

"Wetlands: water, life, and culture"
8th Meeting of the Conference of the Contracting Parties
to the Convention on Wetlands (Ramsar, Iran, 1971)
Valencia, Spain, 18-26 November 2002

New Guidelines for management planning for Ramsar sites and other wetlands

Adopted by Resolution VIII.14 (2002) of the Ramsar Convention

Contents

I	Introduction
II	General guidelines
III	Integrating wetland site management within broad-scale environmental management planning, including river basin and coastal zone management
IV	The functions of wetland management planning
V	Stakeholders, including local communities and indigenous people
VI	The precautionary approach as applied to environmental management
VII	Management planning is a process
VIII	Inputs, outputs, and outcomes
IX	Adaptable management
X	Management units, zonation and buffer zones
XI	Format of the management plan
XII	Preamble/policy
XIII	Description
XIV	Evaluation
XV	Objectives
XVI	Rationale
XVII	Action plan (management projects and review)

I. Introduction

1. These Guidelines replace the Ramsar *Guidelines on management planning for Ramsar sites and other wetlands* adopted by Resolution 5.7 of COP5 in 1993 and published in Ramsar Handbook 8 (January 2000). They provide additional guidance on environmental, social and economic impact assessment and cost-benefit analysis, zonation and multiple use, design and maintenance of buffer zones, and the application of the precautionary approach.
2. The guidelines are relevant to the requirements of the Convention concerning the conservation of wetlands included in the List of Wetlands of International Importance and the wise use of all wetlands in the territory of Contracting Parties (Article 3 of the Convention), as well as the establishment of nature reserves (protected areas) at wetlands, whether or not they are included in the Ramsar List (Article 4.1).

3. These guidelines focus on the site-based scale of management planning. It is recognized, however, that designated Ramsar sites include a wide range of different applications of 'site' since they range in size from less than 1 hectare to over 6 million hectares, and that whilst some have boundaries delimiting just a discrete wetland area, others include surrounding non-wetland buffer zones, habitat mosaics, or catchment areas within their boundaries. It is therefore recognized that the application of these guidelines will need to be flexible, depending upon the particular characteristics and circumstances of each Ramsar site or other wetland.
4. Ramsar site management plans should be integrated into the public development planning system at local, regional or national level. The integration of site management plans into spatial and economic planning at the appropriate level will ensure implementation, public participation and local ownership. Furthermore, integration will enhance the possibility of local as well as external funding.
5. The guidelines also recognize that site-based management planning should be one element of a multi-scalar approach to wise use planning and management and should be linked with broad-scale landscape and ecosystem planning, including at the integrated river basin and coastal zone scales, because policy and planning decisions at these scales will affect the conservation and wise use of wetland sites.
6. These new guidelines place further emphasis on the role of a management plan as part of an overall management planning process and provide additional advice on incorporating good practice in management planning, including adaptable management, outcomes, quantified objectives, and integrated monitoring.

II. General guidelines

7. Wetlands are dynamic areas, open to influence from natural and human factors. In order to maintain their biological diversity and productivity (i.e., their 'ecological character' as defined by the Convention¹), and to permit the wise use of their resources by people, an overall agreement is essential between the various managers, owners, occupiers and other stakeholders. The management planning process provides the mechanism to achieve this agreement.
8. The management plan itself should be a technical document, though it may be appropriate for it to be supported by legislation and in some circumstances to be adopted as a legal document.
9. The management plan is part of a dynamic and continuing management planning process. The plan should be kept under review and adjusted to take into account the monitoring process, changing priorities, and emerging issues.

¹ The **ecological character** of a wetland is "the sum of the individual biological, physical, and chemical components of the wetland ecosystem, and their interactions, which maintain the wetland and its products, functions, and attributes" (Resolution VII.10).

10. An authority should be appointed to implement the management planning process, and this authority should be clearly identified to all stakeholders. This is particularly important on a large site where there is a need to take account of all interests, users, and pressures on the wetland, in a complex ownership and management situation.
11. Although conditions vary at individual wetlands, these guidelines may be applied worldwide. The guidelines provide a conceptual background to, and framework for, wetland management planning and an outline of the main sections of a management plan. It is emphasized that the guidelines do not provide a prescription for the detailed contents of a complete management plan itself, which will be a much more detailed document and should be prepared at regional or local level.
12. A management plan, and the management planning process, should only be as large or complex as the site requires. The production of a large, elaborate and expensive plan will not be possible, and certainly not justifiable, for many sites. The size of a plan, and (perhaps more importantly) the resources made available for its production, must be in proportion to the size and complexity of the site, and also to the total resources available for the safeguarding and/or management of the site. Thus for small uncomplicated sites, brief, concise plans will suffice. For large or zoned sites, it may be appropriate to develop separate detailed plans for different sections of the site, within an overall statement of objectives for the whole site.
13. Often management planning should not be restricted to the defined site boundary, but rather should also take into account the wider context of planning and management, notably in the basin or coastal zone within which the site is located, which can be transboundary in nature. It is important to ensure that the site planning takes into account the external natural and human-induced factors and their influence on the site, and also to ensure that the management objectives for a site are taken into account in the wider planning processes. For further guidance see Ramsar's *Guidelines for integrating wetland conservation and wise use into river basin management* (Ramsar Handbook 4); the *Principles and guidelines for incorporating wetland issues into integrated coastal zone management (ICZM)* (Resolution VIII.4); and *Guidelines for international cooperation under the Ramsar Convention on Wetlands* (Ramsar Handbook 9) concerning transboundary wetlands. The link between site-based and wider-scale management is further elaborated in the following section.

III. Integrating wetland site management within broad-scale environmental management planning, including river basin and coastal zone management

14. It is the permanent presence of water in wetlands, or at least for some significant period of time, that creates the soils, micro-organisms, and plant and animal communities such that the land functions in a different way from terrestrial habitats. Wetland ecosystems are adapted to the hydrological regime and are vulnerable to change. For most wetlands, direct rainfall provides only a small proportion of the water regime, with the primary source being rivers or aquifers. Similarly, wetlands in the coastal zone are influenced by the quantity and quality of freshwater flowing into them from rivers and other land-based discharges and of oceanic and marine waters from further offshore.

15. Successful management of wetland sites therefore requires maintenance of these sources of water. The inter-connectedness of the hydrological cycle means that changes some distance from the wetland can have a detrimental impact. Insufficient water reaching wetlands, due to climate change, land use change, abstractions, storage and diversion of water for public supply, agriculture, industry and hydropower, are all major causes of wetland loss and degradation. A key requirement for wetland conservation and wise use is to ensure that adequate water of the right quality is allocated to wetlands at the right time. For further information, see the *Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands* (Resolution VIII.1).
16. The fundamental unit for water issues is normally the river basin (or catchment), as this demarcates a hydrological system in which components and processes are linked by water movement. The river basin will normally include a mosaic of different land types, including wetlands, forests, grasslands, agricultural and urban areas. The term 'integrated river basin management' (IRBM) has developed into a broad concept that takes a holistic approach (see Ramsar Wise Use Handbook 4, *Integrating wetland conservation and wise use into river basin management*).
17. However, it is important to recognize that in some cases the river basin within which the wetland lies may not be the most appropriate unit for wider-scale planning. This is when groundwater plays a significant role in supplying water to a wetland, since the underlying aquifer does not always coincide with the surface river basin. If this is the case, more than one basin overlying the aquifer may constitute the appropriate unit of water resource management. It is therefore important to establish the hydrological relationships between the wetland and its sources of surface and ground water as the basis for appropriate site-based management planning.
18. Integrated River Basin Management is complementary to Integrated Water Resource Management (IWRM), which has come to the fore as a strategy proposed in Chapter 18 of Agenda 21 to implement the Dublin Principles². Agenda 21 affirms that "Such integration must cover all types of interrelated freshwater bodies, including both surface water and groundwater, and duly consider water quantity and quality aspects. The multisectoral nature of water resources development in the context of socio-economic development must be recognized, as well as the multi-interest utilization of water resources for water supply and sanitation, agriculture, industry, urban development, hydropower generation, inland fisheries, transportation, recreation, low and flat lands management and other activities."
19. A key element of IWRM is that river basins are usually the most appropriate physical entity in which to plan the management of water. The concept of Ecosystem Management has broad similarities with IRBM, where the ecosystem boundary is synonymous with the river basin boundary, but in which the focus is on maintaining ecosystem functioning.
20. The aim of Integrated River Basin Management or Integrated Water Resource Management is to bring together stakeholders at all levels, from politicians to local communities, and to consider water demands for different sectors within the basin³. Achieving adequate allocation of water to wetlands requires that the water needs of the

² The Dublin Principles were adopted by the 1992 Dublin International Conference on Water and the Environment.

³ See Ramsar Wise Use Handbook 4, *Integrating wetland conservation and wise use into river basin management*.

wetland, including those in the estuary and coast, are defined and communicated to other stakeholders. It is also essential that the benefits of wetlands, such as their hydrological and ecological functions and their provision of goods and services, are determined in order to justify the required allocation.

