



Development of a Management Planning Framework for Ecosystem Management and Biodiversity Conservation in the Iraqi Marshlands

Management planning framework report

May 2012



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List of Acronyms

.Acronyms from languages other than English are spelled out in their English translation for this list

CBO	Community based organization
DCS	Desired conservation state
IRBM	Integrated River Basin Management
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resource Management
MMNP	Mesopotamian Marshlands National Park
MoE	Ministry of Environment
MSP	Multi-stakeholder process
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-governmental Organization
NI	Nature Iraq
NRM	Natural Resources Management
OG	Operational Guidelines
OUV	Outstanding Universal Value
PA	Protected area
PAMP	Protected Areas Management Planning
ROWA	IUCN) Regional Office for Western Asia)
UNESCO	UN Educational, Scientific and Cultural Organization
WCPA	World Commission on Protected Areas
WHC	World Heritage Convention

1 Executive Summary

The UNEP-UNESCO initiative "Natural and Cultural Management of the Iraqi Marshlands as a World Heritage" aims to promote sustainable management practices in the Iraqi Marshlands through application of the World Heritage Convention as a tool to develop and implement a sustainable management framework, including for ecosystems and biodiversity.

As part of this initiative, IUCN ROWA – under a contract with UNEP's Division of Technology, Industry and Economics, International Environmental Technology Centre – is carrying out a work package on various aspects of biodiversity and protected areas management in Iraq and particularly the Iraqi Marshlands, including training on Red Listing and the application of GIS to protected area management planning.

One component of this work package is drafting of a management planning framework – i.e. a methodology and roadmap for the management planning process – to be used and developed by the site stakeholders to develop a management plan for a protected area in the Marshes, with particular emphasis on the provisions of the World Heritage Convention. This document is the main output of this component.

The draft management planning framework is based on (1) the 2011 Operational Guidelines of the World Heritage Convention (World Heritage Centre 2011), (2) a screening study on biodiversity and ecosystem management in the Iraqi Marshlands (Garstecki & Amr 2011) and (3) the adaptation and critical application of international best practice in protected areas and wetland management planning from IUCN (Thomas and Middleton 2003), the Ramsar Convention Secretariat (2010a, b) and UNESCO (2012, in press). This approach was discussed with national experts and feedback was collected from them at a workshop in February 2012. The framework is designed in a way that makes it compatible with a future natural/mixed World Heritage nomination of the Iraqi Marshes but can be used independent of such a nomination, as a more generic protected areas management planning methodology.

The draft framework provides guidance to the Ministry of the Environment of Iraq on the implementation of a comprehensive, participative management planning process for the Marshes, which builds on earlier initiatives and activities. It consists of 46 specific actions organized in nine broader management planning steps, from the pre-planning phase to the approval of the draft management plan. Particular attention is paid to (1) broad stakeholder engagement and participation, (2) the re-evaluation and filling of previously identified knowledge gaps and (3) the boundary setting of the property in accordance with the World Heritage Convention. A draft Table of Content of the management plan is also suggested. The overall management planning process will need an estimated 30 months to complete and cost an estimated minimum of US\$ 421,330.

The document also provided instructions for the development of an interim management plan in accordance with Paragraph 116 of the World Heritage Convention's Operational Guidelines.

2 Introduction

The United Nations Environment Programme, represented by Division of Technology, Industry and Economics, International Environmental Technology Centre (hereafter UNEP-DTIE-IETC), together with the United Nations Educational, Scientific and Cultural Organization (hereafter UNESCO) have developed a joint initiative entitled "Natural and Cultural Management of the Iraqi Marshlands as a World Heritage" This project addresses the priority needs to promote sustainable management practices of the Iraqi Marshlands, by reflecting the unique historical, cultural, environmental, hydrological, and socio-economic characteristics of the area, in particular utilizing the World Heritage inscription process as a tool to develop and implement a management framework.

The project aims to establish a long-term sustainable management regime for the cultural and natural heritage in this ecologically sensitive area, in accordance with the World Heritage Convention, to identify and implement some key sustainable development practices on a pilot basis, and to build capacity and raise awareness among the local population to ensure their participation for the site preservation and sustainable ecosystem management.

While UNESCO is responsible for the overall guidance for the World Heritage inscription process and conservation of cultural diversity and landscape, UNEP-DTIE-IETC is taking the lead in the development of management and preservation plan of environmental-natural resources for a potential future World Heritage site within the Marshes, which will include ecosystem management and biological diversity, in consultation with the Ministry of Environment.

Since 2003, international and national entities have carried out researches, studies and projects for the restoration of the Iraqi Marshlands in the field of hydrology, socio-economy, and environment. While the results of those efforts contributed towards more sustainable management of the Marshlands in the post-conflict period, it is now necessary to take a more integrated approach to develop and implement a concrete and longer-term protected areas management plan for the area.

The development of such plan needs to be based on credible and verifiable historical data, and developed through a stepwise, in-depth participative process in consultation with institutions and individuals with extensive knowledge in/of the area as well as the overall country. Such a process essentially needs to be driven by the commitment, expertise and initiative of the Iraqi stakeholders themselves, particularly the Ministry of the Environment.

Therefore, the management planning framework that is introduced in this document is not a management plan itself. It is a roadmap that will direct the Ministry of the Environment and its management planning team in developing a protected areas management plan that corresponds both to the specific situation in the Marshes and to international best practice in protected areas management planning, with particular focus on the World Heritage Convention. This is also reflected in the IUCN-UNEP agreement:

"Based on the available data, a frame work management plan will be prepared by an external consultant who will collect the available data, and draft a plan framework to be used and developed by the site stakeholders who are supposed to receive an advance training that enable them to finalize the plan."

In addition, Iraq has acceded to Multilateral Environmental Agreements such as the Convention of Biological Diversity, UN Framework Convention on Climate Change and the Convention of Wetlands of International Importance (the Ramsar Convention). The longer-term management plan for the World Heritage inscription therefore aims to ensure that strategies, approaches and operational tools are

complementary and compatible with relevant MEAs relating to the protection of cultural and natural heritage, as articulated in the World Heritage Operational Guidelines.

This activity package for strengthen technical and institutional capacities of ecosystem management and biodiversity conservation for the Iraqi Marshlands, carried out under the terms of this SSFA by International Union of Conservation of Nature Regional Office for West Asia (hereinafter IUCN ROWA), entails an initiation of the national Red List Assessment, development of GIS-based platform for management and planning of the protected area, in the context of World Heritage inscription process as a tool. Together with these outputs, the current management planning framework is expected to contribute to development of the comprehensive management plan of the Iraqi marshlands.

The development of this management planning framework has also shown that a successful long-term management plan for the Marshes and the corresponding sustainable management strongly relies on the wide consensus and support of all Iraqi stakeholders – including Ministries, local and regional Government, businesses and Civil Society – to agree on the necessary water allocations and to jointly promote sustainable ecosystem and biodiversity management in the Marshes and throughout the Euphrates-Tigris basin.

3 Participatory management planning methodology for a 5-year first management plan

The overall basis for the management planning process in the Iraqi Marshlands are the provisions of the 2011 Operational Guidelines (OG) of the World Heritage Convention (WHC). Paragraph 110 of these guidelines acknowledges that management systems of potential World Heritage sites may vary, depending on the characteristics of the property involved. As far as natural properties particular in relation to WH criteria ix and x are concerned, the specific guidance on natural World Heritage management planning by IUCN (2008) suggests that the management planning process for these sites should follow general protected areas management planning principles, while particularly focusing on safeguarding the Outstanding Universal Value (OUV) of the potential site. In any case, all elements of the OUV would need to be shown to be present if a potential World Heritage nomination, in order for such a nomination to be successful. A management plan alone cannot guarantee that these preconditions are met.

This conclusion is supported by the findings of the screening study on a potential World Heritage nomination of the Marshes (Garstecki & Amr 2011), which recommends to use the IUCN/WCPA "Guidelines for Management Planning of Protected Areas" (Thomas and Middleton 2003) as the backbone for the management planning process for this area. While following this overall recommendation, the following questions need to be addressed in the process of designing a management planning methodology for a 5-year first management plan:

- What other international best practice methodologies of potential relevance to the Marshes are available, and could be used to complement the Thomas and Middleton (2003) guidelines?
- How can the IUCN/WCPA guidelines be adapted to the specific requirements of the Marshes management planning process?
- How exactly will each of the planning steps be implemented?
- How can the management planning processes for the natural and cultural values of the Marshes be integrated?
- How can this participatory process contribute to the creation of an enabling legal and institutional environment to support the implementation of the management plan?

This section defines a management planning methodology for the Marshes and thereby provides answers to these key questions, based on the findings of Garstecki & Amr (2011).

3.1 International best practice in wetland protected areas management planning

Besides the widely applied IUCN/WCPA management planning guidelines (Thomas & Middleton 2003), the following tools and methodologies of particular potential relevance to the Marshes are being widely used on a global scale currently:

- The IUCN (2008) publication "Management Planning for Natural World Heritage Properties - A

Resource Manual for Practitioners"

- The 2010 Ramsar Handbook on the wise use of wetlands No. 18 "Managing wetlands: Frameworks for managing Wetlands of International Importance and other wetland sites" (Ramsar Convention Secretariat 2010b)
- The more specific Ramsar handbook No. 10 "Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands" (Ramsar Convention Secretariat 2010a)
- The joint draft guidelines on "Managing Natural World Heritage" of the World Heritage Centre and the Advisory Bodies, which are due to be published in 2012 (UNESCO 2012 in press)

The Management Planning Framework for the Iraqi Marshes aims to combine all relevant international best practice. Therefore, the applicability and added value of each of these guidelines to complement the IUCN/WCPA methodology in designing a management planning framework for the Marshes is analyzed below.

3.1.1 Management Planning for Natural World Heritage Properties (IUCN 2008)

This publication shares the observation of the Operational Guidelines that natural/mixed World Heritage sites differ and that their management plans hence have to differ as well. The key management planning steps and suggested content are similar to those of Thomas & Middleton (2003). In addition, the publication focuses on the following aspects of relevance to the management planning process of potential natural/mixed World Heritage sites and particularly the Marshes:

- **WHC Operational Guidelines and OUV as foundation of management planning:** While all PA management planning systems set out from an analysis of the values that are to be safeguarded by a given protected area, potential natural/mixed World Heritage management needs to put particular emphasis on the management of the OUV of the property, while also maintaining other identified values at the local, national or global scale. This also implies that the management of such sites has to strictly follow the WHC Operational Guidelines. These peculiarities of natural World Heritage management will be observed during the Iraqi Marshes management planning process, irrespective of whether the other prerequisites for OUV are met.
- **Need for a clear plan preparation statement that sets out the process leading to the management plan:** The guidelines stress that when embarking on a World Heritage management planning process, there is a need to define the steps towards the management plan and to also define who will be involved in the planning process and responsible for its various component activities.
- **Minimum content of interim management plans:** According to § 115 of the WHC Operational Guidelines, it is possible to submit an interim management plan with a possible nomination of properties for which a comprehensive management plan is still under preparation. The IUCN (2008) publication gives detailed guidance on the minimum scope and content of such interim management plans, which will be followed – to the extent practicable - in the

template for a draft interim management plan included as Section 9 of this document.

