicate successful examples of the determination, allocation and protection of wetlands’ water requirements in order to maintain their ecological, food production and energy functions, enhance cooperation on water issues, improve the resilience of wetlands to climate change, and to safeguard the ecosystem services that wetlands offer society;
47. NOTING that the need to allocate a sufficient volume water of adequate quantity, quality and timing to enable the sustainable functioning of ecosystems is established in the laws of several of the world’s nations and is being increasingly considered an issue that requires coordinated action at the international level; and

48. ECHOING the Changwon Declaration's call to action, which presents an overview of the priority action steps that together show how to deliver some of the world's most critical environmental and sustainability goals, including the wise use and protection of our wetlands – seeking to ensure that the latter have water of adequate quantity, quality and timing to support biodiversity, food production, drinking water and sanitation;

THE CONFERENCE OF THE CONTRACTING PARTIES

Regarding Ramsar and water

49. CALLS on the Contracting Parties:
- (a) to link with organizations such as the World Meteorological Organization, to support the development of hydrological monitoring networks on wetlands throughout the world, to ensure the availability of reliable data;
 - (b) to encourage the study of traditional systems of water management to investigate their relevance to the concept of wise use of wetlands;
 - (c) to encourage more studies of the economic value of water within wetlands, through dissemination of the Convention publication on Economic valuation of wetlands: guidelines for policy makers and planners;
 - (d) to ensure that National Ramsar Committees are involved in national water planning and the development of river basin management strategies;
 - (e) to ensure that wetland users, as well as management authorities and technical experts, participate directly in the decision-making process;
 - (f) to continue and strengthen support under Article 4.5 of the Convention for multidisciplinary training, with a major focus on hydrological science and management;
 - (g) to ensure, through partnerships with water-related organizations such as the World Water Council, that the Ramsar Convention becomes an audible voice in water debates;

Regarding the allocation and management of water for maintaining the ecological functions of wetlands

50. ADOPTS the "Guidelines for allocation and management of water for maintaining the ecological functions of wetlands", as annexed to this Resolution, and URGES all Contracting Parties to give priority to their application, adapting them as necessary to suit national conditions and circumstances;
51. ALSO URGES all Contracting Parties to utilize the additional guidance on tools and methodologies for the allocation and management of water for maintaining ecological functions available as an information document for the eighth meeting of the Conference (Ramsar COP8 DOC. 9), and to take into account the relevant guidance and information, particularly on the environmental flow releases from dams, including information contained in the Report of the World Commission on Dams;
52. STRONGLY URGES all Contracting Parties to bring the Guidelines for allocation and management of water for maintaining the ecological functions of wetlands and the additional guidance on tools and methodologies to the attention of their national ministries and/or agencies (at different levels of territorial organization) responsible for water resource management, to encourage these bodies to apply the guidance in order to ensure appropriate allocation and management of water for maintaining the ecological functions of wetlands in their territory, and to ensure that the principles contained in the Ramsar Guidelines are incorporated into their national policies on water and on wetlands;

53. FURTHER URGES Contracting Parties to include representatives of national water management ministries and/or agencies in the membership of their National Ramsar/Wetland Committees;
54. ENCOURAGES Contracting Parties with wetlands lying in shared river basins to work cooperatively to apply the Guidelines for allocation and management of water for maintaining the ecological functions of wetlands within the context of the management of water allocations in transboundary basins, making use of the Ramsar Guidelines for international cooperation under the Convention (Resolution VII.19);
55. URGES multilateral and bilateral donors to ensure that the allocation and management of water for maintaining the ecological functions and production potential of wetlands is fully addressed in the design, planning and implementation of river basin and water resource management projects, taking into account the special circumstances and constraints of the concerned countries; and
56. ENCOURAGES Contracting Parties and other interested organizations to develop projects and other activities that promote and demonstrate good practice in water allocation and management for maintaining the ecological functions of wetlands, and to make such good practice examples available to others through the information exchange mechanisms of the Ramsar/CBD River Basin Initiative;

Regarding Guidelines for rendering the use of groundwater compatible with the conservation of wetlands

57. URGES the Contracting Parties to study the impact of the use of groundwater on the conservation of their wetlands in those territories where there is a conflict between such use and wetland conservation;
58. RECOMMENDS that this analysis be carried out from an interdisciplinary point of view and with the participation of civil society;
59. INVITES Contracting Parties to review their respective programmes of subsidies in order to ensure that they do not have negative consequences for the conservation of wetlands;
60. ENCOURAGES Contracting Parties to continue their efforts aimed at implementing existing provisions in this field; and REQUESTS the Convention Secretariat to support these efforts as much as possible;
61. URGES the promotion of initiatives, supported by both the public and private sectors, for the participation of civil society in the management of groundwater, within the framework of integrated management of water resources;
62. ALSO ENCOURAGES recognition of the importance of the associations of users for the management of groundwater, and the creation of such associations where they do not exist, and the dedication of efforts towards the objective that these associations contribute to the sustainable development of this resource in order to make possible the efficient use of groundwater and the conservation of wetlands; and
63. URGES public institutions to ensure that a more decisive effort is made, within the framework of activities regarding wetland-related communication, capacity building, education, participation

and awareness (CEPA) activities, with regard to groundwater, placing emphasis on its hydro-geological, social, economic and environmental aspects;