21. The ease with which adequate water allocation for wetlands can be achieved will depend upon the legislative drivers. Some states will have legislation regarding allocation of water to the environment, such as South Africa's Water Law or the European Union's Habitats Directive and Water Framework Directive. In these cases, procedures may be in place to allocate sufficient water for wetlands.
22. In other cases, water allocation will be made on the basis of the benefits that water use will bring. Other stakeholders with competing water allocation requirements will include representatives of public water supply, energy, agricultural and industrial communities. All will have powerful arguments to justify their water requirements in terms of public health, food, and economic output, including employment.
23. Consequently, achieving water allocation for wetlands will often be a long process that needs careful planning and will include training and awareness-building about the benefits of wetlands. These benefits need to be presented in a manner in which the trade-offs with other water users can be evaluated. Some benefits, such as fisheries, can be given a monetary value that fits into a traditional financial analysis, but this is generally not the case for social, cultural and ecological benefits⁴. A framework for decision-making needs to be established, such as multi-criteria analysis, that allows evaluation of all social, cultural and ecological values of wetlands as well as their economic values.
24. To implement IRBM, many countries (or groups of countries that share a river basin) have established river basin management authorities or commissions, such as those for the Niger, Mekong, and Zambezi Rivers and Lake Chad Basin. However, many river basin authorities and water agencies have as yet insufficient appreciation of the benefits provided by wetlands in terms of their productivity, e.g. fisheries and livestock grazing, and their social importance, e.g. their traditional usage by local communities and indigenous peoples or their cultural heritage. Indeed, many perceive wetlands only as competing users of water, with high evaporative demand. It is vital that river basin planners and managers recognize that wetland ecosystems are key elements within a basin and are the resource from which the commodity of water is derived, rather than only a competing user of water. Thus judicious management of wetlands, such as use of wetlands to improve water quality, can be a solution to IRBM rather than a restriction.
25. IRBM can be seen as an opportunity to promote the wise use of wetlands since it establishes a forum for dialogue where the benefits of wetlands can be demonstrated. It also provides an opportunity to question the wisdom of proposed infrastructure developments, such as dams, that might have a negative impact on wetlands⁵ (see also Resolution VIII.2, *The report of the World Commission on Dams (WCD) and its relevance to the Ramsar Convention*).

⁴ Barbier, E., Acreman, M.C. & Knowler, D. 1997. *Economic valuation of wetlands: a guide for policy makers and planners*. Ramsar Convention, Gland, Switzerland.

⁵ *Dams and development: a new framework for decision-making*. Report of the World Commission on Dams, Cape Town, South Africa, 2000

26. Where river basin authorities or similar bodies are not already in place, it will be necessary to initiate a process for defining water allocation, which will include creation of a forum for stakeholder interaction⁶.
27. In developing a management planning process for a wetland site, it is important that wetland managers take into account the wider context of basin-scale, aquifer or coastal zone management processes for the region in which their wetland occurs, and interact with these processes so as to ensure that the needs of the wetland are recognized and fully incorporated in this wider planning and management.

IV. The functions of wetland management planning

28. The most important functions of a wetland management planning process and a management plan are:

Function I. To identify the objectives of site management

This is the single most important function of the planning process. It is essential that management objectives be defined for each important feature of the ecological character of the site and for all other important features related to the functions and values of the site, including socio-economic, cultural and educational values. In other words, those responsible for developing the management plan must be clear about what they are trying to achieve.

Function II. To identify the factors that affect, or may affect, the features

The ability to achieve wise use and conservation objectives for wetlands will always be influenced to some extent by a number of factors, including trends, constraints and obligations, in fact anything that has influenced, is influencing, or may influence the features of the site for which objectives are set. It is essential that all the important factors should be identified, and that their impact on the site, particularly on the features of its ecological character, be considered. For the most significant factors, it may be necessary to undertake Environmental Impact Assessments (EIA) as part of the planning process.

Function III. To resolve conflicts

On most sites there will be some conflicts of interest and difficulty in identifying priorities. It is essential that the planning process should be recognized as a forum for resolving conflicts and establishing commitments for the future.

Function IV. To define the monitoring requirements

A function of monitoring, in the context of management planning, is to measure the effectiveness of management. It is essential to know, and to be able to demonstrate to others, that the objectives are being achieved. Thus, monitoring must be recognized as an

⁶ See Resolution VIII.1, *Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands*.

integral component of management and planning. It should be designed to identify and manage change in ecological character of the site⁷.

Function V. To identify and describe the management required to achieve the objectives

In most cases where habitats or species require safeguarding, some action, i.e. management, will be necessary. Having established that a plan identifies the objectives of management, it follows that it must also identify, describe, and estimate the cost of the action required.

Function VI. To maintain continuity of effective management

Continuity of effective management and monitoring is essential. Management processes must be adapted to meet a wide range of varying factors. Although management will change as circumstances require, the purpose of management should remain more or less constant. This is why continuity of effective management must be maintained, and not simply the continuity of any specified process. Continuity of monitoring is as important as is continuity of management.

Function VII. To obtain resources

Management planning must identify and quantify the resources required to manage a site, and this should include the preparation of a detailed budget. This information can then be used to support and justify bids for resources. It is often difficult, particularly in developing countries, to allocate funds for the implementation of management plans, but it is essential that the management plan identify mechanisms for financing management. These mechanisms may include generating income on the site, for example, through tourism, harvesting of reeds, fishing, etc., and/or the establishment of a Trust Fund for the site or other long-term funding mechanism. In many cases it may be necessary to assess the capacity of the organization responsible for implementing the management plan at an early stage in its preparation. Shortfalls identified in the capacity assessment should be addressed in the Action Plan section (see section XVII of these guidelines).

Function VIII. To enable communication within and between sites, organizations and stakeholders

Communication is essential within organizations, and also between organizations and individuals. Management plans and the management planning process are a means of presenting information in a structured and accessible format that will inform others about the site, the aims of management, and the management processes. Planning and management for the maintenance of ecological character are largely dependent on the availability of information. It is also important that those responsible for developing the plan should be aware of management techniques and procedures developed or improved elsewhere. The communications, education and public awareness (CEPA) components of

⁷ **Change in ecological character** is “the impairment or imbalance in any biological, physical, or chemical components of the wetland ecosystem, or in their interactions, which maintain the wetland and its products, functions and attributes” (Resolution VII.10).

the plan from its inception to full implementation should be clearly defined (see Resolution VIII.31).

Function IX. To demonstrate that management is effective and efficient

Those responsible for developing the plan must always be in a position to demonstrate that they are making the best use of resources and that management will be effective. In other words, the plan should provide the basis for any cost benefit analysis. It is also important that the need for accountability is recognized.

Function X. To ensure compliance with local, national, and international policies

It is essential that the management plan recognizes and is compliant with a wide range of policies, strategies, and legislation. Occasionally policies may be contradictory, and consequently one of the functions of a plan must be to integrate the various policies. A National Wetland Policy and related national biodiversity plans and policies provide the context and framework for the development of a site management plan (see Ramsar Handbook no. 2, *Guidelines for developing and implementing National Wetland Policies*, for further guidance). In particular the plan should contribute to the implementation of the National Wetland Policy and/or national biodiversity strategy and other related plans and policies.

V. Stakeholders, including local communities and indigenous people

29. Wetland management, and particularly the planning process, should be as inclusive as possible. Legitimate stakeholders, particularly local communities and indigenous people, should be strongly encouraged to take an active role in planning and in the joint management of sites. It is highly desirable that positive steps be taken to ensure that gender issues, including women and their interests, are fully taken into account at all stages in the process. If necessary, appropriate incentives to ensure full stakeholder participation should be identified and applied. Further guidance on involving local communities and indigenous peoples in the participatory management of wetlands is contained in the guidelines adopted by Ramsar Resolution VII.8 (Ramsar Wise Use Handbook 5).
30. A 'stakeholder' is taken to mean any individual, group or community living within the influence of the site, and any individual, group or community likely to influence the management of the site. This will obviously include all those dependent on the site for their livelihood.
31. Stakeholder interests can have considerable implications for site management, and will place significant obligations on managers. Public interest, at all levels, must be taken into account. Wetland managers must recognize that other people may have different, and sometimes opposing, interests in the site. It is essential that these interests be safeguarded wherever possible, but this must not be to the detriment of the features of the ecological character of the site. Any use of the site must ultimately meet the test of compatibility with the wise use and conservation purpose and objectives, and this is of added significance where the site has been designated as a Wetland of International Importance.
32. The involvement and understanding of local communities and indigenous peoples in the management of wetlands is of particular importance where the wetland is under private ownership or in customary tenure, since then the local communities are themselves the

custodians and managers of the site, and in these circumstances it is vital that the management planning process is not seen as one imposed from outside upon those who depend on the wetland for their livelihoods.