- **Emphasis on precautionary principle and "Limits of Acceptable Change" concept:** The publication puts particular emphasis on the application of the precautionary principle (cf. Cooney 2004) and on the concept of "Limits of Acceptable Change" in World Heritage management planning. This may be applicable to some aspects of the Marshes' management plan.
- **Need for clear commitment and financial provisions for implementation:** In contrast to normal PA management plans, which are made exclusively in the interest of the site and of fulfilling national legislation, management plans for World Heritage sites are a prerequisite for a successful nomination. Therefore, a clear commitment of the State Party to their implementation and a clear allocation of the corresponding responsibilities are particularly important elements of World Heritage management plans. This will also be true for the Marshes' management plan.
- **Need for integration with other plans, policies and strategies:** Because of the global importance of World Heritage sites, the 2008 IUCN publication highlights the need to develop the management system for them not only in isolation, but in conjunction with an overall enabling framework including policies, legislation and plans. This is particularly relevant to the Iraqi Marshes, because of the multiple interests centered upon this area. A corresponding analysis and steps to improve the overall enabling framework for ecosystem management and biodiversity conservation will therefore be included in the management planning process.
- **Management planning for serial and trans-boundary properties:** It is possible that the Iraqi Marshes will be nominated as a serial property, while the location of Al-Hawizeh Marsh on the Iranian border also leaves open the theoretical possibility of a transboundary nomination. The IUCN (2008) management planning guidelines provide know-how on management planning for both particular types of World Heritage sites, which will be used in the management planning process for the Marshes. There is also specific guidance for the management of transboundary PAs (Sandwith et al. 2001).

3.1.2 Managing Natural World Heritage (UNESCO 2012)

The resource compilation "Managing Natural World Heritage" (UNESCO 2012), which is currently in press, does not introduce a management planning methodology for sites that are considered as potential World Heritage sites. Instead, it is complementary to the above toolbox in that it takes a broader look at the various dimensions and areas of natural World Heritage management. Among the guidance most relevant to the management planning process for the Marshes is the following:

- **Inclusion of a set of indicators that can be used for the development of the monitoring system for a future Marshes World Heritage site:** The publication includes a list of 20 suggested indicators, which will be adapted to the Marshes and used as the backbone for the development of an integrative monitoring system as part of the management programme.
- **Emphasis on the development of financial and institutional capacity as a key**

prerequisite for successful natural World Heritage management: In contrast to other management planning tools that focus exclusively on management policies and actions themselves, the publication highlights the need to create a solid legislative/policy, institutional and financial framework in order to support sustainable management of natural World Heritage, and gives some guidance on how this can be achieved. This guidance has been integrated into the management planning methodology for the Marshes.

- **Detailed guidance on the inclusion of sustainable use and communication/interpretation into natural World Heritage management:** Sustainable natural resource use and communication/interpretation development are management areas that are often of particular relevance to potential natural/mixed World Heritage sites. This is reflected in the detailed advice of the 2012 publication on management principles for these areas. This advice has been adapted to be used in the management planning process for the Marshes.

3.1.3 Managing Wetlands (Ramsar Convention Secretariat 2010)

The fact that the Iraqi Marshes are wetlands means that the ample available guidance on wetland (not only Ramsar site) management may be a useful complement to the generic PA management guidelines in the process of its WH management planning. 20A key publication in this context is the Handbook No. 18 of the Ramsar Convention Secretariat on "Managing Wetlands – Frameworks for managing Wetlands of International Importance and other wetland sites" (Ramsar Convention Secretariat 2010b). The following aspects of this publication are particular relevant to the management planning process for the Marshes:

- **More explicit guidance on integration of hydrological management (e.g. river basin management) and ecosystem management:** The Marshes are a prime example of a wetland ecosystem, the ecological character of which depends on the provision of water in sufficient quantity and quality. The Ramsar Handbook and supplementary guidance are useful because they explain how wetland management can address this link in a rational way (see also 3.1.4 below). The relevant parts will be used in the management planning process for the Marshes.
- **Emphasis on sustainable use and need to include local socio-economic values into evaluation of wetland sites:** Many Ramsar sites are not strictly protected, but subject to sustainable use. This reflects their multiple local use values (Appendix 1). The Ramsar Handbook provides guidance on how to including local use values into the evaluation of wetland sites and how to reconcile conservation and sustainable use interests affecting them. The applicability of this guidance to the Marshes will be considered during the management planning process.
- **Concept of "ecological character" in connection to concept of "favorable conservation status" as a key property of wetlands:** The definition of a "favorable conservation status" in relation to the "ecological character" of a wetland, which is developed and promoted by the Ramsar Guidelines, will be useful for defining management indicators and vision for the Marshes, particularly in relation to ecosystem management (World Heritage criterion (ix)).

- **Guidance on wetland risk assessment/management as one part of wetland management:** In contrast to generic PA management planning tools, Ramsar Handbook No. 18 goes into more detail regarding the assessment and management of risks to the ecological integrity of wetlands. The application of this approach to the Marshes should be considered by the national drafting team.

3.1.4 Ramsar water allocation guidelines (Ramsar Convention Secretariat 2010a)

The Screening Study on Biodiversity and Ecosystem Management in the Iraqi Marshlands (Garstecki & Amr 2011) has shown that lack of water has been the key driving force of the deterioration of the ecological character of the Marshes until their re-flooding, and that water scarcity remains the main pressure on most ecological values of the area relevant to World Heritage criteria vii, ix and x. This also means that management of water supply to the Marshes will be a key management area to safeguard their integrity and ecological functionality. Although hydrological management planning is explicitly excluded from the scope of this management planning framework, it is recommended to refer to the Ramsar "Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands" (Ramsar Convention Secretariat 2010). These guidelines state that

"However, since these wetland ecosystems, especially inland wetlands, are integral parts of a larger catchment basin system, it is not sufficient to set management objectives for the maintenance of the ecological character of only the wetland ecosystem itself: it is absolutely necessary to identify linkages between the particular wetland ecosystem and the other water resources in the catchment which are in hydraulic or ecological connectivity with that wetland ecosystem, as indicated in the Ramsar Convention's guidance on wetland management planning (Resolution VIII.14). Management objectives must be set also for the hydrologically-linked water resources, and these objectives must be consistent with and integrated with the objectives set for the specific wetland ecosystem being managed."

Following from these general observations, the guidelines include the following key points relevant to the management of the Marshes:

- **Need to define desired ecological character of wetlands in terms of the water regime:** For any wetland ecosystem, the desired conservation state (or desired level of integrity of ecosystem function, in World Heritage terms) also needs to be defined in hydrological terms, and necessary water allocations (in terms of quantity, quality and spatial/temporal distribution) need to be understood. This is also true for the Marshes and needs to be achieved through the management planning process. Hydrologists and ecologists will need to cooperate closely to achieve this, building on the scenarios developed by CIMI (2010) and New Eden Group (2006), and on the National Water Master Plan under development by the Ministry of Water Resources.
- **Mainstreaming the importance of wetlands across sectors to ensure a broad consensus for necessary water allocations:** Since there are multiple use interests affecting water allocations throughout the Euphrates/Tigris system, there is a need to address the necessary water allocation for the Marshes at the overall water allocation level. Therefore, there is a need for consistent, transparent, scientifically based and equitable decision making processes on water allocation at the river basin level, and at the national level by all the relevant Ministries of Iraq.

- **Need for hydrological monitoring of wetlands:** Hydrological indicators will need to be included in the monitoring system of a potential natural/mixed World Heritage site in the Marshes, in order to facilitate adaptive long-term hydrological management.
- **Need for supportive enabling policy/legal framework to support sustainable water allocation:** In order to achieve a sustainable water allocation and adequate decision making process for any wetland ecosystem, a supportive policy and legal framework is needed. This is also true for the Marshes and should therefore be addressed during the management planning process, to the extent possible.
- **IWRM/IRBM and need for long-term participative planning:** Because of the intimate interaction of the Marshes with the entire Euphrates/Tigris river basins, Integrated Water Resource Management (IWRM), Integrated River Basin Management (IRBM) and generic participatory planning approaches should be applied during hydrological management planning.
- **Need for valorization of wetland ecosystem services:** In order to support securing the necessary water allocations to wetlands, the value of ecosystem services provided by them to their wider environment, as well as arising socio-economic benefits, need to be communicated and understood by all stakeholders. The planning aimed at successful management of the Marshes needs to include activities aimed at such a valorization.
- **Need to use a wide range of supply side and demand side measures to achieve necessary water allocation:** While implementing multi-stakeholder decisions on water allocations and IWRM/IRBM measures, there will be a need to employ a wide range of measure, including environmental impact assessment and strategic environmental assessment procedures, technical measures such as use and/or modification of existing hydrological infrastructure, and management of off-stream water allocations (e.g. agricultural practices, such as replacement of sprinkler by drip irrigation)

The two main recurrent themes in the guidance from internationally established best practice methods on management planning for a potential natural/mixed World Heritage site in a wetland setting are (a) that such a process needs to be accompanied by a strong mainstreaming effort to muster the necessary inter-sector support for a large sustainably managed wetland, and (b) that hydrological management and particularly a sufficient water allocation (in terms of quantity and quality) is key to any sustainable management regime.

In addition to the publications analyzed in detail above, the management planning team should consider a number of more specific IUCN/WCPA guidelines on PA management planning which are available online, such as those on local participation (Borrini-Feyerabend et al. 2004), application of IUCN PA Categories (Dudley et al. 2007), and KBA analysis (Langhammer et al. 2007). There are also additional planning guidelines available from the Ramsar Convention Secretariat.

3.2 Adaptation of the management planning methodology for the Marshes

For the purpose of this management planning framework, the chosen generic management planning methodology of Thomas & Middleton (2003) has been adapted by integrating both additional international best practice approaches and the lessons learned from an analysis of existing management plans for parts of the Marshes.

The publications discussed in Section 3.1 contain a wide variety of international best practice approaches and tools which need to be fitted into the overall management planning process, each at its appropriate stage. Table 1 shows where exactly in the management planning process according to Thomas & Middleton (2003) each specific piece of guidance will be implemented, and how this will lead to an adaptation of this generic management approach to the specific conditions of the Marshes.

The ways in which the requirements listed in Table 1 will be implemented during the management planning process are described into more detail in the discussion of individual management planning steps in Section 3.3 of this management planning framework.

In addition to the information that can be sourced from international best practice, the in-depth analysis of existing management plans for parts of the Marshes that was conducted as part of the screening study "Biodiversity and Ecosystem Management in the Iraqi Marshlands" (Garstecki & Amr 2011) yielded a number of possible improvements of such plans. The screening study also provided a detailed list of standards to increase the quality of future management plans (Table 2). These criteria will also be further discussed under the individual management planning steps to which they pertain (Section 3.3).

Table 1. Integration of international best practice approaches from the UNESCO, the IUCN World Heritage Programme and the Ramsar Convention Secretariat into planning stages of the overall management planning process for the Iraqi Marshes.