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

64. 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;
65. 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;
66. 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;
67. 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; and
68. 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;

Regarding wetlands and river basin management

69. 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;
70. CONFIRMS that the “Consolidated Guidance for integrating wetland conservation and wise use into river basin management” in Annex A to this Resolution updates and wholly supersedes the earlier guidance on this matter in Annex Ci to Resolution IX.1; and
71. 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;

Regarding action to ensure and protect the water requirements of wetlands for the present and the future

72. RECOGNIZES AND REITERATES that the lack of water in wetlands is a far-reaching global problem with serious consequences for ecosystems and people's livelihoods, in particular in vulnerable communities that depend on wetlands, and NOTES that this problem will tend to be aggravated in the future due to the growing demand for water and other natural resources and the effects of climate change;
73. WELCOMES the process carried out in Mexico for the creation of water reserves for wetlands, described in Annex B to this Resolution;
74. ENCOURAGES the Contracting Parties to consider the possibility of using Mexico's approach, as appropriate, to identify the opportunities to act preventatively, and adapting it as necessary in order to address national and regional conditions and circumstances, within the framework of existing regional initiatives and commitments and within the context of sustainable development;
75. ENCOURAGES the Contracting Parties, and invites other governments and other stakeholders, to increase their efforts in order to address water requirements of wetlands, in particular identifying opportunities to anticipate the negative impacts of human activities on the amount of water devoted to wetlands; and
76. REQUESTS that the Scientific and Technical Review Panel and the Communication, Education, Participation, and Awareness Oversight Panel consider drawing up, in cooperation with existing networks and initiatives, guidelines for the elaboration of national action plans, to conserve the water necessary to maintain the wise use of wetlands, which may be implemented at the regional and/or national level, in line with the 4th Strategic Plan, and INVITES interested Contracting Parties to adopt national action plans, taking in to account:
 - a. Integration with other global initiatives, in particular on the contribution of wetlands to any Sustainable Development Goals (SDGs) eventually agreed;
 - b. Assessment of the situation regarding wetland water requirements;
 - c. Strategies and tools for the determination and allocation of water to wetlands on a national scale;
 - d. A programme for monitoring the water requirements of wetlands on a national scale and hydrographic basins, as appropriate;
 - e. International cooperation for the creation and strengthening of existing research networks and specialized regional centres and for institutional capacity building; and
 - f. Communication, education and raising public awareness about the need to consider ecological flows for maintaining habitats and ecosystems, as well as the benefits for the environment and human health that these wetlands offer; and
77. REPEALS the following Resolutions:
 - Resolution VI.23 on *Ramsar and water*;
 - Resolution VII.18 on *Guidelines for integrating wetland conservation and wise use into river basin management*;
 - Resolution VIII.1 on *Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands*;
 - Resolution VIII.40 on *Guidelines for rendering the use of groundwater compatible with the conservation of wetlands*;

- Resolution IX.3 on *Engagement of the Ramsar Convention on Wetlands in ongoing multilateral processes dealing with water*;
- Resolution X.19 on *Wetlands and river basin management: consolidated scientific and technical guidance*; and
- Resolution XII.12 on *Call to action to ensure and protect the water requirements of wetlands for the present and the future*.

Annex 1

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

Explanatory 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 guidance, the term “shared” is used to refer to river basins in which ground water and surface water flows 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. The reading of this guidance shall be in accordance with Principle 2 of the Rio Declaration.

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Guidelines for Contracting Parties:

- A: Principles for integration of the conservation and wise use of wetlands into river basin management
- B: Guidelines for Contracting Parties relating to national policy and legislation for integrated river basin management
- C: Guidelines for Contracting Parties for the establishment of river basin management institutions and strengthening of institutional capacity for integrated river basin management
- D: Guidelines for Contracting Parties on national policy and programmes for CEPA related to integrated river basin management
- E: Guidelines for Contracting Parties on national policy related to stakeholder participation in integrated river basin management
- F: Guidelines for Contracting Parties for establishing adequate implementation capacity for integration of wetlands into river basin management
- G: Guidelines for Contracting Parties on establishing supporting policy, legislation and regulation at river basin level
- H: Guidelines for Contracting Parties on establishing appropriate institutional arrangements at river basin level
- I: Guidelines for Contracting Parties on developing CEPA programmes and stakeholder participation processes at river basin level
- J: Guidelines for Contracting Parties relating to inventory, assessment and enhancement of the role of wetlands in river basin management
- K: Guidelines for Contracting Parties relating to the identification of current and future supply and demand for water
- L: Guidelines for Contracting Parties for prioritizing the protection and restoration of wetlands and their biodiversity
- M: Guidelines for Contracting Parties relating to the maintenance of natural water regimes to maintain wetlands
- N: Guidelines for assessing and minimising the impacts of land use and water development projects on wetlands and their biodiversity
- O: Guidelines for Contracting Parties for the management of shared river basins and wetland systems, and partnership with relevant conventions, organizations and initiatives