Consultation with, and participation by, stakeholders

33. It is particularly important that stakeholders be informed at the earliest possible stage about an intention to produce a management plan, but at this stage this should not be confused with formal negotiation. The most important early message is that everyone will be consulted and involved and that all interests will be given proper consideration. Management planners must convey the message that they are open-minded and will deal as objectively as possible with all issues. Relevant stakeholders should include not only local communities but also local government (including all sectors whose decisions can affect the management planning process and its objectives) and the private sector.
34. Consultation and negotiation should be about presenting ideas or proposals for discussion and seeking views about specific issues. A structured planning process should generate ideas and proposals – unfocused discussion is rarely conclusive and can be counterproductive. Before any consultation, managers must know what they are attempting to achieve, and should define those areas that are open to negotiation. For issues that are open to discussion, a range of well-considered options should be given. Every effort must be made to be inclusive and to achieve consensus, supporting the wise use of resources without compromising the natural integrity of the unit. In some cases, especially when management is not the direct responsibility of local communities or indigenous peoples, the process will be ‘citizen-assisted’ rather than ‘citizen-driven’, because management decisions will ultimately rest with the responsible agency.
35. Before embarking upon a plan, it will be necessary to collect or collate all available relevant information about the site in order to describe its ecological character and its functions and values, including all relevant socio-economic, cultural and educational features. Professionals in the natural and social sciences should be involved to ensure effective collection of all relevant data. Local people and other stakeholders are usually an important source of information, and they should be involved through appropriate and proven techniques that are sensitive, *inter alia*, to gender and cultural issues, in the data and information collation stage of the process.
36. Once data collation and the preparation of the descriptive sections of the plan are complete, the process moves on to preparing management objectives concerning the maintenance of the ecological character and other aspects of interests to stakeholders. The protection of the features of the ecological character is the prime concern for a Ramsar site, and should not be considered negotiable. However, it is important to bear in mind that these features are very often present because they are, and will need to be, maintained by local people. It is very important when introducing the concepts of designation and management planning to stakeholders that they do not gain the impression that the process will curtail legitimate activities, unless such activities could threaten important features or are potentially unsustainable.
37. Once the obligations are known, planners can then move on to identify the management requirement. At this stage, negotiation with stakeholders becomes essential. While the objectives concerning the maintenance of the ecological character should not be

negotiable, it is often possible to identify a range of alternative management approaches that would meet them whilst at the same time assisting in achieving other objectives of interest to different stakeholders.

38. Finally, management plans should be regarded as public documents, and all stakeholders should be given access to the plan.

VI. The precautionary approach as applied to environmental management

39. When considering the carrying capacity of a site for any human use, activity or exploitation (i.e., its sustainability), the best available evidence should indicate that the activity will not be a threat to the features of the ecological character of the site.
40. Contracting Parties are, when implementing their wetland management planning process, invited to take into consideration the precautionary approach, as established in Principle 15 of the 1992 Rio Declaration on Environment and Development adopted by the United Nations Conference on Environment and Development (UNCED), which affirms that

“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

VII. Management planning is a process

41. Management planning must be regarded as a continuous, long-term process. It is important to recognize that a management plan will grow as information becomes available. Planning should begin by producing a minimal plan that meets, as far as resources allow, the requirements of the site and of the organization responsible for managing the site, and no more.
42. All available information should be collated and assessed (see paragraph 35 above). Any shortfall of relevant information must be recorded, and projects should be planned to correct this deficiency. In time, as further information is collected and resources become available, the plan can grow, and may eventually meet all site management requirements.
43. The planning process is adaptable and dynamic. It is essential that the plan change, or evolve, to meet changing features, factors and priorities, both within and outside the site.
44. The overall management planning process for Ramsar sites and other wetlands is supported by the substantial range of the Convention’s tools and guidances compiled in the Ramsar Wise Use Handbooks. Of particular relevance to the different stages of the management planning process are:

Identification and designation of wetlands

Definitions of “ecological character” and “change in ecological character” (Resolution VII.10, Appendix VI).

A Framework for Wetland Inventory (Resolution VIII.6)

Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance (Resolution VII.11)

Enhancing the information on Wetlands of International Importance (Ramsar sites) (Resolution VIII.13)

Wetland assessment

Wetland risk assessment framework (Resolution VII.10)

'Guidelines for incorporating biodiversity related issues into environmental impact assessment legislation and/or processes in strategic environmental assessment' adopted by the Convention on Biological Diversity (CBD), and their relevance to the Ramsar Convention (Resolution VIII.9)

Gaps and harmonization of Ramsar guidance on wetland ecological character, inventory, assessment and monitoring (Resolution VIII.7)

Wetland monitoring

A Framework for designing a wetland monitoring programme (Annex to Resolution VI.1)

***In situ* Wetland management**

New Guidelines for management planning for Ramsar sites and other wetlands (Resolution VIII.14)

Guidelines for establishing and strengthening local communities' and indigenous people's participation in the management of wetlands (Resolution VII.8)

Guiding principles for taking into account the cultural values of wetlands for the effective management of sites (Resolution VIII.19)

***Ex situ* Wetland management**

Guidelines for integrating wetland conservation and wise use into river basin management (Resolution VII.18)

Principles and guidelines for integrating wetlands into Integrated Coastal Zone Management (Resolution VIII.4)

Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands (Resolution VIII.1)

The Report of the World Commission on Dams (WCD) and its relevance to the Ramsar Convention (Resolution VIII.2)

VIII. Inputs, outputs, and outcomes

45. Managers must differentiate between inputs, outputs and outcomes.

Inputs	=	Resources
Outputs	=	Policies, management plans, management
Outcomes	=	Condition of the features of the ecological character of the site and other management objectives

46. These terms are defined as:

- i) **Inputs.** The resources provided for site management, for example, finance, staff and equipment.
- ii) **Outputs.** The consequential by-products of management or the management planning process. For example, policies are developed for the various management activities, management plans are prepared, interpretation is provided, and a

management infrastructure is developed and maintained. Often, outputs are used as a means of assessing whether management is appropriate. Organizations will claim that they have successfully managed their sites because they have achieved a number of outputs. This can be very misleading because it is possible to carry out a wide range of management activities and still fail to protect the ecological character features and/or, for example, to enlist the full support and involvement of local communities. One of the worst mistakes that can be made in ecosystem management is to believe that a feature is being successfully protected when, in reality, it is not.

- iii) **Outcomes.** This is the purpose of management. These are the favourable conditions of the ecological character features, such as habitats and species on the sites, which in turn may depend upon the effective management of particular socio-economic parameters, such as ensuring sustainable fisheries or adequate marketing of rice production and/or equitable distribution of the benefits of tourism. It will often be necessary to undertake restoration management followed by maintenance management to ensure that the required conditions or processes are maintained. The condition of features must be defined and quantified. If this is not done, it will not be possible to judge whether the required conservation or sustainable use outcomes have been achieved.

- 47. The only means of judging whether or not inputs and outputs are adequate is by considering the outcomes of management. When this has been done, and only then, it will be possible to determine whether the management is appropriate.

IX. Adaptable management

- 48. In order to safeguard sites and their features, managers must adopt a flexible approach that will allow them to respond to the legitimate interests of others, adapt to the ever-changing political climate, accommodate uncertain and variable resources, and survive the vagaries of the natural world.
- 49. The adaptable management process as incorporated in the Ramsar planning approach is as follows (see Figure 1):
 - i) A decision is made about what should be achieved (i.e., quantified management objectives are prepared for the important features).
 - ii) Appropriate management, based on the best available information, is implemented to achieve the objectives.
 - iii) The features are monitored in order to determine the extent to which they meet the objectives.
 - iv) If objectives are not being met, management is modified.
 - v) Monitoring is continued to determine if the modified management is meeting the objectives, and step iv) is repeated for any further adjustments, as necessary.

50. In exceptional circumstances, it may be necessary to modify the objectives.
51. The adaptable management cycle is usually repeated at predetermined intervals. The interval should be established to take into account the nature and in particular the fragility and rate of change of the site features. However, many countries and organizations will impose a mandatory cycle. In all cases, the cycle should be repeated at any time when emergencies or unforeseen threats become apparent.
52. This adaptable approach enables wetland managers to:
 - i) learn through experience;
 - ii) take account of, and respond to, changing factors that affect the features;
 - iii) continually develop or refine management processes; and
 - iv) demonstrate that management is appropriate and effective.