Management planning step	Specific guidance from:			
	IUCN (2008)	UNESCO (2012)	Ramsar Convention Secretariat (2010a)	Ramsar Convention Secretariat (2010b)
1. Pre-planning	<ul style="list-style-type: none"> use of WHC Operational Guidelines as basis for MP process elaboration of a clear plan preparation statement including defined responsibilities 			
2. Data gathering	<ul style="list-style-type: none"> research and understand policy & legal framework for management 	<ul style="list-style-type: none"> collect data on sustainable use 	<ul style="list-style-type: none"> hydrological data gathering 	
3. Evaluation of information		<ul style="list-style-type: none"> evaluate sustainable use values 	<ul style="list-style-type: none"> evaluate local values 	<ul style="list-style-type: none"> valorization of ecosystem services of the Marshes
4. Identification of constraints & opportunities	<ul style="list-style-type: none"> identify policy/legal constraints & opportunities of Marsh management 	<ul style="list-style-type: none"> identify financial and institutional capacity constraints 	<ul style="list-style-type: none"> identification of hydrological constraints to Marsh management 	
5. Visioning & setting of objectives	<ul style="list-style-type: none"> financial objective setting policy/legal objective setting 	<ul style="list-style-type: none"> setting of financial and institutional capacity objectives 	<ul style="list-style-type: none"> hydrological objective setting 	<ul style="list-style-type: none"> hydrological objective setting policy/legal framework related objectives

6. Development of actions & options for meeting objectives	<ul style="list-style-type: none"> . application of serial/trans-boundary planning tools if appropriate . budget and fundraising activities . policy and legislation related activities 	<ul style="list-style-type: none"> . activities for improved financial and institutional capacity . monitoring programme based on UNESCO indicators . management of sustainable use within property 	<ul style="list-style-type: none"> . hydrological management activities . inclusion of hydrological indicators in monitoring system 	<ul style="list-style-type: none"> . actions aimed at improving policy & legal framework . inclusion of IWRM and IRBM in management where appropriate
7. Compilation of draft MP				
8. Consultation	<ul style="list-style-type: none"> . mainstreaming of sustainable management of Marshes 		<ul style="list-style-type: none"> . mainstreaming of IWRM/IRBM in support of Marshes 	<ul style="list-style-type: none"> . mainstreaming of IWRM/IRBM in support of Marshes
9. Revision of MP based on consultation				
10. Approval & endorsement				
11. Implementation	<ul style="list-style-type: none"> . ensure adequate financing, legal and policy framework 	<ul style="list-style-type: none"> . particular emphasis on management of sustainable use 		
12. Monitoring & Evaluation		<ul style="list-style-type: none"> . implementation of WH monitoring system 	<ul style="list-style-type: none"> . hydrological monitoring 	<ul style="list-style-type: none"> . hydrological monitoring
13. Revision and updating				

Table 2. Meeting the criteria of a sound management plan in the planning process for any future World Heritage Site in the Marshes (source: Garstecki & Amr 2011).

Criterion	Steps to meet criterion
1. Description and evaluation of area and its values	<ul style="list-style-type: none"> . Section 4 of this report describes and evaluates relevant values of Marshes in relation to natural World Heritage criteria. Once the identified knowledge gaps are closed, this information can be used as the descriptive/evaluation MP section
2. Vision and management objectives	<ul style="list-style-type: none"> . The vision should describe, in general terms, the state of the identified potential OUV and its associated conditions of integrity as well as other values at a specified time (e.g. in 20-30 years) . Objectives (for implementation during the plan's duration, e.g. within 5 or 10 years) should be deduced from the current state of the identified values, the pressures/threats that effect them, and their desired state
3. Stakeholder support during planning phase	<ul style="list-style-type: none"> . A stakeholder analysis (including the mandate, role, interest and capacity of key stakeholders in relation to the site) should be conducted early during the planning process, with a focus on local stakeholders . Participatory planning techniques should be employed throughout the planning process, if possible . A formal local citizen advisory panel or similar structure should be involved throughout the planning process . International best practice guidelines on stakeholder participation should be followed (see criterion 6)
4. Logical framework	<ul style="list-style-type: none"> . MP Objectives should have a clear hierarchical logic, i.e. concrete management activities should combine to meet management objectives and management objectives should combine to meet overall goals. Generally, each activity should be specific to a management objective (cross-cutting activities are possible)

5. Quality of objectives	<ul style="list-style-type: none"> . Objectives should be SMART and designed for monitoring . An explicit monitoring plan should be included
6. Best practice	<ul style="list-style-type: none"> . The MP planning process should be based on the general guidance of IUCN (2008), Thomas & Middleton (2003) and possibly Ramsar Convention Secretariat (2010b), as well as related more specific guidelines if appropriate
7. Boundary setting	<ul style="list-style-type: none"> . Boundary setting should be based on the spatial distribution of features that are of potential OUV (consider application of KBA analysis – Langhammer et al. 2008), the hydrologically sustainable marshland size, and the feasibility/manageability of candidate areas . If necessary for the safeguarding of the integrity of OUV, buffer zones should be planned
8. Framework awareness	<ul style="list-style-type: none"> . Legal implications and legislation needs as well as jurisdictions and competencies related to the establishment of a World Heritage site need to be assessed and decided early during the planning process . The political feasibility of proposed boundary setting and management interventions (e.g. water allocation) needs to be assessed early during the planning process . Land tenure issues including traditional use rights need to be clarified and solutions that maximize community stewardship identified during the planning process . The consistency of the plan with other plans relevant to the area and the possible need of coordination mechanisms need to be assessed . Financial needs and the possible packaging of the management plan implementation into donor funded projects should be assessed during planning . Options for the institutional setup of a management authority for the property should be developed early, and discussed with all stakeholders . An institutional capacity development plan for the management authority should be developed
9. Implementation	<ul style="list-style-type: none"> . If Criteria 1-8 are met and implementation funding is sourced successfully, then the implementation outlook of the plan will be significantly improved.

3.3 Management planning steps

The screening study "Biodiversity and Ecosystem Management in the Iraqi Marshlands" (Garstecki & Amr 2011) used the generic PA management planning guidelines of Thomas & Middleton (2003) to suggest the following principal steps of the management planning cycle for the Iraqi Marshes:

1. Pre-planning: decision to prepare a management plan, appointment of planning team, scoping of the task and defining the process to be used
2. Data gathering: identification of features, pressures, threats and consultation
3. Evaluation of data and information
4. Identification of constraints and opportunities
5. Development of management vision and objectives

6. Development of options for achieving the vision and objectives, including zoning and required human and financial resources.
7. Preparation of draft management plan
8. Public consultation of draft management plan
9. Approval and endorsement of management plan
10. Implementation
11. Monitoring and evaluation including management effectiveness assessment.
12. Decision to review and update the management plan; accountability considerations.

This section discusses each of the management planning steps in this sequence (steps 1-12) into more detail, taking stock of what has been done already to complete them, referencing relevant available information and giving specific guidance how the standards which are listed in Tables 1 and 2 should be implemented by the management planning team at each step.

The above steps 1-4 have already been initiated through the UNEP/UNESCO World Heritage Initiative and the efforts of the Iraqi Ministry of the Environment and its national partners. Likewise, the foundations for many of the other management planning steps have been established to varying degrees already.

For each of the management planning steps above, this management planning framework lists specific actions that the management planning team or in some cases the MoE will need to take in order to take each step. Each of the actions is also integrated into the timetable for the management planning process and reflected in the draft indicative budget (Section 4).

3.3.1 Pre-planning

Pre-planning consists of the decision to prepare a management plan, appointment of planning team, scoping of the task, defining the process to be used. The decision to prepare a management plan for a possible natural/mixed World Heritage site in the Iraqi Marshes has already been taken by the Ministry of Environment, in communication with the UNEP/UNESCO World Heritage Initiative. A National Committee for Protected Areas for the management plan (Table 3) and a drafting team for the World Heritage nomination have been appointed by the Iraqi Government (Table 4).

Table 3. Member of the Iraqi National Committee for Protected Areas

	Affiliation
Dr. Ali Abdul.Zahra AL-Lami	Advisor to the Minister / Ministry of Environment
Dr. Mohammed Kadhim Mohammed	Ministry of Higher Education & Scientific Research
Dr. Aqeel Abbas Ahmed	Ministry of Higher Education & Scientific Research
Mr. Hassan Hameed Gatiea	Ministry of Water Resources
Mr. Kareem Mozan Mousa	Ministry of Science and Technology

Ms. Inam Ibrahim Mohammed Ali	Ministry of Municipalities and Public Works
Mr. Jawad Kadhém Hassan	Ministry of State for Tourism and Antiquities
Ms. Hanan Jasim Nashat	Ministry of Agriculture
Mr. Asaad M.Buzrg	Ministry of Education
Mr. Nadhair Abbood Fezea	Nature Iraq Organization
Mr. Imad Obaid Jasim	Ministry of Environment
Ms. Nahlah Rida Hussein	Ministry of Environment
Ms. Dalal Ali Qais	Ministry of Environment
Ms. Ruaa Fakhery Mohammed	Ministry of Environment

Table 4. Participants of the drafting team of the World Heritage nomination for the Marshes

	Affiliation
Dr. Ali Abdul-Zahra Al-Lami*	
	Advisor to the Minister of Environment (Head of drafting team)
Dr. Mohammed Kadhim Mohammad*	Ministry of Higher Education - Baghdad University / Research Center and the Natural History Museum
Dr. Aqeel Abbas Ahmed*	Ministry of Higher Education - Baghdad University / Research Center and the Natural History Museum
Dr. Kareem Mozan Mousa*	Ministry of Science and Technology
Ms. Aseel Adel Fattah	Ministry of Planning
Ms. Inam Ibrahim Mohammed Ali*	Ministry of Municipalities and Public Works
Ms. Shaima Obaid Kream	Center for Restoration of the Iraqi Marshlands (CRIM) - Ministry of Water Resources
Mr. Mudhafr Abdalbagi Salem	Nature Iraq Organization
Mr. Hussein Jawad Kazem	Dep. of Marshes and Wetlands - Ministry of Environment
Ms. Dalal Ali Qais*	Dep. of Marshes and Wetlands - Ministry of Environment
Mr. Khader Abbas Salman	Maysan Directorate of Environment - Ministry of Environment
Mr. Ahmed Mohammed Razak	Thi Qar Directorate of Environment - Ministry of Environment
Mr. Hadi Abdul Hussain Khadir	Basrah Directorate of Environment - Ministry of Environment
Mr. Baqer Abdul Hameed	Information Technology Center - Ministry of Environment
Mr. Mustafa Salim Rashid	Department of Biological Diversity - Ministry of Environment

*Member of the National Committee for Protected Areas

This management planning framework defines the scope of the management planning process and the methodology to be used. Taken together, these accomplishments mean that the first step in the management planning sequence has almost been completed already. The following actions and requirements still need to be completed before this step can be concluded:

- **Action 1.1** (responsible: Ministry of Environment of Iraq – hereafter MoE): Commit officially to prepare a management plan for ecosystem management and biodiversity conservation, as part of the preparation for a possible intended natural/mixed World Heritage nomination in the Iraqi Marshes.

- Action 1.2** (responsible: MoE): Establish a management planning team headed by a senior MoE representative, and also including a range of national experts as detailed in Table 5. An expert or representative of an institution dealing with climate change will also need to be involved in the team. Alternatively, this responsibility could be taken by the National Committee for Protected Areas of Iraq. Explicitly state the responsibilities of each institution and individual drafting team member involved in the drafting team for the Marshes' World Heritage management plan.

Table 5. Proposed organizational framework in the National Committee for Protected Areas and the Drafting team of World Heritage nomination file for the Marshes

Institution	Subdivision
Ministry of Environment	Senior staff of Ministry of the Environment (Head of management planning team)
	Department of Biological Diversity
	Maysan Directorate of Environment (depending on final demarcation)
	Thi Qar Directorate of Environment (depending on final demarcation)
	Basrah Directorate of Environment (depending on final demarcation)
	Dep. of Monitoring marshes and wetlands
	Legal Department/Section (?)
Ministry of Water Resources	National Center for Water Management
	CRIM
Ministry of Higher Education	Baghdad University / Research Center and the Museum of Natural History
	Basrah University / Marine Science Centre
	Thi Qar University / Marsh Research Centre
Ministry of Planning	Policy Department or similar
Ministry of Municipalities and Public Works	Policy Department or similar
Basrah Governorate Council	Marshlands Committee
Maysan Governorate Council	Marshlands Committee
Thi Qar Governorate Council	Marshlands Committee
Nature Iraq	Marshland expert(s)
National or international management planning expert	Tbd

- Action 1.3** (responsible: management planning team): Decide which of the external experts and resource persons identified by Section 7 of the screening study (Garstecki & Amr 2011), the planning workshops in February 2012 or through other means will be invited to which specific step of the management planning process.
- Action 1.4** (responsible: management planning team): Study the Operational Guidelines of the World Heritage Convention and regularly check that their overall guidance is adhered to at

each management planning step.