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 6, 3rd edition, Ramsar Convention Secretariat, 2007). 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 role and value of wetlands in the global hydrological cycle, are key contributing factors to the continued change, deterioration and loss of wetlands”. The importance of wetlands as sources of freshwater is highlighted in both the MA (2005) Wetlands Synthesis and the introduction to 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 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 6, 3rd edition, 2007) 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 Ramsar Technical Report no. 12. 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 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 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.
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 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 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 Ramsar Technical Report 12.
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

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 16, 3rd edition 2007 (*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 6, 3rd 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: Ramsar Wise Use Handbook Vol 6, 3rd edition (2007)

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

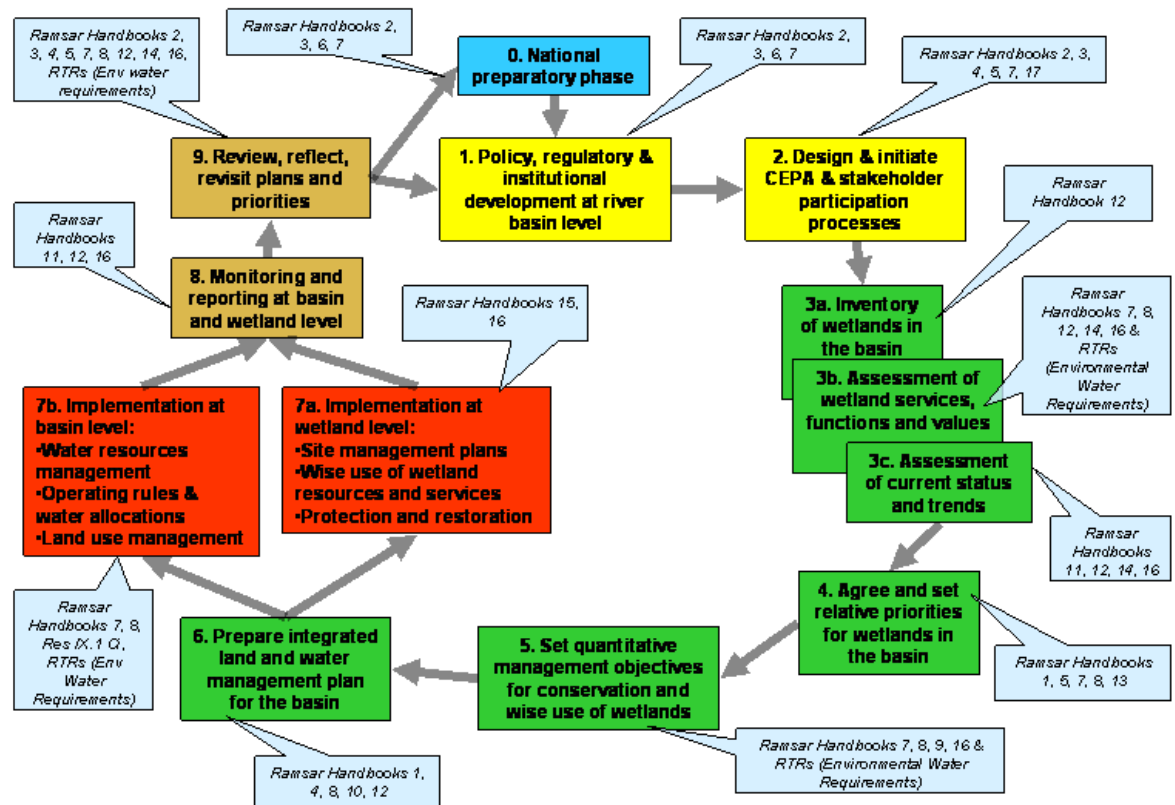
3. Integrating wetlands into river basin management: overview of the scientific and technical guidance

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.
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.

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.



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 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.

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 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 12 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 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 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
 - 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, 3rd edition) and Resolution VIII.1 (Ramsar Handbook 8, 3rd 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, 3rd 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 8, 3rd 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.

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 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 <i>Laws and Institutions</i> in Ramsar Handbook 3, 3 rd edition).
C3.	Make multistakeholder 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.

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 5, 3rd 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)

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.
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 7 and 8 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 in the operational currencies of 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, 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 operational currencies in which ecosystem water requirements are generally described. 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:

<p style="text-align: center;">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 VIII.31)</p>	
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 7 (3rd edition, 2007) 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 12) 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, 5 and 7 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
 - 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 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 representivity, 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 4, 5, and 7 (3rd edition) 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	
11.	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.
12.	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);
 - 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.

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 13 (3rd edition).