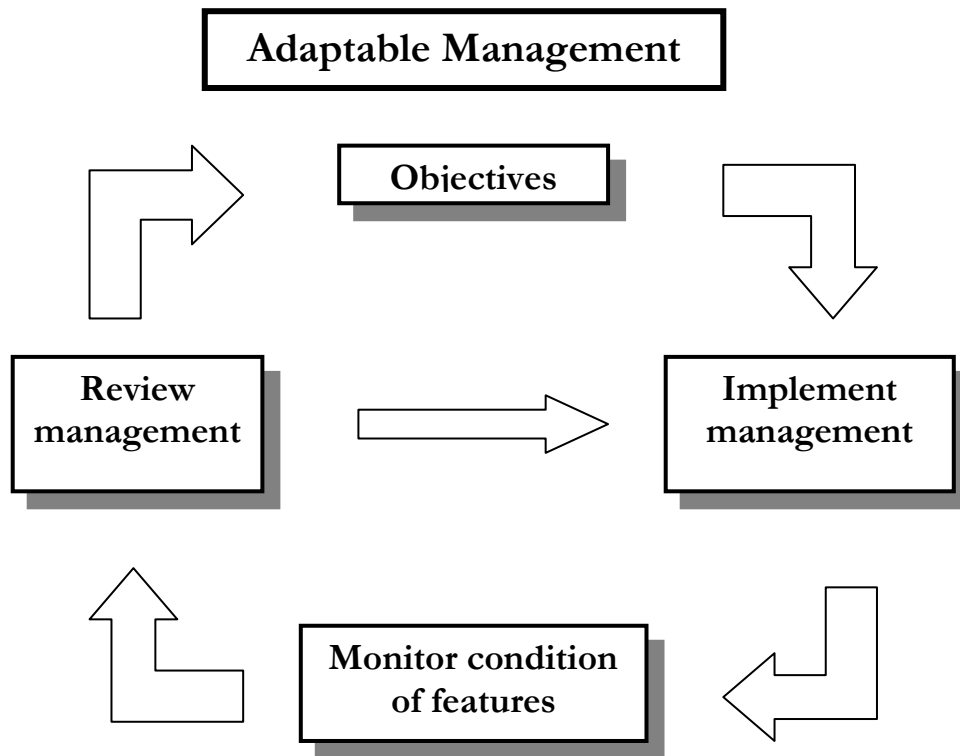


Figure 1. The adaptable management cycle

X. Management units, zonation and buffer zones

53. In general, the management planning process and management plan should cover the entire site. However, where a wetland site is composed of more than one discrete sub-site separated by areas of other land use (for example, discrete wetlands along the floodplain of a major river), separate management plans for each sub-site may be appropriate. However, such individual sub-site plans must fit under the umbrella of an overview plan that should be prepared before those for the sub-sites.

54. Likewise, where the wetland is very large, it may be helpful to divide the site for management planning purposes into several contiguous zones or regions, and to develop separate management plans for each of these zones, again under the umbrella of an overall plan prepared in advance.
55. Several other types of zonation may be appropriate for application to different sites, depending on their characteristics and their relationship to other land uses in the surrounding area. Ramsar sites range from only the area of wetland itself to the inclusion of substantial areas of surrounding non-wetland habitats, often with multiple land-uses. This great variety of what is included within the boundaries of Ramsar sites means that any zonation scheme applied under the Convention must be sufficiently versatile and flexible to cover this variety of site characteristics.
56. When the Ramsar site itself does not include a buffer zone, it is generally appropriate for management planning purposes to identify and establish such buffer zone around the core wetland area defined within a Ramsar site or other wetland. The buffer zone should be that area surrounding the wetland within which land use activities may directly affect the ecological character of the wetland itself, and the objective for land use within the buffer zone should be one of sustainable use through ecosystem management, consistent with the maintenance of the ecological character of the wetland. When a wetland site is composed of discrete sub-sites, a buffer zone should be defined for each, including, where appropriate, all the area between the sub-sites.
57. The location of a buffer zone in relation to the core wetland area of a designated Ramsar site will vary depending upon what ecosystems are included within the site boundaries. Where the designated site is only the wetland itself, then for management purposes a buffer zone should be defined in the surrounding area outside the designated site. In contrast, where the site encompasses the wetland and its surroundings, the buffer zone should extend to the boundaries of the designated site, and then a 'core area', perhaps the wetland ecosystem itself, defined within the site.
58. As described in Section III, the dependence of wetlands on water supply from outside the wetland means that for the purposes of wetland management planning the river basin or catchment area of the coastal zone should be viewed in effect as a buffer zone for the wetland, since water and land-use in these extended areas indirectly affect the ecological character of the wetland. However, particularly in the case of a wetland within a very large river basin, basin-scale or coastal zone management may be seen as a third, outer zone for management purposes, and a more limited buffer zone immediately surrounding the wetland may still be a necessary management planning tool.
59. The Biosphere Reserve zonation concept, in which the site may include up to three zones - core zone, buffer zone (for research and training) and transition zone (for sustainable use) - is potentially applicable to all Ramsar sites, and should be applied whenever feasible and appropriate. Its application is particularly important where a site is designated as both a Ramsar site and Biosphere Reserve, and here the relationship between the Ramsar site boundary and the zonation established for the Biosphere Reserve should be clearly established.
60. Although many Ramsar sites are within protected areas, where the primary land-use within the site is wetland conservation, many are, like Biosphere Reserves, multiple use sites. In

the latter, the management objectives for the use of the core wetland are broadly to ensure that the ecological character of the wetland is maintained or enhanced so as to continue to provide its values and functions for people's livelihoods and for biodiversity conservation.

61. Any zonation scheme should recognize the existing multiple uses of Ramsar sites and their surroundings, and ensure that management objectives for the core zone are designed primarily to maintain the ecological character of the wetland, as well as that those for any form of surrounding buffer zone are consistent with this maintenance of the ecological character. Clear, separate but complementary and mutually supportive management objectives should be established for each zone.
62. Another approach to zonation, and one that is not mutually exclusive to the 'core/buffer zonation' approach, is that of establishing zonation for a particular use of a site. An example could be the use and development of a wetland for ecotourism. Here zonation would be used to establish in which parts of a site ecotourism access can occur, where ecotourism infrastructure should be placed (e.g., the sensitive siting of a visitor centre), and from which parts of a site ecotourism should be excluded owing to the sensitivity of those parts of the ecosystem to disturbance. Such zonation schemes will generally cut across the core and buffer zones.
63. The experience of the Man and the Biosphere Programme, under which zonation is recognized as an important part of the delimitation and management of Biosphere Reserves as multiple use sites, is that zonation plays an important role in minimizing user conflicts by separating potentially conflicting activities whilst ensuring that legitimate land uses can continue with minimal conflict.
64. The establishment of a zonation scheme should involve full stakeholder participation from the earliest stage, since it is in 'drawing the lines' between zones that many conflicts can materialize. Establishing zonation and management objectives for each zone (and hence what activities should and should not be permitted within each zone) is an important part of the process of establishing a close involvement of local communities, indigenous peoples, and other stakeholders in the management of the wetland.
65. Some general rules should be applied when establishing zones, regardless of their type and purpose:
 - i) zonation should be established with the full involvement of stakeholders, including local communities and indigenous peoples;
 - ii) a full and detailed rationale should be made to explain the basis for establishing and delineating zones, and this is particularly important when establishing the limits of buffer zones;
 - iii) a concise description of the functions and/or restrictions applied within each zone must be prepared as part of the management plan;
 - iv) zones should be identified with a unique and, if possible, meaningful code or name: but in some cases, a simple numerical code may be adequate;
 - v) a map showing the boundaries of all zones must be prepared;

- vi) where possible, zone boundaries should be easily recognizable and clearly identifiable on the ground: physical features (for example, fence lines and roads) provide the best boundaries, and boundaries based on dynamic features, such as rivers, mobile habitats, and soft coastlines, must be identified with some form of permanent marker; and
- vii) on large, uniform sites, or in areas of homogeneous habitat crossed by a zone boundary, fixed permanent markers with locations mapped using a Global Positioning System (GPS) should be used.

XI. Format of the management plan

66. The format of the management plan, as recommended in these guidelines, should comprise five main sections, reflecting the main steps in the management planning process:
- a) Preamble/policy
 - b) Description
 - c) Evaluation
 - d) Objectives
 - e) Action Plan
67. Note that the steps of this process are repeated several times through the plan – they are applied to ecological character, socio-economic interests, cultural values, and any other features of interest. In general, it is good practice to begin with ecological character, but there is no implied hierarchy.
68. The recommended structure and content of each of these sections is further described below and illustrated in Figure 2.