- **Action 1.5** (responsible: MoE): Raise the necessary funds to conduct the management planning process (see Section 4.2 for draft budget), taking into account opportunities such as the UNEP-UNESCO World Heritage Initiative for the Marshes, Preparatory Assistance from the World Heritage Fund, funds from the State Budget of Iraq and other appropriate sources.
- **Action 1.6** (responsible: management planning team): Develop a stakeholder engagement campaign to accompany the management planning process by adequate stakeholder communication and cooperation, as detailed in Section 10 of this management planning framework.

The MoE and other stakeholders involved may also chose to publicize their decision to initiate the management planning process, to start building a broad support and participation in the process.

3.3.2 Data gathering: identification of features, pressures, threats

The screening study "Biodiversity and Ecosystem Management in the Iraqi Marshes" (Garstecki & Amr 2011) has already gathered a comprehensive body of information on the Marshes' features, pressures and threats, particularly in relation to World Heritage criteria ix and x. This information generally provides a strong basis for the management planning process. It has also been circulated to various national stakeholders and experts in Iraq, who have provided feedback for consideration during the further planning process.

However, the screening study has also identified a series of knowledge gaps that need to be closed in order to make meaningful management related decisions possible. Section 7 of this document re-evaluates the available information and prioritizes remaining knowledge gaps. Section 8 provides specific recommendations on how to fill high-priority knowledge gaps.

In addition to these gaps, Tables 1 and 2 highlight the need for an in-depth analysis of the policy, legislative and socio-economic framework for ecosystem management and biodiversity conservation in the Marshes, for a better understanding of current patterns of natural resource use and ecosystem services provided by the Marshes, and for an improved understanding of the hydrological functioning of the Marsh system. This is necessary since any management framework for the Marshes needs to be fully in accordance with Iraqi policy and legislation, needs to take into account existing natural resource use (which may constitute important values of the Marshes in addition to its possible Outstanding Universal Value as a natural/mixed World Heritage site), and needs to build on sound water allocations and hydrological management.

Taken together, these requirements mean that the following actions need to be taken to complete the data gathering step:

- **Action 2.1** (responsible: management planning team): Critically review the screening study "Biodiversity and Ecosystem Management in the Iraqi Marshes" and update/correct any outdated/wrong information. Involve additional national stakeholders and experts as identified in Section 7 of the screening study in this activity, in their respective fields of expertise.
- **Action 2.2** (responsible: management planning team): Initiate or commission studies to

close existing high-priority knowledge gaps in relation to the Marshes not mentioned below, in accordance with Section 8 of this document.

- **Action 2.3** (responsible: management planning team): Commission an analysis of the policy, legal and institutional framework for biodiversity conservation and ecosystem management in the Marshes, with the support of national experts, and including the following elements.
 - Compilation and analysis of national policies and plans (including on oil exploration) with relevance to the Marshes, including constraints and opportunities arising for biodiversity management and biodiversity conservation. The output of this analysis will be a report with a concise list of framework conditions for the establishment of a sustainable ecosystem and biodiversity management in the Marshes (e.g. realistic water allocation, national plans for natural resource use, planned infrastructure development within the possible area of the property etc.), which will give a clearer understanding where the property could feasibly be located and how strict a management regime could be achieved against the background of the current legal, policy and planning framework.
 - Identification of all national Ministries and agencies, Governorate level institutions, business companies, tribal leaders and other formal and informal institutional stakeholders with their specific stakes in the Marshes, and development of an engagement strategy for each of them following Section 10 of this document.
 - Elaboration of recommendations to the MoE on how to influence the policy, legal and institutional framework of the Marshes so as to make it more conducive to sustainable ecosystem management and biodiversity conservation.
- **Action 2.4** (responsible: management planning team): Commission an analysis of current natural resource use patterns and ecosystem services provided by the Marshes, with the support of national experts, and including the following elements.
 - Analysis of current natural resource use patterns including their livelihood and socio-economic significance, as well as constraints, opportunities and synergies with sustainable natural resources management and biodiversity conservation, based on existing publications (desk study) and field surveys if possible.
 - Analysis of the extent and relevance of traditional natural resource use in the Marshes (e.g. reed, water buffalo, fishing) to the World Heritage criterion v and hence a possible mixed nomination, including its ecosystem and biodiversity dependence.
 - Analysis of ecosystem services provided by the Marshes and derivation of possible ways of their valorization, following existing Ramsar and UNAMI-UNCT checklists (see Appendix 1) and IUCN best practice guidelines (e.g. Smith et al. 2006).
- **Action 2.5** (responsible: management planning team): Commission a desk study and action plan on minimum water allocations and hydrological management options for the maintenance of key ecosystem and biodiversity values of the Marshes, in accordance with Section 6.4.1 and particularly Box 6.6 of Garstecki & Amr (2011), building on published and existing information

and scenarios (e.g. CIMI 2010, New Eden Group 2006) to the extent possible. This study could be commissioned to CRIM.

- **Action 2.6** (responsible: management planning team): Continue to monitor the scientific literature and websites of relevant organizations to continuously update the knowledge base of the management planning process for the Marshes. (timing: continuously; budget: not applicable)

Data gathering and analysis are as important for management planning as they are for a successful World Heritage nomination. Therefore, the MoE and other key stakeholders need to ensure close collaboration (including ideally engagement of the same staff) and free information flow between the nomination drafting team and the management planning team for the Marshes.

3.3.3 Evaluation of data and information

The description of the site in the previous step does not automatically show why the Marshes are important. In order to understand this, the management planning team will need to evaluate the various features of the property and establish what types of values are represented there. This evaluation needs to include values from the global, national and local perspective. Outstanding Universal Value is an example of a value at a global scale, while for instance the economic/livelihood importance of some marsh areas for grazing of water buffalo would be a value at the local scale.

The management planning process for the Marshes requires evaluation of two interrelated types of values: On the one hand, the natural values for which the property might be nominated – i.e. particularly the ecosystem and biodiversity values potentially corresponding to World Heritage criteria ix and x – need to be appraised and their potential OUV needs to be documented through global comparative analysis.

On the other hand, **additional values of the area**, which do not contribute to its OUV but are nevertheless of importance for one or several stakeholder groups, also need to be understood and considered during management planning.

- **Evaluation of intrinsic values of the Marshes relevant to the natural World Heritage criteria:** The screening study (Garstecki & Amr 2011) already goes a long way in defining the values of the Marshes in relation to World Heritage criteria vii-x. Apart from the identified knowledge gaps that are discussed in Section 7 and 8 of this document, it is already quite clear in which features and processes the potential OUV in relation to the natural WH criteria lies – if there is OUV at all. For the World Heritage nomination itself, the question if the identified values pass the threshold of OUV needs to be answered through a global comparative analysis, as part of the preparation of the nomination document. Guidance for this analysis can be found in Badman et al. (2008a, b) and IUCN (2008), with some specific recommendations also included in Garstecki & Amr (2011). However, the OUV question is not as important for the management planning process as the identified values can be used as a target for PA management planning irrespective of the question if they qualify as OUV or not. Therefore, the evaluation of the key natural values of the Marshes included in Garstecki & Amr (2011) already provides a sufficient basis for the subsequent management planning steps, and merely needs to be checked, completed and updated by the management planning team.

- **Evaluation of additional values of the Marshes:** Among the additional values of the Marshes, there are use values (direct, indirect and optional) and non-use values (other intrinsic natural values and additional cultural, spiritual and aesthetic values).
 - **Direct use values** are typically based on provisioning ecosystem services of an area and comprise natural resources (e.g. reed, pasture, and fish in the case of the Marshes). It is ecologically and economically crucial to define sustainable maximum levels for the exploitation of direct use values.
 - **Indirect use values** are typically based on regulatory ecosystem services of an area and consist of economic benefits to agriculture, public health (e.g. climate regulation and water purification), disaster risk reduction, within and around (e.g. downstream) the Marshes. Sustainable management of the Marshes should aim at optimizing the sustainable realization of these values.
 - **Option values** are use values or other values that are currently not realized but offer a potential for realization. In the case of the Marshes, these may be tourism, education, science and research (which are currently only conducted at a very moderate level) and potentially other uses. Like for direct use values, the definition of maximum sustainable exploitation levels is needed if there are plans to realize the potential of some of these options.
 - **Intrinsic natural values** below the OUV threshold may well be present in the Marshes. They also need to be used to inform management. However, if a viable management regime for the identified biodiversity and ecosystem values of potential OUV is established in the Marshes, it is very likely (but needs to be checked) that this management system will also result in maintaining additional values of this type.
 - **Other intrinsic values (cultural/spiritual/aesthetic)** will also be explored during the nomination process (aesthetic values through the OUV evaluation in relation to WH criterion vii and cultural values through the evaluation of potential cultural OUV). Garstecki & Amr (2011) contains a first analysis of potential Marsh values in relation to criterion vii and (in Section 6.4.4.2) in relation to criterion v. The evaluation of these values during the management planning process should build on the work of the nomination drafting team. Since aesthetic values relevant to criterion vii largely depend on biodiversity and ecosystem values, they can be managed indirectly by effectively managing the latter. Some additional precautions (e.g. avoiding large scale infrastructure development that visually impairs the beauty of Marsh landscapes) may be necessary if aesthetic values of the Marshes are prioritized for management.

A more detailed instruction how to evaluate all these values of the Marshes is given below. It is obvious that a final evaluation of the additional (non-OUV) values of the potential natural/mixed World Heritage site will only be possible once the exact boundaries are known and the main stakeholders have been consulted.

In practice, the following steps need to be taken by the management planning team to assess the various values of the Marshes:

- **Action 3.1** (responsible: management planning team): Convene a national expert/stakeholder workshop (jointly with Action 3.2) to critically review the key natural values of the prospective property in relation to World Heritage criteria vii, ix and x, as identified by the screening study "Biodiversity and Ecosystem Management in the Iraqi Marshes" and update/correct any outdated/wrong evaluations (jointly with Action 3.5). Involve additional national stakeholders and experts as identified in Section 7 of the screening study, in their respective fields of expertise.
- **Action 3.2** (responsible: drafting team, workshop participants): Use the national expert workshop (Action 3.1) to conduct a rapid analysis of the status of values of the Marshes following a table adapted from Garstecki et al. (2011), based on already available information, the IUCN-CMP threat taxonomy (IUCN-CMP 2010) and as a prerequisite for action planning (see Table 6).
- **Action 3.3** (responsible: management planning team): Collaborate with the World Heritage nomination's drafting team to ensure full consistency between a potential cultural OUV statement and the natural values statement for the management planning process.
- **Action 3.4** (responsible: management planning team): Evaluate in a participatory way the direct (including natural resource use), indirect (including ecosystem services) and optional use values of the possible World Heritage site for the relevant local stakeholders, building on **Action 2.4** as well as Appendix 1, and using an analytical framework such as that shown in Table 7. Conduct a series of up to 6 local stakeholder workshops (two in each Governorate covered by the prospective property) in the Marshes to support this process.
- **Action 3.5** (responsible: management planning team): Compare the draft statement of potential cultural OUV (particularly in relation to criterion v) prepared by the nomination's drafting team to the outcomes of the screening study and Action 3.3 and identify potential overlaps, synergies or contradictions with the identified natural and use values.

Table 6. Analytical table for determining the state of Marsh values.

Identified value	Pressures and threats affecting value	Verbal summary of state of values	Assessment
Explanation: Copy in identified values of the Marshes, either those contributing to potential OUV or others.	Use checklist of IUCN-CMP (2010) to identify and enter pressures and threats affecting each identified value, in order of importance.	12- sentence summary of the status of values in relation to the identified threats	Assess as either good, low concern, high concern or critical, based on the definitions in Garstecki et al. (2011)
Example: Populations of globally threatened mammals including <i>Lutrogale perspicillata</i> , <i>Allactagus euphraticus</i> , <i>Nesokia bunnii</i> and <i>Myotis cappucinii</i>	7.2 Dams & Water Management/Use 5.4 Hunting & Collecting Aquatic Animals 6.2 War, Civil Unrest & Military Exercises	The populations of these mammals are extinct or on the brink of extinction, principally because of the draining of the Marshes and secondarily because of hunting and the consequences of war and civil unrest.	Critical
Add additional lines for all values ..	...	...	...