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 (3rd edition) 11 (*Inventory, assessment and monitoring*); 12 (*Wetland inventory*); and 10 (*Coastal management*).
155. For more information on understanding and quantifying groundwater-wetlands interactions, see Ramsar Handbook 9, 3rd 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 8, 3rd edition (*Water allocation and management*), Ramsar Technical Reports no. 8 (*Determination and implementation of environment water requirements*); no. 9 (*Determination of environmental water requirements for estuaries, coastal and nearshore wetlands*); and no. 10 (*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 13 (*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 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 8 (*Water allocation and management*); Resolution VIII.1 and Resolutions 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 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 7, 8 and 16, and Ramsar Technical Report no. 8 (in prep.), *Determination and implementation of environment water requirements*, for further detailed guidance. See also Handbook 8 (*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, 7, 10, 12, and 16, 3rd 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.
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 8 (*Water allocation and management*), Handbook 9 (*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.

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| 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 7, 8, 16, and 13 and Ramsar Technical Report no. 8 (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.

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 7, 9, 11 and 16, 3rd 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, 4, 5, 7, 8, 12, 14 and 16, 3rd edition, and Ramsar Technical Report no. 8 (in prep.), *Determination and implementation of environment water requirements*, for further detailed guidance.

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

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 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;
 - 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.

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 Nation's 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 & 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) recently 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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Annex 2

Water is required for the conservation and wise use of wetlands

1. The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world". Wise use of wetlands is understood in general terms³ as sustainable use and "the maintenance of their ecological character", which involves conserving interactions between the various individual processes, functions, attributes and values of the ecosystems.
2. From an ecological perspective, there is no doubt that the processes that govern wetlands (including the recycling of nutrients, productivity, succession processes, competition between species, etc.) are to a large extent controlled by their water regime. In this sense, it can be said that one of the Convention's key missions is to provide guidance to countries to help guarantee the conservation or restoration of water regimes in accordance with the maintenance of the biological, chemical and physical components characteristic of each wetland.
3. The Convention's definition of wetlands encompasses a large number and wide variety of ecosystems across the globe, since it includes "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres".
4. Naturally, with its respective location and characteristics, each wetland has its own individual water regime, which is variable over time but with variability patterns and ranges that condition its evolution. The conservation of the water regimes characteristic of each wetland thus becomes of key importance for their conservation and wise use, something that the COP itself has recognized. Thus, for example, Resolution VIII.33 protects the maintenance of the specific hydrological functioning upon which temporary pools depend, including their dependence on permanent surface waters, in order to ensure the sustainable management of the temporary pools.
5. The importance of an adequate water regime for the conservation of wetlands has been highlighted in several Resolutions. The Annex to Resolution VIII.1 indicates that "to maintain the natural ecological character of a wetland, it is necessary to allocate water as closely as possible to the natural regime". In the guidelines for Contracting Parties for the integration of conservation and wise use of wetlands into river basin management (Resolution X.19), it is also recommended that the precautionary principle be used to maintain the natural state as closely as possible in situations where available information on the environmental water requirements of wetlands is inadequate.
6. Despite the fact that the natural water regime constitutes a valuable reference for conservation and wise use, it should be pointed out that wetlands' water requirements are not all identical, and we should be aware of this in order to maintain their individual ecological character. In general terms, wetlands that are listed due to the fact they are very natural, should have natural or almost natural water regimes, whilst semi-natural or artificial wetlands may have regimes that involve the sustainable extraction of resources.

³ According to the definition at Annex A of Resolution IX.1

SEVERAL CHALLENGES FOR GUARANTEEING THAT WETLANDS HAVE ALL THE WATER THEY NEED

7. According to the Status Report on the Application of Integrated Approaches to Water Resources Management, over 75% of the countries studied considered that “Water for environment” was a priority in their respective countries, whilst only 5% of the countries considered that this issue was “not a problem”.
8. Water use trends and concern about water issues contrast with the major challenges involved in ensuring ecosystems have all the water they require. In this respect, there are at least four major factors that allow us to visualize these great challenges:
 - a. **Most wetlands have no water monitoring system to assess changes in their functioning and identify the required corrective actions.**
9. The monitoring of water resources and their use is an enormous challenge, especially given the renewable character and the general complexity of knowledge about the water cycle. This great challenge contrasts with the fact that our knowledge of water resources and the use of water is probably diminishing due to the decrease in the availability of data on national water services (Figure 1). A similar situation occurs with the monitoring of groundwater, despite its importance for the world’s supply of fresh water and the maintenance of ecosystems.