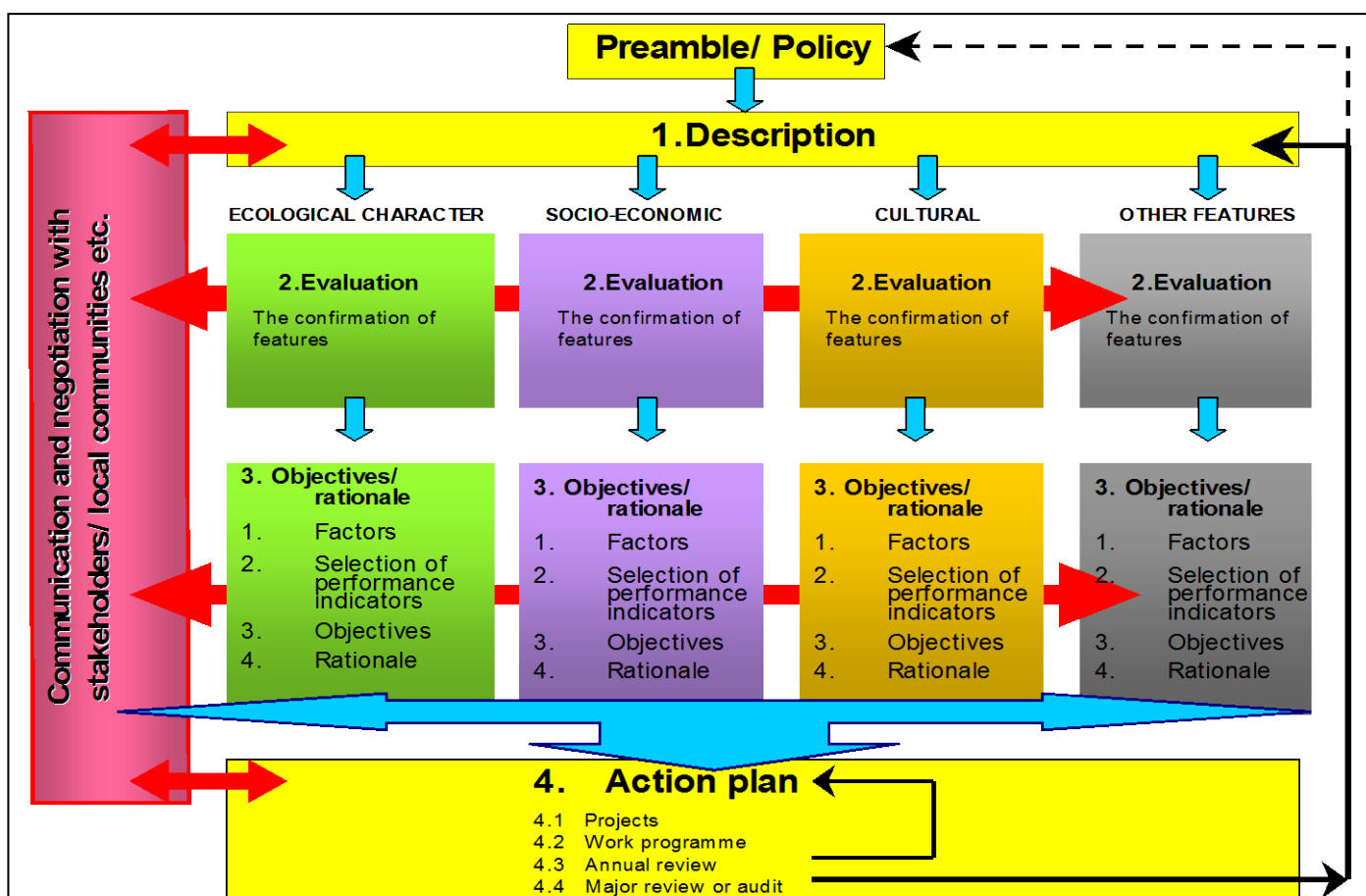


Figure 2. Recommended structure and content of a management plan for a Ramsar site or other wetland.

XII. Preamble / policy

69. The preamble is a concise policy statement that should reflect, in broad terms, the policies and/or practices of supranational, national, or local authorities and other organizations and traditional management systems, including, for example, non-governmental bodies, local communities or private owners' resource management arrangements that are concerned with the production and implementation of the management plan. The preamble should also recall the broad Ramsar Convention requirements; namely the maintenance of the ecological character of sites on the Ramsar List of Wetlands of International Importance, the wise use of all wetlands, the establishment of nature reserves at wetlands, whether or not they are included in the Ramsar List, and international cooperation where appropriate to the management of the site, in particular in the case of shared wetlands and water systems.

XIII. Description

70. The description is an important part of the management planning process. It provides the information used to fuel the rest of that process.
71. The description is fundamentally a collation and synthesis of existing data and information. The identification of any shortfall of relevant data and information is also a key function of this part of the process (see paragraphs 34 and 42 above).
72. In many cases, not all information needed for the basis of management planning will be available. Collection of more detailed data on these features and/or the factors influencing them, in order to fill any identified essential gaps, may be necessary, but care should be taken to ensure that only additional information essential for the establishment of management objectives for the site is the subject of further data collection.
73. The description should be regularly reviewed and updated, so as to incorporate new sources of data and information, including updates from time-series monitoring.
74. For Ramsar sites, particular attention should be given to the description of the features of the site which have formed the justification for its designation under each of the applied Ramsar *Criteria for Identifying Wetlands of International Importance*.
75. All relevant data may be located and arranged under the headings provided in the 'Information Sheet on Ramsar Wetlands (RIS)' as amended by COP8 (Resolution VIII.13),

used by Contracting Parties for the designation of Ramsar sites. It follows that the description in the RIS should clearly describe the overall ecological characteristics of the site, and identify the specific ecological character features for which the site has been designated and which need to be maintained in favourable conservation status through the management planning process. In addition, all other entries in the RIS which are not strictly related to the ecological character should also be carefully considered and incorporated in the description. It should be noted that whilst the information compiled in the RIS can form a starting point for the site description, the level of detail of information required for site management planning processes will generally go beyond that necessary in the RIS for site designation.

76. However, it is important that the information derived from the existing data is presented in the plan description in a concise manner and in a language and presentation that is easy for all stakeholders to understand, rather than full of detailed scientific terms and jargon of interest only to scientific and technical experts in those particular subjects.
77. The plan description should make reference to, but should not contain sensitive data on, rare or endangered species - this should remain confidential.
78. The plan description should also include information on any particular local features or characteristics of the site, especially its values and functions for people, that may be helpful in establishing priorities and setting management objectives.
79. All descriptions should include a bibliography containing references that provide an 'audit trail' to all papers, reports, journals, books, etc., and unpublished sources used during the preparation of the plan.

XIV. Evaluation

80. Evaluation is the process of identifying or confirming the important features or foci for management planning. Figure 2 indicates that evaluation of important features should be undertaken for each of four major areas of interest, and the evaluation process must be applied to each in turn. For Ramsar sites and other wetlands, evaluation should be undertaken for ecological character features, as well as for socio-economic features, cultural features, and any other important features identified.
81. Evaluation criteria must be developed for each feature of interest. A list of criteria, with examples, recommended for evaluating ecological character features is provided below, along with an indicative list for socio-economic and cultural criteria which should be further developed for each site to take into account its specific socio-economic and cultural characteristics.

Evaluation of ecological character (habitats, species and natural processes)

82. The important features of the ecological character (habitats, populations, and processes) of a site, as defined by Resolution VII.10, provide a focus for the planning process. The main purpose of this section of the management plan is to provide a list of the features and to confirm their status. The status of features that have been previously recognized should be confirmed. An evaluation process is required for features where there has been no previous, or formal, recognition of the features.

83. The evaluation process should utilise the guidance adopted by the Convention for wetland inventory and assessment which provide tools for evaluation of ecological character and the status of wetlands.
84. In some cases, the presence of the important ecological character features on a site will have been recognized prior to planning. For example, the site may contain legally protected species or habitats. It is essential that the legal status of such features be recognized.
85. The list of criteria below is recommended for the evaluation of ecological character features. The list is not intended to be fully comprehensive, nor is there any suggestion that it will be appropriate to all features on all sites. Only the relevant or useful criteria should be used, and additional criteria should be added as circumstances require.
86. Note that the criteria often overlap or are interdependent. For example, it is difficult to discuss fragility without considering rarity. Fragile features are, by their nature, generally rare.
87. The criteria should always be regarded as having negative as well as positive aspects. For example, high levels of biological diversity (i.e., habitat or species richness) are usually regarded as of high importance, but such assumptions should be evaluated with care, and in the context of the general biodiversity characteristics of particular wetland types and their location, since high diversity can be the consequence of human intervention in a habitat that is naturally species-poor rather than a naturally occurring phenomenon.
88. The recommended criteria for evaluating ecological character features are as follows.

Criterion 1 for evaluating ecological character features: Size

89. In most cases, the importance of a feature will increase with size. However, size as a criterion must always be linked to other qualities. Small areas of high-quality habitat can often be more highly valued than large areas of low-quality habitat.
90. Size is of particular importance where habitats are fragmented and populations isolated. The viability of small, and isolated, features and sites is usually questionable. Very small populations are often extremely vulnerable and can become extinct simply through chance, despite appropriate management. Nevertheless, such places may, at times, represent the last remaining examples of a habitat or population and may therefore be significant in the maintenance of overall biological diversity.

Criterion 2 for evaluating ecological character features: Biological diversity

91. The maintenance of biological diversity is usually regarded as one of the most important aims of nature conservation and the sustainable use of biological resources. This is largely because one of the most obvious, and serious, effects of human intervention on the environment has been the destruction of habitats and extinction of species. Consequently, management is frequently carried out in order to maintain, or even improve, site diversity. However, it must be recognized that there are occasions when high diversity is undesirable. For example, cut, over-drained, or otherwise modified peat bogs will contain a greater diversity of communities and species than an intact, natural bog.

92. High diversity is sometimes a feature of dynamic or disturbed habitats, giving rise to an opportunity for seral vegetation succession. Where this instability is natural, the resultant high diversity is highly valued. Conversely, where the disturbance is a consequence of human intervention, the value of the resultant diversity is doubtful.

Criterion 3 for evaluating ecological character features: Naturalness

93. Naturalness is one of the most important criteria applied to ecological character features. In general, the more natural a feature is, the greater the value of its ecological character. However, very few, if any, wetlands in the world can be regarded as wholly natural, and it is recognized that even highly modified habitats can be extremely important for wildlife.