Table 7. Analytical table for assessing the importance of direct, indirect and optional use values of the Marshes.

Use value	Main users	Socio-economic dependency on use values	Assessment
Explanation: Identify main use values based on the UNAMI-UNCT checklist (Appendix 1)	Identify main user groups including size (number of people) and location of their use.	Determine the relative importance of the resource to the socio-economy and livelihoods in the area	Assess as either not important, moderately important, very important or critical
Example: Grazing of marsh areas by water buffalo	X heads held by Y families in municipality Z.	Average contribution to family income/livelihood 20% in municipality Z.	Very important
Add additional lines for all values ..	...	...	...

3.3.4 Identification of constraints and opportunities

Management steps 1-3 will provide the information and evaluation necessary to inform visioning and objective setting for the management of a potential Marshes World Heritage site. However, before planning can proceed to these steps, it is important to conduct a "reality check" to take into account all factors affecting the feasibility of effective biodiversity and ecosystem management in the Marshes. This includes constraints and opportunities resulting from the following factors:

- the legal, policy and institutional framework as well as institutional and financial governance capacity for sustainable development, biodiversity and ecosystem management in the Euphrates-Tigris basin, in Iraq and particularly in the Marshes (concerning national consensus development visions for the marshes and on water allocations, but also for instance the types of PA designations possible under Iraqi law)
- national development strategies of Iraq, which may not always give highest priority to sustainable Marsh management (relevant e.g. to water allocation)
- strong economic interests on land and water for uses constraining the scope for sustainable management in the Marshes (e.g. agriculture, oil exploitation, urbanization along the margins of the Marshes)
- lack of security in the Marshlands area due to sectarian violence, unexploded ordnance, crime and smuggling (UNAMI-UNCT 2011)
- potential conflicts with the legitimate interests of natural resource users in the Marshes (e.g. need to improve compliance with restrictions to the use of some natural resources such as water birds)
- constraints arising from the trans-boundary location of parts of the Marshes, which are shared with Iran, and from the trans-boundary watershed of the Euphrates and Tigris rivers (e.g. new dam projects in Turkey)
- potential conflicts/constraints with the management of identified cultural values of the Marshes (e.g. regarding intangible cultural values of the Marshes relevant to WH criterion v which are not considered ecologically permissible anymore, such as poisoned bait)
- Opportunities arising from the national and international interest and support to the sustainable management of the Marshes (e.g. international funding opportunities)
- Opportunities arising from existing PAs in the Marshes that might form part of a potential future natural/mixed World Heritage site there (e.g. Al-Hawizeh Ramsar site, Mesopotamian Marshes National Park)

These constraints and opportunities for sustainable biodiversity and ecosystem management in the Marshes need to be analyzed systematically, in order to work out a feasibility envelope for the future management regime – i.e. the range of objectives and activities that are considered feasible given the above constraints and opportunities. In order to compile this analysis, the following actions will need to be taken by the management planning team:

- **Action 4.1** (responsible: management planning team): Convene a national policy workshop to identify constraints and opportunities for sustainable biodiversity and ecosystem management in the Marshes that arise from the policy, legislative and institutional framework in Iraq, based on the analysis provided by **Action 2.3**.
- **Action 4.2** (responsible: management planning team): Liaise with the Ministry of Water Resources and other key stakeholders to identify the likely available water allocation (quantity, quality, spatial/temporal distribution, water allocation), in comparison to the outcomes of **Action 2.5**.
- **Action 4.3** (responsible: MoE): Identify geographical areas that would need to be excluded from a future World Heritage site because of high priority national interests other than biodiversity/ecosystem conservation (e.g. oil exploitation).
- **Action 4.4** (responsible: drafting team – see also Section 10): Assess the strength of local support to the PA establishment plans in the Marshes (particularly among tribes) and necessary alleviative communication measures if needed, based also on natural resource use interests as identified in **Action 2.4**.
- **Action 4.5** (responsible: MoE): Assess the feasibility of engaging the relevant authorities of Iran to commit to a minimum water allocation and other necessary supportive actions to Al-Hawizeh Marsh, in order to safeguard this essentially trans-boundary area, which is likely to harbor the best remaining biodiversity and ecosystem values.
- **Action 4.6** (responsible: MoE): Estimate the achievable institutional and financial capacity of (a) future management authority or authorities for the Marshes and consequences for the possible extent of a potential natural/mixed World Heritage property in the Marshes.

The remaining constraints and opportunities for sustainable biodiversity and ecosystem management can be addressed through regular liaison with the mixed nomination drafting team, with UNESCO/UNEP/IUCN and with the MoE representatives responsible for the planning/management of the other above mentioned PAs in the Marsh area. Whether the inclusion of existing PAs such as the Al-Hawizeh Ramsar site and the Mesopotamian Marshlands NP into a possible natural/mixed World Heritage site presents an opportunity of added value depends on the final assessment of the distribution of potential OUV throughout the Marshes (Section 6).

By completing this step, the management planning team will reach a better understanding of the range of outcomes that could realistically be achieved by the potential natural/mixed World Heritage site in the Marshes. The next question will be which of the realistic possibilities within this range the management planning team and national stakeholders intend to achieve.

3.3.5 Development of management vision and objectives

The management vision for the Marshes will be a vision of the desired state (in terms of biodiversity and ecosystem values, as well as cultural, aesthetic and socio-economic values in the medium-term future (e.g. in 20 or 30 years). Vision statements for PAs and natural World Heritage sites are often relatively short and general, but should encapsulate the specific, distinguishing values of a property as identified in Garstecki & Amr (2011).

Objectives are more concisely described targets that shall be achieved within the lifespan of the management plan (in this case, within 5 years) and which specifically address the various identified values of the site. The objectives of the management plan should combine to initiate a process during its lifespan that is consistent with the medium-term vision.

Two major types of objectives can be distinguished:

- **Objectives that describe a desired state of an identified value of the site at the end of the lifespan of the management plan** – i.e. five years after the onset of implementation of the management plan for a potential World Heritage site in the Marshes. Objectives should be specific for each identified value, and can be quite detailed. For instance, the objective for an endemic or globally threatened species contributing to the potential OUV of the Marshes under WH criterion x could read: "After five years, the population of species XY within the Marshes will be at least x mature reproducing individuals, and the rate of population increase will be at least y%/year". For the hydrological state of the property, an objective could read: "After five years, the water allocation to Marsh area XY will be billion m³/year, the extent of flooded areas will be increased to 75% of the 1973 value, and the extent of reed areas will be increased by z% in comparison to Year 0 of the plan". Similarly concise objectives need to be defined for all identified values.
- **Objectives concerning the activities, programmes and institutional frameworks** of the PA constituting a potential World Heritage site in the Marshes. This may focus on the development of institutional and financial capacity or the design of interpretative, participatory, or tourism programmes. For instance, an objective on the human resources development of the site's administration could read: "After five years, there will one central administration of the PA to be nominated as World Heritage site, with x staff per 1000 ha of the PA who have been trained for at least one month each, according to the IUCN best practice guidance of Kopylova & Danilina (2011)". An objective on interpretation could read: "After five years, there is an established interpretation programme including a programme document, a visitor centre, x dedicated staff, an interpretative trail of y km, z interpretative boards ...". Tourism objectives could be expressed in terms of visitor numbers or capacity.

The objectives of the management plan for a potential natural/mixed World heritage site in the Marshes need to be **SMART**, i.e. specific, measurable, attainable, relevant and time-specific:

- **Specific** means that they the target state of the variable or development target should be concisely and unambiguously defined.
- **Measureable** means that at the end of the lifespan of the plan, it should be possible to clearly decide whether the objective has been met or not.

- **Attainable** means that, on the basis of the analysis of constraints and opportunities described above, it should be possible to meet the objective within the defined timespan.
- **Relevant** means relevant to the identified values of the property and the long-term vision.
- **Time specific** means that it should be explicitly stated by when the objective will be met – either at the end of the management plan or earlier.

The SMART objectives standard is widely used in project management and may appear trivial, but the analysis of Garstecki & Amr (2011) showed that the vast majority of the objectives in existing management plans for parts of the Marshes were not SMART. In fact, many failed to meet any of the five component criteria above. Therefore, the challenge appears to be applying rather than knowing the SMART Objective standard.

Objectives should not be phrased as activities – i.e. they should describe outcomes, final project or desired states of the values of the property, not how to meet them. Options for how to meet the objectives of a management plan will be defined in the next step (see Section 3.3.6 below).

Based on the preliminary value analysis of Garstecki & Amr (2011) and the international best practice guidance summarized in Table XY, it appears that the management planning team (with the support of the MoE) will need to develop 5-year objectives (one or several each) focusing on the following thematic areas:

Main drivers of ecosystem conservation status of the property:

1. A set of objectives for the water allocation to the property (quantity/discharge, hydroperiod, quality, spatial-temporal distribution – relevant to all World Heritage criteria).
2. The desired extent of Marsh areas (flooded areas and reed areas) within the possible World Heritage site after 5 years, to the extent possible given the natural variability of water supply (how much of which Marsh areas – relevant to all World Heritage criteria).
3. Key statements of the national policy, legal and planning framework affecting water and land allocations to a possible World Heritage site inside the property.

Conservation status of the marsh ecosystem:

4. Desired overall conservation status of the Marsh ecosystem inside the property (completeness of vegetation and habitat types, standing stock, reed cover, diversity of higher plants and vertebrates in comparison to pre-draining – relevant to all World Heritage criteria, particularly criterion ix).
5. Desired state of the property as a resting and wintering site for migratory waterbirds (in terms of abundance, diversity, key species etc. - relevant to WH criteria ix and x).
6. Desired conservation status of the populations of diadromous fish and shrimps inside the property (in terms of abundances, occurrence of key species, diversity etc. - relevant to WH criteria ix and x).
7. Desired visual impression of the landscapes within the property, including banned types of infrastructure to avoid visual impairment of natural beauty (potentially relevant to WH criterion vii).

8. Desired status of the key provisioning and regulatory ecosystem services provided by the Marsh areas inside the property.

Conservation status of biodiversity:

9. Desired conservation status of endemic and globally threatened plant species inside the property (relevant to WH criterion x).
10. Desired conservation status of endemic and globally threatened fish species inside the property (relevant to WH criterion x).
11. Desired conservation status of the Euphrates Softshell Turtle *Rafetus euphraticus* inside the property (relevant to WH criterion x).
12. Desired conservation status of endemic and globally threatened bird species and subspecies inside the property (relevant to WH criteria ix and x).
13. Desired conservation status of endemic and globally threatened mammal species and subspecies inside the property (relevant to WH criteria ix and x).
14. Desired conservation status of known endemic and globally threatened invertebrate species inside the property (relevant to WH criteria x and potentially ix).

Formal establishment of a management regime for the property:

15. Objective to achieve final site selection and official demarcation of the property according to Section 6 of this document, including a decision regarding a serial vs., single site and the establishment of a buffer zone.
16. Objective on the establishment of one or several PAs according to Iraqi law comprising the chosen site(s) of the property.
17. Objective on the legal establishment of a management authority (or, if this is not possible, several management authorities) for the entire property.
18. Objective on the establishment of infrastructure and equipment for the management authority (buildings, vehicles, scientific equipment, office equipment).
19. Objective on the training of management staff of the property's management authority.
20. Set of objectives on the establishment of a first (for establishment) and operational budget for the management authority of the property, and a business and sustainable financing plan.

Establishment of an effective stakeholder participation policy and mechanism:

21. Objective on the establishment of a permanent stakeholder consultation policy and mechanism, with particular focus on local stakeholders and resource users.
22. Objective on the establishment of participatory sustainable natural resources use programmes within and around the property.