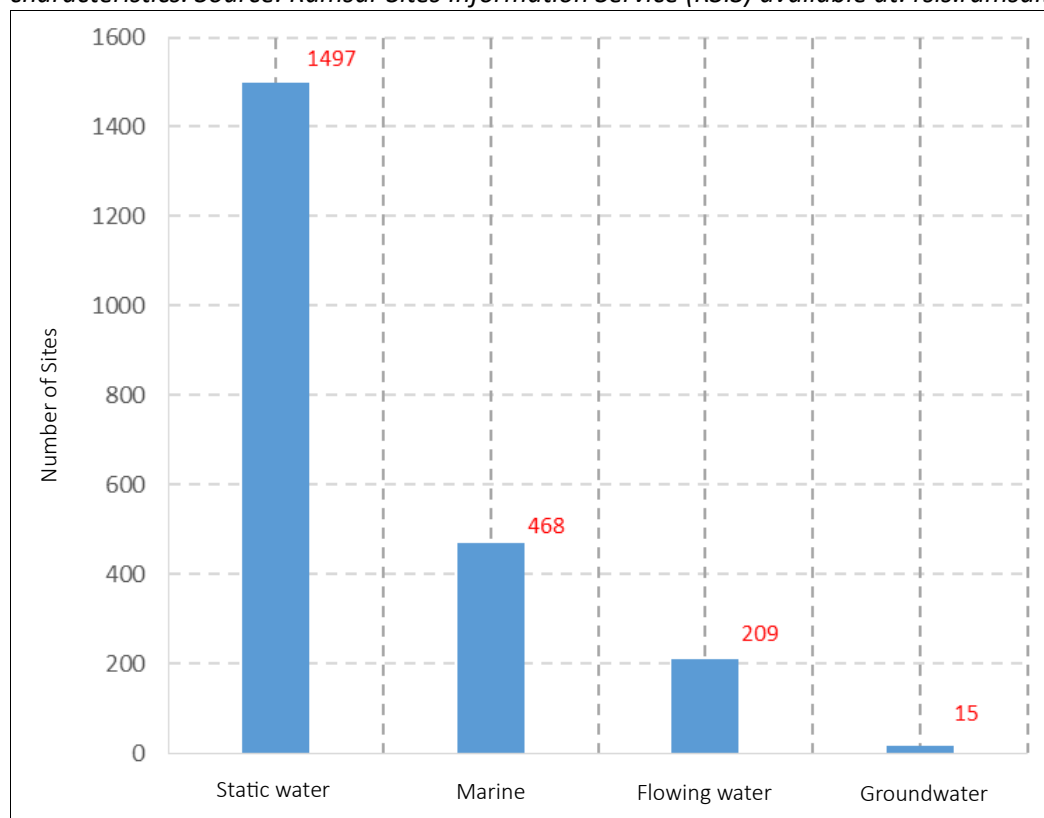
Figure 1. Availability of historical discharge data in the Global Runoff Data Centre (GRDC) database at the German Federal Hydrology Institute, Koblenz, Germany, 2012. Source: GRDC available at <http://grdc.bafg.de>



10. According to the UN Status Report of the Application of Integrated Approaches to Water Resources Management (2012), only 22.5% of all countries studied have fully implemented a monitoring programme on the use of water, and around 30% have not begun to implement one. Due to a lack of data on water monitoring in wetlands (flow, groundwater levels, extraction, etc.) and the abstractions that affect them, it is impossible to know whether wetlands have all the water they require. One particular challenge is the maintenance of a regular comparable database for monitoring changes and trends in the different water parameters (flow, groundwater levels, etc.) over time.

- b. **The scientific methods for determining the water needs of wetlands are very limited, bearing in mind the broad range of both Ramsar wetlands and biological groups requiring water.**
11. Most methods for calculating environmental flow focus basically on flowing water ecosystems (rivers), whilst these systems only represent 10% of all Ramsar wetlands (see Figure 2). Moreover, in many cases the methods used to calculate the water requirements of the ecosystems have been designed to determine river types, and are not suitable for other regions (for example the habitat simulation models frequently used in some countries are extremely limited in the case of large tropical rivers).

Figure 2. Wetland types presented in Ramsar sites in accordance with their general water characteristics. Source: Ramsar Sites Information Service (RSIS) available at: rsis.ramsar.org



12. Moreover, most methods used to calculate environmental flow are fundamentally based on the water requirements of fish, and in many cases only the species of greatest economic interest. However, there are other biological groups that justify the designation of wetlands as sites of international importance. For example, 92% of the sites have been added to the Ramsar List because of the birds that use these wetlands. One major challenge is to increase scientific knowledge in order to obtain more detailed information about the water requirements of different types of Ramsar Sites and all the species that justify their designation. In this sense, it is necessary to develop a monitoring of hydrological and ecological variables, including water quality that will set a baseline for the application of environmental flows.
- c. **For most of the Contracting Parties, the legal frameworks do not recognize explicitly the need to allocate water to wetlands and/or provide the legal mechanisms to do so effectively.**