Criterion 4 for evaluating ecological character features: Rarity

94. Rarity is the one aspect of biodiversity conservation that has generally received most attention, and, as a consequence, managers are usually aware of the most rare and endangered habitats and species on their sites. These will feature prominently in any management plan. Often it is the presence of rare habitats or species that leads to the selection of sites for protection management – for Ramsar sites, through the application of Ramsar Criterion 2 concerning threatened species and ecosystems.

Criterion 5 for evaluating ecological character features: Fragility

95. To a greater or lesser extent, all ecological character features demonstrate a degree of fragility. Fragility should always be considered within a time scale, and the degree to which the damage is permanent is a crucial consideration. Fragility is almost invariably linked to rarity; fragile features are, or soon become, rare.
96. Fragility should not always be dismissed as a negative factor. Many natural communities rely on disturbance for their survival. These usually ephemeral communities often occur during the early successional stages of dynamic habitats. Intentional disturbance is often a necessary and legitimate part of management aimed at setting back succession for the purpose of maintaining community vigour, as in the case of burning or grazing to enhance grasslands.
97. Species may also be fragile, most often as a result of habitat change or destruction. Some have such specialized and complex requirements that a seemingly obscure or minor change can have devastating effects.

Criterion 6 for evaluating ecological character features: Typicalness

98. Sites are usually selected and valued because they contain the best, or at least a good, example of a particular feature, for example through Criterion 1 for the identification and designation of Ramsar sites. The qualities that render a feature exceptional are most often the unusual or rare. It is also important, however, that the typical and commonplace should not be undervalued. This criterion is particularly useful for providing the justification for safeguarding the typical features in an area.

Criterion 7 for evaluating ecological character features: Potential for improvement and/or restoration

99. Most features are, to a greater or lesser extent, imperfect. This criterion is used to assess the potential for improvement or restoration. Severely degraded features may have varying degrees of potential for improvement; some will have none at all, while others will have potential for total recovery, given appropriate management. The need to identify this potential is crucial. There can be no justification for wasting resources in attempting to manage a degraded feature when the underlying reasons for the damage cannot be reversed.
100. The *Principles and guidelines for wetland restoration*, adopted by COP8 Resolution VIII.16, provide further guidance on the selection of wetlands appropriate for restoration.

Evaluation of other features of importance on wetland sites

101. In addition to the ecological character features, most sites will contain other features of equal importance, for example, cultural, socio-economic, geological and geomorphological features, landscape and palaeo-environmental features. It is important that these features be given appropriate attention and that the full management planning process be followed for each. This is particularly important in relation to ensuring the involvement and input of all stakeholders (see section IV).
102. The evaluation should focus on the values and functions, goods and services provided by the wetland in support of human well-being and on the presence of cultural features, both cultural artefacts and structures and their religious and faith significance, especially for local communities and indigenous peoples. Geological, geomorphological and landscape significance should also be evaluated in this section of the plan.
103. Some wetlands can also have additional features that do not fall under ecological character or socio-economic or cultural features, and these should also be identified and evaluated. An example would be the importance of a wetland for scientific research or long-term monitoring.
104. In evaluating socio-economic features of the wetland, it is appropriate to apply the techniques of economic valuation of wetlands and draw on information provided by these techniques. For further information on economic valuation, see the 1997 Ramsar publication on *Economic valuation of wetlands: a guide for policy makers and planners*.
105. An indicative list of socio-economic values and functions of wetlands is given in Box 1. Note that not all these features will be applicable to all wetlands.

BOX 1. Indicative list of wetland values and functions for the evaluation of socio-economic features of wetlands for management planning

(derived from Annex III of CBD's *Guidelines for incorporating biodiversity related issues into environmental impact assessment legislation and/or processes in strategic environmental assessment*, see Resolution VIII.9.)

Production functions

Timber production
 Firewood production
 Production of harvestable grasses (construction & artisanal use)
 Naturally produced fodder & manure
 Harvestable peat
 Secondary (minor) products
 Harvestable bush meat (food)
 Fish & shellfish productivity
 Drinking water supply
 Supply of water for irrigation and industry
 Water supply for hydroelectricity
 Supply of surface water for other landscapes
 Supply of ground water for other landscapes
 Crop productivity
 Tree plantations productivity
 Managed forest productivity
 Rangeland /livestock productivity
 Aquaculture productivity (freshwater)
 Mariculture productivity (brackish/saltwater)

Carrying functions – suitability for:

constructions
 indigenous settlement
 rural settlement
 urban settlement
 industry
 infrastructure
 transport infrastructure
 shipping / navigation
 road transport
 rail transport
 air transport
 power distribution
 use of pipelines
 leisure and tourism activities

Processing and regulation functions

Decomposition of organic material (land based)
 Natural desalinisation of soils
 Development / prevention of acid sulphate soils
 Biological control mechanisms
 Seasonal cleansing of soils
 Soil water storage capacity
 Coastal protection against floods
 Coastal stabilisation (against accretion / erosion)
 Soil protection
 Water filtering
 Dilution of pollutants
 Discharge of pollutants
 Bio-chemical/physical purification of water
 Storage for pollutants
 Flow regulation for flood control
 River base flow regulation
 Water storage capacity
 Ground water recharge capacity
 Regulation of water balance
 Sedimentation / retention capacity
 Protection against water erosion
 Protection against wave action
 Prevention of saline groundwater intrusion
 Prevention of saline surface-water intrusion
 Transmission of diseases
 Carbon sequestration
 Maintenance of pollinator services

106. Landscape and wilderness qualities are often overlooked in management plans when they apply to protected areas. For sites where habitat management and maintenance is important, and there are few human-made structures, the management of the habitat will usually also cover most landscape issues. For most natural protected areas, landscape management will be concerned with minimising, or removing, the influence of people where this is regarded as visually damaging.

107. In the case of sites where there are significant anthropogenic artefacts with historical, cultural or religious values, these should also be safeguarded through the management

planning process. Such features could be included in a plan's section on landscape, but their protection and maintenance is probably best achieved by regarding them as features of interest, and dealing with them as any other feature.

108. An indicative list of cultural features of wetlands is provided in Box 2.

BOX 2. Indicative list of cultural features of wetlands for evaluation for wetland management planning

(derived from *Cultural aspects of wetlands* (Ramsar COP8 DOC. 15))

Palaeontological and archaeological records
 Historic buildings and artefacts
 Cultural landscapes
 Traditional production and agro-ecosystems e.g. ricefields, salinas, exploited estuaries
 Collective water and land management practices
 Self-management practices, including customary rights and tenure
 Traditional techniques for exploiting wetland resources
 Oral traditions
 Traditional knowledge
 Religious aspects, beliefs and mythology
 "The arts" – music, song, dance, painting, literature and cinema

109. For further guidance on the identification and incorporation of cultural issues and features, including cultural artefacts and cultural landscapes, see the *Guiding principles for taking into account the cultural values of wetlands for the effective management of sites* annexed to Resolution VIII.19.

XV. Objectives

110. Through undertaking the evaluation, a list of the important site features will have been identified. The next step is to prepare management objectives for each of these features.

111. An objective is an expression of something that should be achieved through management of the site. Objectives should have the following characteristics:

- i) **Objectives must be measurable.** Objectives must be quantified and measurable. If they are not measurable, it will be impossible to assess through monitoring whether they are being achieved.
- ii) **Objectives should be achievable, at least in the long term.** This is a very obvious, but often forgotten, characteristic – there can be little purpose in pursuing unattainable objectives.
- iii) **Objectives must not be prescriptive: they define the condition required of a feature and not the actions or processes necessary to obtain or maintain that condition.** Objectives are an expression of purpose. A differentiation should be made between the purpose of management and the management process, because the management undertaken to safeguard a feature will vary according to the condition of that feature. For example, in the case of a derelict feature, recovery

management may be applied until the feature reaches the desired condition, at which time maintenance management can be substituted. These two management approaches can be fundamentally different, or may simply vary in intensity.

Preparing measurable objectives

112. There are three key steps in the process of preparing measurable objectives:

- i) Describe the condition that is required for a feature.
- ii) Identify the factors that influence the feature, and consider how the feature may change as a consequence.
- iii) Identify and quantify a number of performance indicators for monitoring progress in achieving the objectives for that feature.

113. The process of applying the three steps is outlined below.

Step 1. Describe the condition that is required for a feature

114. Most current management plans avoid describing the conditions required of the features. Typically, the plan will discuss maintaining or improving a feature, but will not explain what is to be maintained or how it will be established that it has improved. In order to judge whether or not the objectives are being achieved, there must be a clear description of the conditions that are required for the features.

115. The first step is to provide a description, using plain language, of the conditions that the plan is attempting to obtain or maintain. This is perhaps the long-term vision for the feature. There is no need to focus too strongly upon quantification at this stage – that should be done at a later point in the process.