23. Set of objectives for the establishment of an interpretation, communication, education and public awareness programme aimed at local stakeholders.

Specific programmes and policies to be run by the management authority:

24. Objective on the establishment of a regular monitoring mechanism for the values of the property, based on the objectives of the management plan, the generic WH indicators of UNESCO (2012) and standard PAME tools such as the World Bank's PAME tracking tool (Stolton et al. 2007).

25. Objective on the development of a scientific research policy and programme focused on filling remaining knowledge gaps in the Marshes.

26. Objective on the development of a sustainable tourism and visitation policy and plan for the property.

The analysis of available information, evaluation of associated values and setting of objectives build on each other. The management planning team will rely on the input of all relevant national experts to formulate these objectives. The following actions need to be taken to define these objectives:

- **Action 5.1** (responsible: management planning team): Identify and engage a lead national expert from the list provided by Garstecki & Amr (2011) or other relevant sources to recommend a first draft of the objective(s) within each of the 26 thematic areas identified above, together with a short rationale and following the guidance above.
- **Action 5.2** (responsible: management planning team): Compile a first consolidated draft of the objectives of the management plan from the individual submissions, following quality and consistency control of the individual experts' submissions in relation to standards of SMART objectives.
- **Action 5.3** (responsible: management planning team): Conduct and protocol an objectives discussion workshop with all national experts and additional national, regional and local stakeholders to discuss the draft objectives section and to ensure consistency between the individual sections (e.g. between the water allocation and conservation objectives, or between administration staffing and financing).
- **Action 5.4** (responsible: management planning team): Finalize the Objectives section of the draft management plan, based on the draft objectives and on the submissions during the objectives discussion workshop.

The finalized version of the Objectives section of the management plan can be directly inserted into the draft management plan. The procedure for its elaboration as detailed above has the added advantage that there is already an extensive expert and stakeholder involvement at the formulation stage. This will make the subsequent public consultation of the entire draft management plan less conflictive.

Once the steps derived above have been taken, based on all available information and expertise, there will be a clear and widely shared understanding on what the planned natural/mixed World Heritage property aims to achieve. The next question will be how these objectives can be achieved.

3.3.6 Development of options for achieving the vision and objectives

By running through the process described in 3.3.1 – 3.3.6 above, the management planning team and its client – the MoE and the stakeholder constituency – will have gained an understanding of what the Marshes' values are, in which state they are currently and into which state they aim to bring them – both long-term (vision) and by the end of the first management plan after five years (objectives). It will also be clear what institutional setup will be established for the management of the potential natural/mixed World Heritage property in the Marshes.

The key remaining question then will be how the property can develop from its current state to the desired state as defined in the objectives, within the 5-year lifespan of the management plan. In order to answer this question, specific activities for reaching each objective will need to be designed.

- For the objectives concerned with the desired state of the values of the Marshes, activities should be designed by alleviating key pressures, threats and their root causes affecting each of the values in question (based on the analysis conducted as Activity 3.2). This may happen through improvement of the water allocation, use and access restrictions, promotion of alternative livelihood bases which put less pressure on the values of the property, ecosystem restoration or other measures.
- For the objectives concerned with the institutional establishment of a management authority for the property, the activities should follow international best practice (e.g. ...) and the example of comparable properties elsewhere (e.g. in the Danube Delta).
- Typically, there will be several activities necessary to reach each objective.

Although there will be at the same time many activities in the management plan that contribute to more than one objective, the management planning team should first design a specific set of activities for each individual objective, and only then simplify the management plan by lumping activities that have been listed in relation to more than one objective. In other words, **each activity should be designed specifically to contribute to reaching one or several objectives**, and this should be documented in the activities description. This can be compared to a logical framework approach, although a full logical framework will not be necessary as part of a management plan for the property.

Ecosystem restoration activities (other than simple steps to improve the water allocation to the Marshes and to manage its hydrology) should be integrated into the activities of the management plan only after an in-depth check of their feasibility and cost effectiveness. Ecosystem restoration schemes are often poor values for money, and are only feasible if the factors (pressures/drivers) that lead to a deterioration of the values of a property are not affecting it anymore.

One of the instruments to achieve the objectives of the property will be **a demarcation and zoning** that optimizes synergies between the various objectives and overall value conservation. Zoning typically

aims to minimize conflict between management objectives by separating them into distinct zones (e.g. strict conservation zones for biodiversity conservation, tourism zones for tourism development and sustainable use zones for natural resource use. Although demarcation and zoning are often discussed as part of the activity setting methodology, it is discussed in a separate section of the current management planning framework (see **Section 6**).

The SMART standard (see Section 3.3.5) should be applied to the activities of the management plan in the same way as to its objectives. The description of each activity in the management plan will need to contain the following information, using a tabulated format:

- What exactly will be done where exactly inside or near the property;
- At which stage during the 5-year lifespan of the first management plan the activity will be implemented (an initial precision of months is sufficient for planning activities);
- The objective(s) to which the activity will contribute;
- Who (or which institution) will be responsible and who (if applicable) will contribute to the activity, in addition to the person or institution responsible;
- The estimated costs of the activity and information on whether these will recur or will be limited to the first 5-year management plan, plus an assessment of options for ensuring the sustainable financing required for effective management;
- Additional information, e.g. regarding legal and policy basis, synergies with other activities etc.

In order to plan the activities necessary for reaching all objectives of the management plan, the following actions should be implemented by the management planning team, with support from the MoE and the stakeholder community of the Marshes:

- **Action 6.1** (responsible: management planning team): Task lead national experts from the list provided by Garstecki & Amr (2011) or other relevant sources to draft the activities for the objective(s) for which they were responsible in relation to Action 5.1.
- **Action 6.2** (responsible: management planning team): Compile a first consolidated activity plan and budget, following the lumping of redundant activities submitted for the various objectives, and quality control of the individual experts' submissions in relation to standards of SMART activities.
- **Action 6.3** (responsible: management planning team): Conduct and protocol an activity planning workshop with all national experts and additional national, regional and local stakeholders to discuss and finalize the draft activities section and to ensure consistency between the individual sections (e.g. between the water allocation and conservation objectives, or between administration staffing and financing).
- **Action 6.4** (responsible: management planning team): Finalize the Activities section of the draft management plan, based on the draft activities and on the submissions during the activities discussion workshop.

It is important to look at all activities in conjunction, in order to arrive at a consistent set of activities. For instance, certain management activities may require specific technical capacities, the development of which needs to be included in the activities on staff training in for the management authority for the property. Further guidance on developing specific management activities from Thomas & Middleton (2003) is given in Appendix 2.

The **time schedule** for the management plan can be synthesized from the sequence of activities in the plan, and can be laid down as a Gantt Chart (see Section 4 for an example). Activities that lay the institutional foundation for sustainable biodiversity and ecosystem management, and activities that address the root causes of pressures and threats on the values of the property should be prioritized for early implementation during the plan's lifespan.

Likewise, **the overall required budget for the first management plan** (broken down by years and months) can be pieced together from the individual estimated budgets for each activity plus the estimated running costs of the property's administration. Therefore, the management plan's budget will be compiled as part of the action planning for the property.

The description and evaluation of the possible natural/mixed World Heritage site's values, the analysis of constraints, the derivation of a vision and objectives and the definition of specific activities and a time schedule and budget for the management of the property during the first five years of the management plan constitute the content of the draft plan.

3.3.7 Preparation of draft management plan

With all the content for the management plan prepared through steps 3.3.1 - 3.3.6 above, the next step will be to put together the actual draft planning document. A draft Table of Content is suggested in Section 5. Thomas & Middleton 2003 compare a few alternative structures for management plans, which the management planning team may wish to consider. Apart from the overall structure of the plan, there are a few additional principles that the management planning team should follow in order to produce an effective and user-friendly planning document:

- **Clear reference to the statement of potential OUV:** Since the property in question is may be submitted for nomination as a natural/mixed World Heritage site, the OUV statement used in a possible nomination should also be used as the central value statement of the management plan, and it should be linked to the requirements to maintain the conditions of integrity as required in the Operational Guidelines for the implementation of the WHC..
- **Alignment with legal requirements for management plans under Iraqi law:** The management plan needs to fulfill all the requirements for such plans under Iraqi law (e.g. under the soon-to-be-adopted draft Regulation on Protected Areas management, Establishment and Generation of the MoE of Iraq), so that it can be legally endorsed after Government approval.
- **Clarity and readability:** The management plan should be written in a clear language, both in Arabic (for implementers, national stakeholders and legal purposes) and in English (for submission with a potential World Heritage nomination).
- **Focus on the essential:** The management plan should be as brief as possible and should focus on the management vision, objectives and activities, plus the way in which these are informed by the state of the property's values, as well as pressures and threats affecting

them with their indirect root causes. Excessive descriptive information should be annexed or referenced but excluded from the plan itself, for instance by referencing Garstecki & Amr (2011) or an updated, and actualized version of it.

- **Documentation of the planning process and criteria used:** In order to enable all stakeholders to understand how the description, evaluation, vision, objectives and activities of the management plan were derived, a short description of the process as documented in this management planning framework should also be included with the management plan.

Based on the above guidance and on consideration of the recommended Table of Content (Section 5), the management planning team needs to implement the following actions in order to arrive at the final draft management plan for consultation:

- **Action 7.1** (responsible: management planning team): Compile the elements of the draft management plan as listed in Section 3.3.13.3.6- above and following the recommended Table of Contents in Section 5 of this document, taking into consideration the criteria for management planning above.
- **Action 7.2** (responsible: management planning team): Subject the draft management plan to internal review including the entire management planning team, the national experts, the MoE, the Ministry of Water Resources and other relevant ministries if appropriate and integrate the received comments and additions.
- **Action 7.3** (responsible: management planning team): Translate the draft management plan into English if consultation with international stakeholders or experts is planned. In any case, a complete Arabic version of the draft management plan is needed for the national consultation process.
- **Action 7.4** (responsible: management planning team): Print at least 100 copies of the Arabic language draft management plan in preparation for public consultation.

Once the draft management plan has been completed and printed, it is ready to undergo the public consultation stage.

3.3.8 Public consultation of draft management plan

Thomas & Middleton (2003) recommend a public consultation after the production of the draft management plan only. However, with a management plan for an area as large and as intensely used as the Marshes, it is advisable not to wait for this stage and to start engaging key local and national stakeholders at an earlier stage already. The stakeholder engagement strategy explained in **Section 10** of this management planning framework and the various local and national stakeholder and expert workshops included in **Actions 3.1, 3.2, 3.4, 4.1, 5.3.** and **6.3.**

Therefore, the public consultation of the draft management plan described in this section is only one element of the stakeholder engagement activities that are being carried out during the introduction of sustainable biodiversity and ecosystem management in the property, and should be understood as one rather specific part of these wider efforts.