13. As recognized by the Annex to Resolution VIII.1, in order to make decisions on the water allocations for wetland ecosystems, an enabling policy environment is required, supported both by adequate and appropriate legal tools, which clarify the legal situation of water and water resources, and by a framework for assessing the merits of different allocation options.
 14. The legal allocation of water resources to wetlands requires far-reaching reforms for many countries, with changes in both environmental and water policies, legislation and planning. For some countries this is complicated by the fact that water resources are the responsibility of lower administrative levels such as the state, province or municipality. In these cases, it is essential that the countries identify alternatives to rectify this situation and to be able to plan for water allocation/demand processes.
 15. According to the Status Report on the Application of Integrated Approaches to Water Resources Management (2012), 45.4% of the countries surveyed implement to some extent programmes for the allocation of water resources, which take environmental considerations into account. However, only 12.3% have fully completed this type of programme. Moreover, in the countries that have introduced environmental flow programmes, there is little information on how successful they have been, since there are no clear assessment criteria.
- d. The Contracting Parties are still a long way from adopting the Integrated Water Resources Management tools. These are the very tools that can allow for the proper integration of wetland water requirements into resource management.**
16. Strategy 1.7 of the Ramsar Strategic Plan 2009-2015 consists of ensuring “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 groundwater management, catchment/river basin management”, and includes the Key Result Area 1.7ii (planned for 2015), which states: “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”.
 17. Resolution X.19 highlighted the fact that in the longer term it is not sufficient to integrate wetland management objectives into land use management plans. In turn, land and water resource management plans need to be integrated to ensure that these plans reflect common, agreed management objectives for the wetlands in a river basin. 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 range of benefits for people (including water supply).
 18. According to the results of the survey on the application of IWRM, clear progress has been made in the adoption of integrated approaches to water resources on a global scale. Water resource management programmes (including allocation systems, groundwater management, environmental impact assessment, demand control, etc.) are being applied in 84% of the countries with the highest Human Development Index, though only in around 40% of the other countries. This same survey reveals that 50% of the countries have implemented neither an integrated water resources management plan at a national or federal level nor any equivalent strategic plan.

NEED FOR GLOBAL ACTION AND ITS STRATEGIC GUIDELINES

19. According to the United Nations 5th *World Water Development Report* (WWDR), global water demand (in terms of water withdrawals) is projected to increase by some 55% by 2050. As a result, freshwater availability will come under increasing strain over this period, with 40% of the global population projected to be living in areas of severe water stress by 2050. There is also clear evidence that groundwater supplies are diminishing, with an estimated 20% of the world's aquifers being over-exploited, some critically so.
20. The enormity of this challenge calls for urgent coordinated global action, in preparation for the growing pressure for this resource, in order to guarantee the water required by wetlands, including strategic guidelines on:
 - Legal and institutional frameworks: to develop national legal and institutional tools that are in line with the urgent need to ensure the water requirements of the ecosystems and capable of anticipating the growing demand for this resource.
 - Monitoring: to generate basic information to support the decision making process with regard to wetlands.
 - Tools: to support the knowledge and development of tools for calculating and allocating the water required by ecosystems and suitable for its rapid use.
 - Education, awareness raising and capacity building: to promote the importance of the allocation of water to wetlands through education, the public media and capacity building.
21. A series of actions on these strategic areas could create the right environment for taking urgent action and generating the changes required to promote sustainable development compatible with water, fulfil basic human activities and guarantee the protection of wetlands.

INITIATIVES UNDERTAKEN BY THE MEXICAN GOVERNMENT TO GUARANTEE THE WATER REQUIRED BY WETLANDS

22. Mexico has been a Contracting Party of the Ramsar Convention since 1986, and to date has 142 sites designated as Wetlands of International Importance, which cover a total area of 8.4 million hectares, making it the contracting country with the second highest number of designated Ramsar Sites in the world. In Mexico, the management of wetlands is the responsibility of the Ministry of the Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT) and its decentralized bodies: the National Commission of Protected Natural Areas (Comisión Nacional de Áreas Naturales Protegidas, CONAP), focal point for the Ramsar Convention and the body that coordinates the execution of actions involved in complying with the Convention's commitments; and the National Water Commission (Comisión Nacional del Agua, CONAGUA) the federal body responsible for the administration of Mexico's water resources.
23. In Mexico, the allocation of water for the environment has been recognized since the publication of the National Water Law (Ley de Aguas Nacionales, LAN) in 1992. However, it was not until recently that two national initiatives were undertaken that represent major progress in guaranteeing the water resources required by wetlands: the publication of the "Mexican law for the determination of environmental flow" and the "National Water Reserve Programme" (Programa Nacional de Reservas de Agua, PNRA).

The Mexican Environmental Flow Standard

24. With the publication of the LAN, the Mexican water administration took on the challenge of building the water concession administration system, which is based on establishing the water balance in each river basin or administrative unit, and granting concessions to each water user, recognizing in advance the various documents issued by the competent authority, authorizing the use of water. In this process, the requirement for allocating water to the environment was postponed, since it was claimed that insufficient information on water requirements was available, and that there was uncertainty over the application of scientifically appropriate and economically accessible methodologies for determining a reliable ecological flow. As a result, in many of the country's basins, water concessions have been granted for 100% or more of the measured or estimated mean annual runoff, and without considering water allocated to the environment. This situation has constituted one of the causes of the severe over-use of water resources in 8 out of 13 hydrological regions, in which 75% of the country's gross domestic product is produced.
25. Concern over this situation led to a long participatory process aimed at establishing the means of calculating the water requirements of ecosystems. The process was enhanced by the practical experiences of World Wildlife Fund (WWF) in association with the Gonzalo Río Arronte Foundation, which allowed the bases and methods for calculating environmental flows to be established, an action essential for protecting the country's water security. The Mexican Environmental Flow Standard was approved in 2012, establishing the methodologies for determining environmental flow, as a means of regulating the exploitation, use and conservation of water to protect ecosystems and favour sustainable development.
26. The importance of this tool consists of integrating the ecological, social and economic significance into the determination of the flow in the following terms.
 - It establishes the scientific bases that should guide all environmental flow proposals. It is explicitly recognized that a variable water regime is necessary (beyond minimum flows), with different components (low flows, flood regime, etc.) responsible for the ecosystem dynamics. Some of the basics mentioned explicitly as guiding principles are the paradigm of the natural flow regime⁴ and the biological condition gradient⁵.
 - It recognizes that there are very diverse situations in the country where we need to find a balance between the pressure caused by the extraction of water and the conservation of environmental conditions. This leads to the establishment of environmental objectives, which allow environmental flows to be adjusted in accordance with the ecological importance of the sites and the pressure created by water use.
 - It integrates social assessment of water in the environment and ensures its availability for consumption by and the well-being of rural communities.
 - It establishes a hierarchical condition for the application of methodologies in accordance with pressure due to water use, and a reference framework for the assessment of large projects, such as hydroelectric power generation, within the scope of environmental impact assessment.