116. A useful approach for habitats and species, which can be applied anywhere, has been developed by the European Union for Natura 2000 conservation sites. It is a generic approach towards defining the condition in which it is wished to maintain a feature. The European Union requires that features on European sites be maintained at “favourable conservation status”.⁸

117. Habitats are in favourable conservation status when:

- i) they are stable or increasing in area;
- ii) they are sustainable in the long term;
- iii) the condition of typical species is also favourable; and
- iv) the factors that affect the habitat or its typical species are under control.

118. Species are in favourable conservation status when:

- i) the population is viable in the long term;

⁸ Further information about the EU Natura 2000 sites and the Habitats and Birds Directives can be found in <http://europa.eu.int/comm/environment/nature/natura.htm>

- ii) the range is not contracting;
 - iii) sufficient habitat exists to support the species in the long term; and
 - iv) the factors that affect the habitat, or its typical species, are under control.
119. These generic definitions of favourable conservation status for habitats and species are simply an expression of what would be wished of any habitat or species that requires management and could be applied to any feature on any site. Clearly, the generic statement must be developed into one with rather more meaning for particular features of the site, but this is an excellent starting point.
120. Similar statements about “favourable status” should also be developed for features related to human activities and/or practices within the site and/or the buffer zone, in particular in relation to their sustainability and the carrying capacity of the site.

Step 2. Identify the factors that influence the feature, and consider how the feature may change as a consequence

121. The ability to achieve objectives will always be influenced by factors. Factors include policies, strategies, trends, constraints, practices, conflicts of interest and obligations, in fact anything that influences, or may influence, the features. In terms of the Convention, these are essentially those activities that are causing, or are likely to cause, change in ecological character. It is important that both negative and positive factors be considered, since both will have implications for management.
122. The conservation management of habitats and species is mainly about controlling factors, and in particular the consequences of human intervention, past, present and future, and the conflicts of interest among different stakeholders. When attempting to safeguard natural habitats, managers have to control, as far as possible, damaging human activities or influences and to encourage those that contribute to long-term conservation. For example, hunting, timber extraction, and burning are often controlled. For habitats which have been created or modified by human influence, and have become valued as conservation sites, managers often maintain human influence, though they usually call this management (for example, the controlled burning or grazing of grassland to prevent it from reverting to scrub).
123. Uncontrollable factors that may or may not be of human origin must also be taken into account. For example, climate change and invasive species can alter stability and frustrate the ability to measure, predict or sustain desired conditions, and avoidance or control may be impossible. Early recognition of these management limitations can facilitate the development of contingency measures.
124. The influence of factors should be considered for each feature in turn, and then consolidated for statement in the plan as necessary. For example, one factor may influence several features identified for the site, and establishing an appropriate management intervention for that factor needs to take into account the possibility of it having simultaneous positive and negative influences upon different features.
125. Factors, both positive and negative, can be identified and grouped under the following headings:

- i) Internal natural factors
- ii) Internal human-induced factors
- iii) External natural factors
- iv) External human-induced factors
- v) Factors arising from legislation and tradition
- vi) Factors arising as a result of conflicts/communality of interest
- vii) Physical considerations and constraints
- viii) Institutional factors

126. Examples, both positive and negative, of these categories of factors with implications for ecological character features are given below.

- i) **Internal natural factors** - include natural succession in vegetation and variations in water level caused by precipitation.
- ii) **Internal human-induced factors** - include the spread of invasive alien species, on-site pollution, and inappropriate, or unsustainable, agricultural practices (for further guidance on managing invasive alien species, see Resolution VIII.18).
- iii) **External natural factors** - include factors arising outside the wetland, such as positive or negative impacts of climate change and variations in currents or sea level (for further guidance on mitigating the impacts of climate change and sea-level rise through wetland management, see Resolution VIII.3).
- iv) **External human-induced factors** - include diversion of water supply, changing natural pattern and variability of water flows, effective water allocation regimes, increased or decreased sedimentation caused by upstream engineering works, and pollution.
- v) **Factors arising from legislation, tradition** - include legal and traditional rights and obligations placed on the managers of the site. Legal obligations can arise from national or local legislation or international commitments, with national and local laws likely to be the more important factor. Traditional and culture issues may include grazing, fishing, and logging rights and/or religious aspects (see Ramsar's *Guidelines for establishing and strengthening local communities' and indigenous peoples' participation in the management of wetlands*, Resolution VII.8, and *Guiding principles for taking into account cultural values of wetlands for the effective management of sites*, Resolution VIII.19).
- vi) **Conflicts/communality of interest** – includes the likely opposition or support of different stakeholders, depending on whether they see the management plan as contributing to maintain their benefits or not, or providing an opportunity to develop their interests.
- vii) **Physical considerations and constraints** - include physical factors, such as inaccessibility, which may affect the achievement of management objectives.
- viii) **Institutional factors** – includes any limitations to the capacity and authority of organisations responsible for plan implementation, and the inter-relationship (or lack of it) between the organisations or agencies responsible for wetland conservation

and wise use and those responsible for other sectors directly or indirectly affecting the wetland, at local, regional (sub-national) and national scales.

The relationship between factors and features

127. Once the factors have been identified, the effect that they will have on the feature must be considered. The influence of factors should be considered for each identified feature in turn.
128. Features will change as a consequence of the factors, and it is important that the direction of change and any potential indicators of change should be identified. This relationship between factors and the selection of appropriate performance indicators is very important. It is not possible to measure everything on a site; managers must focus, therefore, on monitoring those indicators that are most likely to change.
129. It is essential that both the features and the factors which influence these features be monitored.

Operational limits

130. The purpose of operational limits is to define a range of values for each factor which will be considered acceptable and tolerable levels.
131. The most significant factors provide a focus for surveillance or monitoring. These factors will have a positive or negative impact on the ability to manage features. Acceptable levels should be defined for any factors known to have a significant impact on the features. For example, it is often necessary to set a level of tolerance for an invasive alien species, which could be anything from total exclusion to accepting the presence of a species providing the population remains below a given limit. Other examples could include biological limits, such as a limit on the extent of scrub cover in wet grassland, and limits on human activities such as hunting or fishing.
132. Operational limits require an upper or a lower limit, or sometimes both. In reality, though, both upper and lower limits are seldom applied to the same factor. Upper limits are usually applied to undesirable factors - they define the maximum tolerance - and lower limits are applied to positive factors.
133. In most instances it will not be possible to set precise, scientifically defined limits. This should not be considered a major issue, however. Operational limits are an early warning system, acting as a trigger for action, reached long before there is any significant threat to the long-term viability of the feature. If scientific information is not available, then professional experience comes into play.
134. Key questions concerning operational limits for factors are:
 - i) to what extent can a negative factor be allowed to influence a feature before there is any need for concern; and
 - ii) to what extent is it necessary to ensure that positive factors are maintained.

135. It should be remembered that limits, like objectives, are not fixed forever – they can be revised later if experience, or new scientific information, suggests that it is expedient to do so.
136. An example to illustrate the process and links between identifying a feature, a factor affecting it, an objective for its management, and the setting of operational limits is given in Box 3.

BOX 3. An example of the management planning process for identifying features, factors, objectives and operational limits.

Feature: an important population of a globally threatened endemic fish species (for which the site was selected for Ramsar designation under Criteria 2 and 7).

Factor: the fish species is targeted for capture by recreational fisherman, which may be threatening the viability of the fish population.

Objective: the maintenance of a viable population of the fish species, through the establishment of controls on the recreational fishery.

Operational limits (adopted under the management plan following consultation and agreement with local stakeholders):

- a) a limit on the number of fisherman allowed to catch the fish (through establishing a permit system);
- b) a limit on the number of fish of this species that may be taken (e.g., each fisherman may take only three individuals during one fishing season, with all others to be released); and
- c) a limit on the minimum size of fish of this species that may be taken (e.g., only adult fish longer than 20 cm may be taken, with all others to be released).

Monitoring of factors

137. It is essential that the factors which are influencing or may influence the features are monitored or recorded.
138. Factors which have been quantified and are subject to the operational limits described in the preceding paragraphs must be monitored. For example, the degree of tolerance of an alien invasive species in a habitat will be expressed as an upper limit. Once a limit has been set, the invasive species must be monitored to ensure that its population does not exceed the limit. When and if the limit is exceeded, management or control will be implemented.
139. Recording or surveillance will be required when the relationship between a feature and a factor is unclear. For example, one of the factors that will affect grassland is grazing by wild animals. When the impact of the animals on the vegetation is unknown, it will not be possible to identify the appropriate stocking levels. In this case, a recording programme is required to record, in a structured and consistent manner, the number of grazing animals. In time, it may be possible to establish what the stocking levels should be, and move from surveillance to monitoring.