The public consultation of the draft management plan will be a two-way process, i.e. it will not only inform stakeholders and the general public about the plans to establish the property, but also convene discussions to collect their opinion on these plans. It will be the responsibility of the management planning team and the MoE to publicize the draft management plan, and to develop targeted presentation and discussion formats that focus on the various stakes of the main stakeholder groups involved. In order to achieve this, the following actions will need to be implemented:

- **Action 8.1** (responsible: management planning team): Decide with which stakeholders (as identified through the stakeholder analysis the process of which detailed in Section 10) the management plan needs to be consulted. These are likely to be key Ministries, State agencies as well as nature conservation NGOs and conservation experts at the national level, the relevant Governors and their administrations at the Governorate level, and local municipalities, agricultural and resource users' associations, tribes, CBOs, informal community leaders etc. at the local level. Businesses with significant stakes in the Marshes (e.g. oil industry) should also be consulted. This decision needs to be documented.
- **Action 8.2** (responsible: management planning team): Develop a set of introductory presentations and digests of the draft management plan for each main stakeholder group (e.g. one for national, Governorate level and local stakeholders each). These materials should also highlight the considerable benefits of sustainable Marshes management to all stakeholders, as summarized e.g. by UNAMI-UNCT (2011).
- **Action 8.3** (responsible: management planning team): Publish a press release on the plans to establish the property and on the draft management plan and engage national and regional media (particularly those which reach the inhabitants of the Marsh area) to report about the plans.
- **Action 8.4** (responsible: management planning team): Publish the draft management plan on the web site of the MoE, together with an email address for submission of comments (comments received through this mechanism should be verified by contacting the submitting persons).
- **Action 8.5** (responsible: management planning team): Convene an information event in each municipality, Governorate administration, major relevant business and national Ministry adjacent/relevant to the property to explain the overall plans for the natural/mixed World Heritage site and the consultation procedure.
- **Action 8.6** (responsible: management planning team): Leave a sufficient number of copies of the draft management plan with a responsible stakeholder representative and invite stakeholders to peruse it at an agreed location (e.g. municipality office, tribal leader's house) and to submit written comments with the agreed stakeholder representative.
- **Action 8.7** (responsible: management planning team): Convene a consultation workshop at each location where an initial information workshop was conducted (Action 8.5). Collect and document written and oral comments, suggestions etc. regarding the draft management plan.
- **Action 8.8** (responsible: management planning team): Synthesize the submissions received through the online consultation and the series of meetings in a draft consultation report.

- **Action 8.9** (responsible: management planning team): Conduct an internal consultation analysis workshop with senior MoE staff to decide which comments and recommendations are implemented and how the draft management plan is changed as a result. Document the outcome of this meeting in the final consultation report.
- **Action 8.10** (responsible: management planning team): Publish the consultation report online and send one copy to each stakeholder representative involved in Actions 8.5 – 8.7, together with the revised final management plan.

All the formal consultation stages as listed above will need to be accompanied by an intensive informal communication and consultation process with key stakeholder representatives. While the views of all stakeholders should be taken into account, stakeholders will not be invited to challenge the overall decision to establish a sustainable biodiversity and ecosystem management regime in the Marshes according to Iraqi legislation and – as planned – to the prescriptions of the World Heritage Convention.

In order to deal with the submissions during the consultation process in a consistent and transparent way, criteria for comments/submissions that result in changes to the draft management plan need to be defined. These criteria should include the following:

- Factual mistakes or omissions in the information on which the draft management plan is based,
- Objections proving that the management plan as drafted does not comply with Iraqi law or accepted customary law in the Marshes area,
- Objections showing that livelihoods would be lost without alternative if the plan is implemented as drafted,
- Suggestions for management activities that are arguably more effective in reaching their corresponding objectives than those drafted,
- Objections that clearly show that the management plan could not be implemented as drafted, due to overwhelming opposition among important stakeholders.

The management planning team and MoE may agree additional criteria for the decision on an inclusion of comments or changes in the draft management plan. These criteria should be published jointly with the outcomes of the consultation process in the consultation report.

Once the consultation process is finalized and the draft management plan has been revised based on the submissions received, it is ready for approval by the relevant State institutions of Iraq (the Council of Ministers, according to the draft PA regulation).

3.3.9 Approval and endorsement of management plan

The approval and endorsement of the designation of a PA (possibly to be nominated as natural/mixed World Heritage site) and its management plan needs to follow the relevant legal provisions of Iraq. According to the draft Regulation on Protected Areas Management, Establishment and Generation of the MoE, the relevant State Institution for approval of the plan will be the **Council of Ministers**.

Given the multiple stakeholder interests that are likely to be centered on the property, it will be key to gain approval and endorsement from as high as possible, and at the same time to continue building the ownership and support of local stakeholders and tribes to the project.

The management plan of a property submitted with a World Heritage nomination should include a statement of commitment of the State Party, to ensure that it will be implemented as planned. This statement could be made at the draft management stage or following approval.

- **Action 9.1** (responsible: management planning team): Obtain an official statement of commitment of the Council of Ministers to the site designation and management plan and enclose it with the management plan submitted with the nomination file, if and when a nomination of the property is submitted to the World Heritage Commission.

Once the management plan is finalized, published and approved, the management planning phase is over and the implementation phase of the first management plan for the property begins.

3.3.10 Post approval implementation and further development of the plan

This management planning framework only covers the planning process and not the implementation of the plan, its monitoring and evaluation and the eventual review and updating of the plan – either after its 5-year lifespan or earlier, if the developments of the property make this necessary.

Nevertheless, it should be kept in mind that the management plan is not an end in itself, but a guiding tool to develop a functioning Marsh management system in practice. In order to ensure this function, the MoE and national stakeholders will need to pay particular attention to the following issues:

- **Monitoring:** Objectives and activities for the design and implementation of a monitoring system for site management will be developed in following thematic area 24 in Section 3.3.5 of this planning framework, and should be implemented as a matter of priority. It will be crucial that this monitoring system focuses on the implementation of the plan and not just on the overall status of biodiversity in the property.
- **Adaptive management:** The management of a system as large, stressed and variable as the Marshes will face unexpected situations and challenges that may necessitate a revision of the first management plan. If monitoring results and internal review show that individual objectives or activities are not attainable or relevant any more, then the plan should be officially revised to accommodate these changes.
- **Staff and capacity development:** A key prerequisite for effective management of the site will be the development of the management capacity of the management authority of the property, both in terms of staff qualification and in terms of institutional capacity. The MoE will need to allocate considerable funds for reaching the management plan's objectives under thematic areas 18 and 19 in Section 3.3.5.

- **Sustainable financing:** Many protected areas manage to raise international donor funds for their establishment and management planning phase, but then fail because a continuous sustainable financing cannot be secured. The MoE and stakeholder community should take particular efforts to implement the objective(s) under thematic area 20 in Section 3.3.5, in order to secure a sustainable operational funding of the property. One potential way of achieving this might be a trust fund from voluntary compensatory payments from extractive industries active in the area.
- **Continued stakeholder participation and communication:** Stakeholder participation must not finish with the completion of the first management plan, but should continue through regular activities aimed at the objective(s) under thematic areas 2123- of Section 3.3.5.
- **Evaluation workshop after 5-year lifespan of first management plan:** It is recommended that a relatively large workshop similar to those under Actions 5.3 and 6.3 of this management planning framework is conducted to evaluate implementation of the plan and jointly decide on revisions prior to the second 5-year management period of the plan.

3.4 Integration of the management planning for natural and cultural values

This management planning framework focuses on the management planning for the natural values of a potential natural/mixed World Heritage site in the Marshes. However, if it is decided to indeed submit a mixed nomination and a management plan for both natural and cultural values, then it needs to be decided how management for these two sets of values can be combined, and how this can be reflected in the joint management plan.

Combining both types of management plans is generally not complicated: The management plan for a mixed World Heritage site can be conceived as the sum of a natural and a cultural management plan. However, in order to make both parts match each other, a number of prerequisites need to be met.

The following steps should be taken by the management planning teams for natural and cultural values in the Marshes to ensure full compatibility between the two management regimes:

- **Compatible structure of management plan sections of natural and cultural values:** If the structures of the management plan's sections on natural and cultural values management are generally compatible, then both sections can be developed in parallel and combined at the final stage. In order to achieve this, the suggested Table of Contents for the natural values management plan presented in Section 5 also contains section headings on the cultural values of the management plan. The natural and cultural drafting teams should jointly decide if this structure can be followed by the management plan or needs to be modified.
- **Establishment of a coordination mechanism to identify and resolve inconsistencies and contradictions between the draft management plans for natural and cultural values:** Even if the structures of natural and cultural management plans are complementary, it is possible that inconsistencies or contradictions arise from conflicting objectives. For instance, the management regime for the Marshes's biodiversity values (World Heritage criterion x) might exclude natural resource use to reduce pressures on these resources, a certain type of traditional natural resource use (e.g. use of reed to construct houses) might actually in itself represent an intangible cultural value relevant to a potential nomination of the property under World Heritage criterion v. In such cases, it will be paramount to jointly develop solutions (i.e.

jointly agreed management prescriptions) that are as consistent with the overall objective of sustainable management of both natural and cultural values as possible. To this end, the draft management plans for natural and cultural values should be exchanged between the natural and cultural drafting teams at the evaluation, objective setting and activity setting stages, and joint meetings of both drafting teams should be adjourned at each of these occasions.

- **Integration of two parallel management planning processes at the level of the draft or final management plan:** If a general joint structure for the management plan can be agreed between the natural and cultural drafting teams and if potential inconsistencies and contradictions at the evaluation, objective and activity stage can be resolved, then it will be possible to join the natural and cultural parts of the management plan either at the draft management plan stage or at the final management plan stage. The latter might be easier since the consultation for both parts of the management plan will probably address different stakeholders and use different consultation formats.
- **Separate but coordinated management authorities for the natural and cultural values of the property:** The management of natural and cultural values requires different institutional setups and expertise. Therefore, the natural and cultural values of the property should be managed by separate management authorities, yet in a closely coordinated manner. A regular (monthly) mechanism for the communication and coordination of the activity of both authorities needs to be established.

4 Timetable and budget for the management planning process

This section provides further detail regarding the timeline and budgeting of the management planning process that is set out in Section 3.3 of this management planning framework. It is important to note that these are for the management planning process only – the timeline and budget for the actual site management need to be decided by the management planning team during the planning process. All estimates are indicative and should be discussed and adapted by the management planning team, based on their local and national experience and expertise.

4.1 Timetable for the management planning process

A timetable (Gantt Chart) for the management planning process for the marshes is suggested in Table 8. The minimum estimate for the overall management planning process including public consultation of the draft management plan is 30 months, which is more than initially planned but rather short in comparison to management planning processes for similar sites. This is a minimum estimate because of the complex history and multiple stakeholder interests affecting the Marshes, and because of the lack of experience of the relevant authorities with similar management planning processes in the past. The following additional considerations are needed in relation to the management planning process:

- If the fundraising step (Action 1.5) for the management planning can be completed earlier than indicated in the Gantt Chart (earlier than within four months), then the subsequent steps can be initiated earlier and the overall management planning phase can be shortened.
- If any of the necessary field studies to fill knowledge gaps and inform the management planning process (Action 2.2) take longer than six months (e.g. if a full seasonal cycle is needed for any of them), then the subsequent management planning steps need to be postponed by up to six months and the overall time needed to complete the planning cycle will increase to 36 months.