The National Water Reserve Programme

27. The National Water Reserve Programme (Programa Nacional de Reservas de Agua, PNRA) is an initiative undertaken by CONAGUA in collaboration with the WWF-Gonzalo Río Arronte

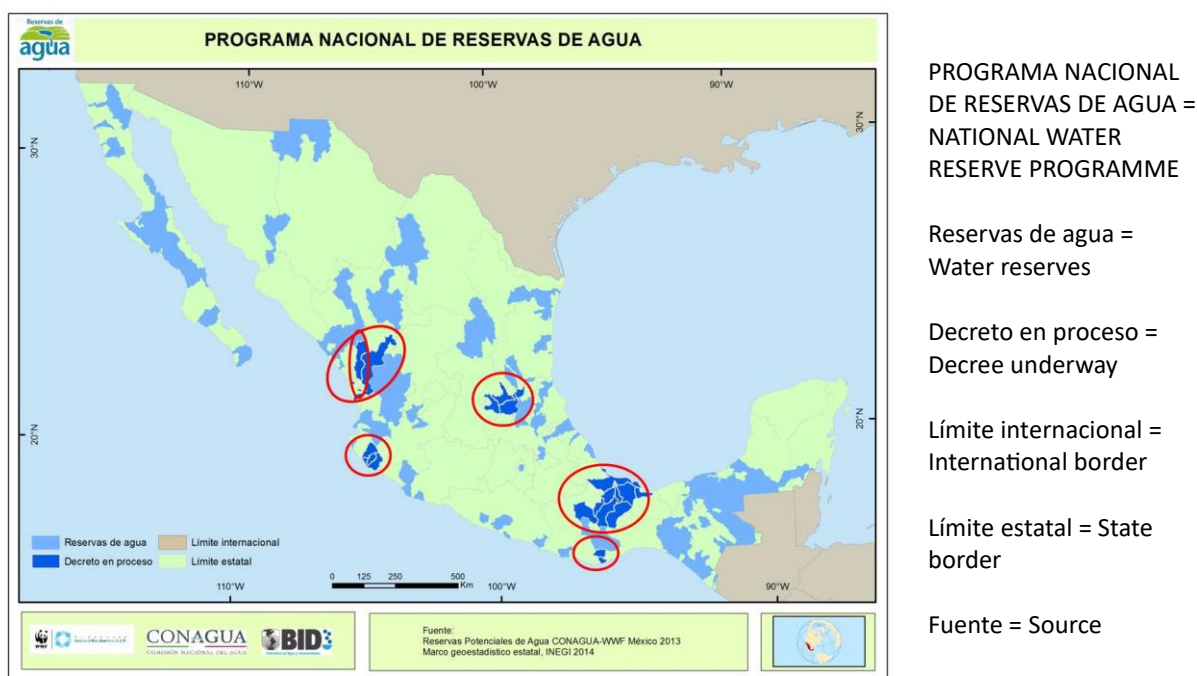
⁴ Poff N.L., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegard, B. Richter, R. Sparks and J. Stromberg. 1997. The natural flow regime: a new paradigm for riverine conservation and restoration. *BioScience* 47:769-784.

⁵ Davies S.P. and Jackson S.K. 2006. The Biological Condition Gradient: A Descriptive Model for Interpreting Change in Aquatic Ecosystems. *Ecological Applications*: Vol. 16, No. 4 pp. 1251–1266.

Foundation Alliance and supported by the Inter-American Development Bank, in which academic institutions and civil society organizations have participated actively.