Environmental Impact Assessments (EIA)

140. The preceding section explains why the important factors must be identified and monitored, and recommends that their impact on the wetland features must be considered in the management plan. Minor, or easily controllable, factors can be dealt with as set out above. However, any major proposals for development or land use changes, on or off the site, may require that an Environmental Impact Assessment be undertaken before the site management plan can be completed. In circumstances where there is more than one proposal, the EIA should take into account the cumulative impact of the proposals.
141. In addition, any new factors, including development proposals, on or off the site, that are likely to have a significant impact on the ecological character of the site, should be subject to a full EIA. A monitoring system should be set in place to ensure that unforeseen impacts are detected, and a process to address negative impacts put in place before the project commences.
142. An EIA may conclude that a development proposal is likely to have a significant negative impact on all or part of the site. If, for overriding reasons, the project is still planned to go ahead, minimization of damage, mitigating measures, and/or compensating measures should be established.
143. For further guidance on impact assessment for wetland sites, see Resolution VII.16 and the guidance adopted by Resolution VIII.9.

Step 3. Performance indicators, limits and monitoring

144. Objectives must be quantified and measurable. This stage in the planning process identifies the performance indicators that will be used to provide evidence about the condition of a feature.
145. Because it is not possible to measure the totality of a feature, there is a need to focus on a limited range of performance indicators. For example, under a management objective of maintaining water quality, this feature is made up of many components including salinity, pH, conductivity, dissolved oxygen concentration, nutrient concentration, heavy metal concentration, etc. Not all of these are likely to be easy or cost-effective to monitor, but an appropriate performance indicator for water quality, because it meets the four criteria below, would be nutrient concentration.
146. In general, performance indicators:
 - i) are characteristics, qualities or properties of a feature that are inherent and inseparable from that feature;
 - ii) should be indicators of the general condition of a feature, and should be informative about something other than themselves;
 - iii) must be quantifiable and measurable; and
 - iv) should provide an economical method for obtaining the evidence required to enable the current condition of a feature to be determined.

147. Some general examples of performance indicators for the species and habitat components of ecological character features are:

i) **Performance indicators for species:**

a) *Quantity:*

The size of a population, for example:

- the total number of individuals present
- the total number of breeding adults
- the population at a specified point in an annual cycle
- the extent or distribution of a population

b) *Quality:*

- survival rates
- productivity
- age structure

ii) **Performance indicators for habitats:**

a) *Quantity:*

- size of area occupied by the habitat
- distribution of the habitat

b) *Quality:*

- physical structure
- individual or groups of species indicative of condition
- individual or groups of species indicative of change

148. Performance indicators for socio-economic and cultural features should also be identified and incorporated into the management plan.

Specified limits

149. Specified limits represent thresholds for action and should trigger an appropriate response. They define the degree to which the value of a performance indicator is permitted to fluctuate without creating any cause for concern. Thus, ideally, two values are required, an upper limit and a lower limit. Unfortunately, it is not always possible to define both limits.

150. The key to understanding limits is an appreciation of what should happen when a limit is exceeded.

151. In order to define what happens when a limit is exceeded, it is necessary:

- i) to check the monitoring project and the data collected to ensure that there are no errors. If everything is in order, proceed to the next step. If not, amend the monitoring project.

- ii) if a change has taken place and the limit has been exceeded, to find out why the change has occurred. Changes happen because of the impact of a factor, or factors, or the lack of appropriate management. Where the factors, or failure of management, are known, it may be necessary to carry out remedial management to deal with the factor or improve existing management.
 - iii) when a change has taken place and the reason is unknown, to establish a research project to identify the cause.
152. Limits for ecological character features should be developed in recognition of the natural dynamics and cyclic change in populations and communities. In reality, there are very few features for which the natural fluctuations are fully understood. For a population, the lower limit might be the threshold beyond which a population will cease to be viable. The upper limit could be the point at which a population threatens another important population, or where a population becomes so large that it compromises the habitat that supports it.
153. Even if a viability threshold is known, it would be very unlikely that a manager would set a limit close to a point of possible extinction. A sufficient safety margin must always be allowed to account for the possibility of unexpected changes or unforeseen impacts. In many ways, limits can be regarded as limits of confidence. When the values of all performance indicators fall within the limits, it can be confidently considered that the feature is at favourable conservation status; when the limits are exceeded, that confidence disappears.
154. Limits for ecological character features may be closely related to suitable use and carrying capacity limits. Thus, limits of human activities/interventions should also be clearly established and monitored.

Monitoring performance indicators

155. Whenever performance indicators are established they must be monitored. That is their entire purpose. The measurement of the performance indicators provides the evidence that is used, in part, to determine the condition of the features.
156. For further guidance on indicators and monitoring, including designing a wetland monitoring programme, see Resolution VI.1 and Ramsar's *Wetland Risk Assessment Framework*, including guidance on early warning indicators (Resolution VII.10).

Recommended structure for presenting objectives

157. Once appropriate indicators and a monitoring programme have been identified, the remaining task is to write a succinct and easily understood objective statement.
158. For each feature, begin with the description of the condition required for the feature, followed by the operational limits and the selected performance indicators, with defined limits.

XVI. Rationale

159. The rationale section of the plan is devoted to identifying and describing, in outline, the management considered necessary to maintain the site features in (or restore them to) favourable status. Decisions in this section are based on a second assessment of the factors. This time, the discussion focuses on seeking management solutions in order to bring the factors under control. Control can mean the removal, maintenance or application of factors. For example, grazing is an obvious factor for wet grassland habitats. Options to be considered here could include removing, reducing, maintaining current levels, increasing, or introducing grazing.
160. On all sites there will be a number of other responsibilities, obligations, and tasks that will need to be addressed, but which arise for reasons other than the management of features. It is important that these other obligations be included in the management plan, particularly since they can have substantial resource implications.

Compliance with legal and other obligations

161. Operational objectives need to be prepared to ensure compliance with legal and other national obligations (for example, health and safety regulations). These are not strictly objectives in the same sense as the objectives which are defined for the features. They are, in fact, prescriptions, or the operations that must be carried out in a site to ensure that the prime feature objectives are met. However, for most sites it is difficult, and would be extremely cumbersome, to attempt to associate all activities with the individual feature objectives. This would be particularly repetitive when an activity is being carried out in respect of many of the features.

Management of site infrastructure and major operational and logistical support services

162. This section of the management plan is devoted to the development of operational objectives and associated management projects to ensure that an infrastructure adequate to meet the purposes of the site is provided. It will also include objectives for major operations and for support services. For example, for many sites it will be necessary to maintain a network of access routes within the site in order to undertake the management actions to implement the plan.

XVII. Action plan (management projects and review)

Management projects

163. This section is a continuation of the rationale. In the rationale, the need for, and the nature of, possible management will have been discussed. The outcome should be an outline of the management processes considered most appropriate to safeguard each feature. The function of the management project is then to describe in detail all the management work that will be associated with each feature.
164. For each management project, it is important that the following issues be given attention:

When	when the work will be carried out and for how long
Where	where on the site activities will take place
Who	who will do the work and how much time will be required

Priority	what priority is given to the project
Expenditure	how much the work will cost

165. Once the management projects have been developed, for operational purposes it can be appropriate to compile the suite of management projects into an annual Operational Plan which is designed to guide and assist in monitoring implementation.

Planning for visitors, tourism and recreation

166. Objectives, prescriptions and management projects should be developed for public access and tourism based upon an approach similar to that used for features. Public access and tourism are taken in their widest meaning and include anyone who visits the site for any reason other than official purposes. Access and tourism can make a significant contribution towards the costs of managing Ramsar sites. Ramsar sites can attract significant numbers of visitors, and this can often be of considerable benefit to the local, and even national, economy. There should be a positive presumption in favour of providing access and appropriate facilities for visitors.
167. All activities carried out in a Ramsar site require planning, and the provision of interpretation is no exception. Interpretation is concerned with providing information in an attempt to enhance the visitors' experience and to help them understand, and thus appreciate, the value of the protected area's environment and its features. Interpretation is an essential tool that can be used for a variety of purposes. Interpretation is not an end in itself but a means, through influencing others, of helping to achieve organizational and site-specific objectives.
168. For further guidance, see the Convention's Programme on Communication, Education, and Public Awareness (CEPA), adopted by Resolution VIII.31 and the Convention's CEPA Web site (http://ramsar.org/outreach_index.htm).

Annual or short term reviews

169. A short-term review should be made to confirm that a site is being managed in accordance with the requirements of the plan.

Major review or audit

170. Major reviews or audits should be considered as an essential component of any planning process. The functions of audit are to:
- i) assess whether or not a site is being managed at least to the required standard;
 - ii) confirm, as far as possible, that management is effective and efficient; and
 - iii) ensure that the status of the site features is being accurately assessed.
171. The audit process is best, though not always necessarily, carried out by external auditors. It is a constructive process which should identify any problems or concerns and seek to provide recommendations for resolving any issues.

172. Reviews and audit will usually be carried out in accordance with a predetermined timetable. The interval between reviews will be a reflection of the confidence that managers have in their ability to protect the site features. For sites with robust features which are easily managed, the interval may be five years or more. However, for fragile sites, where threats are not readily controlled, the interval should be much shorter.
173. On all sites, reviews should be undertaken at any time if new or unforeseen threats become apparent. It is essential that the timing of the planning process be adjusted to meet the requirements of the site.
174. For sites on the Ramsar List which have been included in the Montreux Record owing to recognized threats to their ecological character, a Ramsar Advisory Mission can be regarded as one form of review and/or audit.