28. The PNRA's objective is to establish water reserves for the environment legally, so that this volume of water is excluded from the total amount liable to be allocated in concessions. The water reserve is a legal figure provided for by the LAN, for the conservation or restoration of vital ecosystems. The Programme's additional objectives include proving the benefits of water reserves as a tool to guarantee the functionality of the water cycle and its environmental services, and its application as a means of adapting to climate change and creating the capacities in the country for the determination, implementation and monitoring of environmental flows.
29. In Mexico, the main obstacle hindering the implementation of an environmental flow proposal is the lack of water; in other words when what remains after the water concessions already granted is zero or when it does not comply with the requirements corresponding to the ecological importance of the area. The still-developing institutional capacities for determining environmental flow with sufficient ecological and economic support constitute another obstacle. In order to remove these obstacles, work was carried out to identify those river basins with sufficient water and of clear environmental importance, in order to develop the necessary capacities and learn to deal with more complex river basins. Thus, 189 of the country's 731 river basins were identified as potential water reserves. The PNRA's initial strategy⁶ focused on these 189 river basins, which were not subject to a great deal of pressure from water use and benefited from the presence of protected natural areas, Ramsar Sites, or another officially recognized ecological value (Figure 3).

Figure 3. Potential water reserves and pilot working zones



30. The aim of the first phase of the Programme is to ensure that by 2018 reserve decrees have been issued for the 189 river basins identified as priority. The direct benefits of the PNRA for the

5 UNEP 2012. The UN-Water Status Report on the Application of Integrated Approaches to Water Resources Management

whole country include guaranteeing the water required by 97 protected natural areas, 55 Ramsar Sites and over 78,500 km² of zones that enjoyed no official protection and had hydrological conditions that were unaltered or virtually unaltered. These figures reveal the great strategic value of the integrated management of water resources, and water reserves, for biodiversity protection in Mexico, and its potential for integrating water and land-use management policies.

31. In a second phase, based on this experience, there are plans to tackle the allocation of water to the river basins with highest pressure, in which the remaining 87 Ramsar wetlands are located, and where the strategy will be to determine the water requirements as environmental flow and to proceed to rescue the volumes earmarked for other uses.
32. Studies started in six pilot working areas (Figure 3) present the following scope and results:
 - They include 43 river basins with a total surface area of 92,000 km² (4.5% of the national territory) in which the longitudinal, vertical and lateral connectivity will be maintained for 4,500 km of main water channels, 31 aquifers, 17 Protected Natural Areas and 13 Ramsar Sites.
 - On average, the reserve water volume represents 53% of the mean annual runoff, and in total amounts to 49,000 hm³ per annum, which represents around 11% of the mean annual national runoff.
 - In terms of their biological significance, these water reserves will guarantee the water requirements of 546 species that enjoy some kind of protection category, and 99 of these species will be used directly in the analyses to determine environmental flows.
 - The capacity of 58 institutions will be strengthened, including government agencies, academic institutions and civil society organizations, and a total of 138 experts will participate in the development of studies and proposals on environmental flow.
33. On 15 September 2014, the first reserve decree was signed by the President of Mexico, including 11 river basins in the river San Pedro Mezquital hydrologic subregion, which supplies water to the Marismas Nacionales Biosphere Reserve and Ramsar Site. This decree establishes the reserves for the environment, domestic and urban public use, and the generation of electricity for public use, for the next 50 years. It sets out the conditions for authorizing these uses and for guaranteeing that they act in a complementary and synergistic manner.

Recommendations and lessons learned

34. Mexico's creation and consolidation of its own IWRM, and in particular the process of ensuring that water is available for the environment and wetlands, has given rise to a series of experiences leading to the following recommendations.
35. To date, the PNRA as a Mexican strategy for guaranteeing the water required by wetlands has made it possible:
 - To understand the validity of different methodologies for determining environmental flow and to develop a reference framework for their application on a national level.
 - To establish a gradual capacity-building process for each of Mexico's regions.
 - To act immediately in those river basins where the water regime is currently conserved in its natural state, or with few changes, and where the establishment of an environmental flow does not create conflict.
 - To understand that the real impact of environmental flow on water availability for other uses is minimized by water commitments with users downstream, due to adjustments in

the operation of infrastructure, or to the synergy with reserves for domestic use and energy generation.

- To establish a reference framework for the objective discussion of projects that alter the water regime, in particular hydroelectric projects.
36. In regions unaffected by development or in those where development is just starting, it is very important to take preventative action in order to avoid future conflict over demands for this resource, in particular disputes between potential users over water allocated to the environment. Many of these sites coincide with regions of great ecological value, due to their biodiversity and the environmental services they provide. This is a great opportunity for establishing sustainable limits for water extraction, for conserving biodiversity and its services and guaranteeing water security conditions in the future.
 37. The permanence of water in the environment ensures the supply of services of use to IWRM, such as the replenishing of aquifers, the fertility of flood plains and agricultural land, the conservation of the hydraulic capacities of water channels, the improvement in water quality, etc. The IWRM has great potential for biodiversity conservation if it internalizes these services.
 38. Water reserves have turned out to serve as a measure for adaptation to climate variability. The percentage of the mean annual runoff which a reserve represents buffers the impacts, helps manage the risks of climate uncertainty and creates conditions of resilience.
 39. For developing countries, the challenge of the implementation of environmental flows is not a matter of capacities, but instead one of water security, of the future and the safeguarding of the national heritage.
 40. In the development of this initiative, the creation of a relationship of trust between government, civil society and academia has been decisive. Civil society organizations are IWRM's ally in the recognition of the needs for allocating water for the environment, and thus in the strengthening of the management.