The relatively long process will not delay a possible World Heritage nomination of the property because since the site is not listed on the Tentative List of Iraq yet (and needs to be listed one year before nomination, according to the WHC OG), the very earliest submission date of a possible nomination would be 1 February 2014, with the decision about inscription to be taken in summer 2015 and the final

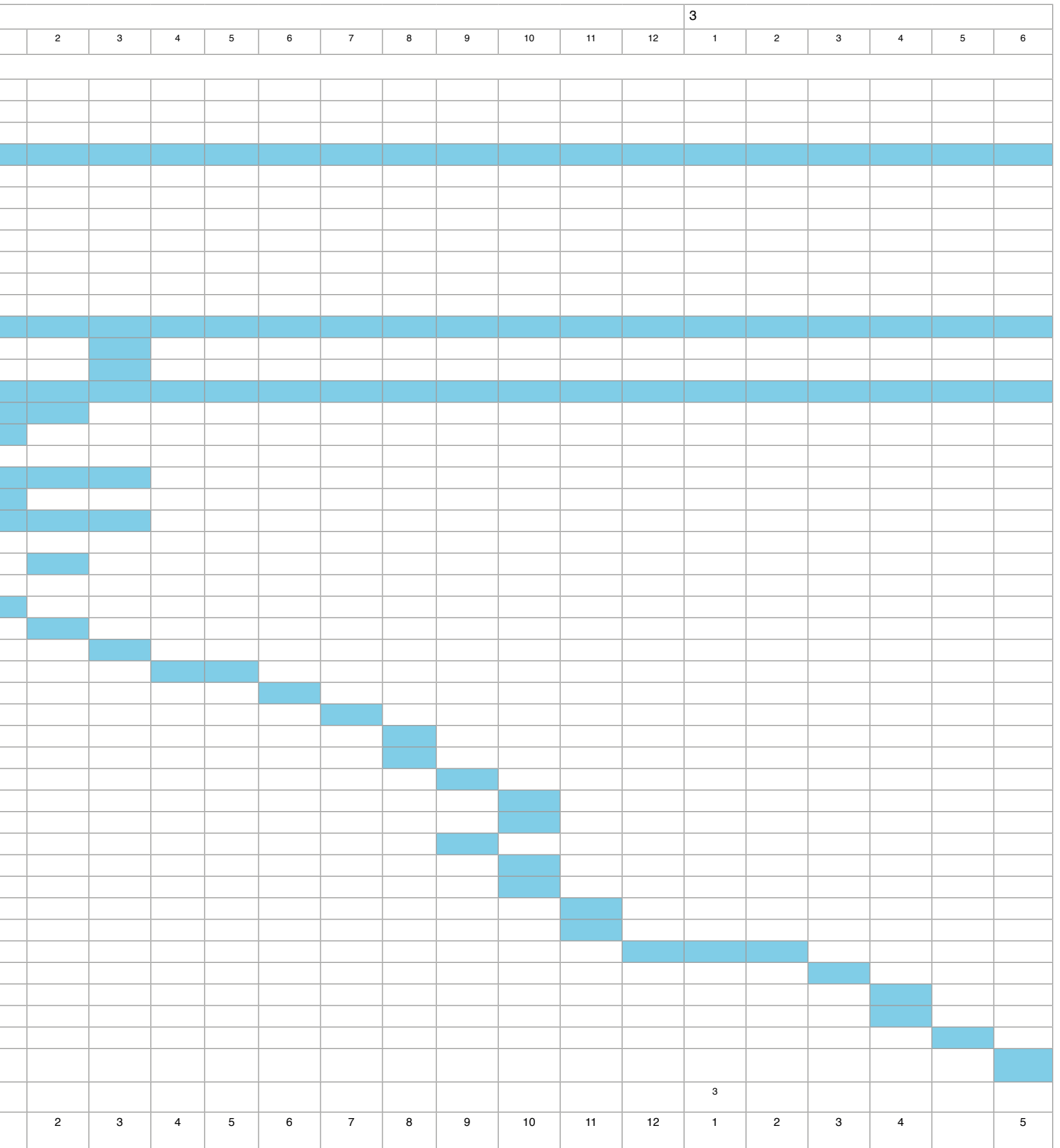
deadline for submission of a complete definite management plan likely to be summer 2017 or even 2018, according to the

Table 8. Gantt Chart showing the indicative sequence of Actions during the management planning process

Year		1												2	
Month		1	2	3	4	5	6	7	8	9	10	11	12	1	
Planning step	Action														
1 (pre-planning)	1.1	█													
	1.2	█	█												
	1.3	█	█												
	1.4	█	█	█	█	█	█	█	█	█	█	█	█	█	
	1.5	█	█	█	█										
	1.6		█	█	█	█									
2 (Data collection)	2.1			█	█	█									
	2.2					█	█	█	█	█	█				
	2.3					█	█	█	█	█	█				
	2.4					█	█	█	█	█	█				
	2.5					█	█	█	█	█	█				
	2.6											█	█	█	
3 (Evaluation)	3.1														
	3.2														
	3.3	█	█	█	█	█	█	█	█	█	█	█	█	█	
	3.4													█	
	3.5													█	
4 (Constraints and opportunities analysis)	4.1									█					
	4.2													█	
	4.3													█	
	4.4													█	
	4.5									█	█	█	█		
	4.6														
5 (Objective setting)	5.1										█	█			
	5.2													█	
	5.3														
	5.4														
6 (Activity setting)	6.1														
	6.2														
	6.3														
	6.4														
7 (Compilation of draft plan)	7.1														
	7.2														
	7.3														
	7.4														
8 (Consultation of draft plan)	8.1														
	8.2														
	8.3														
	8.4														
	8.5														
	8.6														
	8.7														
	8.8														
	8.9														
	8.10														
9 (Approval)	9.1														
Year		1												2	
Month		1	2	3	4	5	6	7	8	9	10	11	12	1	

According to general practice and IUCN recommendations (IUCN 2008).

Management planning process by month.



4.2 Budget for the management planning process

An itemized budget for the overall participatory management planning process (see Section 3.3) for a potential natural/mixed World Heritage property in the Marshes is enclosed as a separate Excel file. The overall estimated budget for the process (including closing high-priority knowledge gaps and public consultation) is US\$ 431,330 over 30 months. The budget has been compiled based on the following assumptions:

- This budget assumes that the process would be run by the MoE itself, resulting in no additional project management costs for the planning process. If an external organization is to be tasked with the implementation of the management planning process, an additional project manager, administrative staff and organizational overhead would need to be budgeted.
- The budget is also based on the assumption that national experts will participate in the expert workshops, and will draft suggestions for objectives and activities on a volunteering basis. Only field and desk studies that require a more long-term and concentrated input from the authors have been budgeted assuming the involvement of paid national consultants.
- This is an indicative estimate only as the exact planning costs depend on the size of the prospective property (yet to be decided) and on some of the component costs which may need verification, such as the national consultant daily rate (assumed as ca. US\$ 390), per diem (ca. US\$ 195), national travel standard rate (US\$ ca. 260 per trip) national workshop cost per day and participant (ca. US\$ 45) and similar items. These can be changed in the spreadsheet so as to arrive on a refined budget.
- The MoE may decide to contribute parts of the budget in kind, by tasking its own experts with some of the tasks that are now allocated to national consultants (e.g. for actions 1.12.3, 1.3-, etc.). In this case, the amount that needs to be raised from external sources will fall accordingly.

In any case, the draft budget provides a framework which will allow the MoE to fine-tune the expected expenses and submit a revised budget once the size of the area and administrative setup has been decided.

5 Draft Table of Content of the first 5-year management plan

The suggested Table of Content of the first 5-year management plan is a consequence of the management planning process discussed in Section 3.3, which in turn is based on the international best practice guidance detailed in Section 3.1 – 3.2. Page numbers are indicative suggestions only.

It will be key to avoid excessive descriptive information as part of the management plan. Instead of including detailed descriptions, the screening study of Garstecki & Amr (or a revised and updated version of it) should be referenced, and additional descriptive information should be put into Appendices.

Draft Table of Content

Headings marked with an asterisk * are focused on cultural values/criteria within a mixed nomination. Headings marked with an asterisk in brackets (*) may contain information relevant to both natural and cultural values.

1. Title page (*) (1 p)

2. Statement of approval by the Council of Ministers (*) (1-2 pp)

3. Acknowledgements (*) (1-2 pp)

4. Table of Content (*) (1-2 pp)

5. List of Abbreviations (*) (1-2 pp)

6. Executive Summary (*) (2 pp)

7. Introduction (*) (5 pp)

7.1. Context, prehistory and mandate for the management planning process (*)

7.2. Explanation of the management planning process (*)

7.3. Target group and use of the management plan (*)

8. Description of the property (*) (15 pp)

8.1. Exact location of the property including map and coordinates

8.2. Geographic, climatic and geological setting

8.3. Hydrology

8.4. Ecosystems and landscapes

8.5. Biodiversity, including threats and pressures and their drivers

8.6. Cultural monuments and traditions*

8.7. Natural resources and ecosystem services provided by the property

9. Evaluation of the property (*) (5 pp)

9.1. Statement of potential OUV of the potential natural/mixed World Heritage site (if it is decided to submit a nomination)

9.1.1. Potential OUV under WH criterion v* (if applicable), including status

9.1.2. Potential OUV under WH criterion vii – natural beauty (if applicable), including status

9.1.3. Potential OUV under WH criterion ix – ecosystems (if applicable), including status

9.1.4. Potential OUV under WH criterion x – biodiversity (if applicable), including status

9.2. Assessment of other values

9.2.1. Natural values that do not meet the criteria of OUV

9.2.2. Cultural, spiritual and aesthetic values that do not meet the criteria of OUV*

9.2.3. Use values (direct, indirect and optional) including natural resources and regulatory ecosystem services

10. Analysis of constraints and opportunities for management (*) (5 pp)

10.1. National policy and legal framework (*)

10.2. National (including economic) development priorities, plans and projects (*)

10.3. Constraints from land and water use interests (*)

10.4. Security situation in the Marshes (*)

10.5. Constraints arising from the trans-boundary setting of the Marshes

10.6. Opportunities arising from existing initiatives and donor programmes focusing on the Marshes (*)

10.7. Opportunities arising from existing and planned protected areas in the Marshes

10.8. Other constraints and opportunities, including affecting cultural values*

11. Vision statement and rationale (*) (2 pp)

11.1. Vision statement (*)

11.2. Rationale of vision (*)

12. Definition of objectives (*) (10 pp)

12.1. Objectives regarding the desired conservation status of the property's natural values

12.2. Objectives regarding the desired conservation status of the property's cultural values*

12.3. Objectives regarding the formal establishment of a management regime on the property (*)

12.4. Objectives concerning the establishment of an effective stakeholder participation mechanism (*)

12.5. Objectives regarding specific programmes, policies and activities of the management authority of the property (*)

13. Activities to meet the objectives of the management plan (*) (25 pp)

13.1. Activities aimed at reaching a desired conservation status of the property's natural values

13.2. Activities aimed at reaching a desired conservation status of the property's cultural values*

13.3. Activities aimed at the formal establishment of a management regime on the property (*)

13.4. Activities aimed at the establishment of an effective stakeholder participation mechanism (*)

13.5. Activities focused on specific programmes, policies and activities of the management authority of the property (*)

13.6. Timetable of activities (*)

13.7. Budget for the implementation of activities (*)

14. Monitoring and review (*) (5 pp)

14.1. Monitoring regime (*)

14.2. Review procedure (*)

15. References (*) (5 pp)

16. Appendixes (*) (20 pp)

6 Methodology for boundary setting

The definition of the boundaries of a potential natural/mixed World Heritage site has been discussed into considerable detail by Garstecki & Amr (2011). This discussion focused on the natural values of the Marshes only. The same focus is taken in this management planning framework. It is likely that the areas with the highest biodiversity values are also the most suitable for a mixed nomination including WH criterion v, because the values under this criterion would be closely connected to the ways of natural resource use traditionally pursued in the Marshes. The same is not true for values under other cultural criteria (e.g. architectural monuments), but the strongest case for a mixed nomination in any case would be to have it based on the actual connection between ecosystem and culture (i.e. focusing on WH criterion v as the main cultural criterion).

The main arguments and conclusions of this discussion can be summarized as follows:

- **Boundaries for a potential World Heritage site primarily need to reflect the distribution of the values of a property:** In contrast to many generic PA gap analysis methodologies like Langhammer et al. (2007), which take into account not only the distribution of values but also that of threats, pressures and manageability, the WHC Operational Guidelines define a very simple principle for boundary setting: Boundaries should primarily be defined by the distribution of the values for which the property shall be inscribed. Paragraph 101 of the OG spells out that "For properties nominated under criteria (vii) - (x), boundaries should reflect the spatial requirements of habitats, species, processes or phenomena that provide the basis for their inscription on the World Heritage List. The boundaries should include sufficient areas immediately adjacent to the area of Outstanding Universal Value in order to protect the property's heritage values from direct effect of human encroachments and impacts of resource use outside of the nominated area". If the aim is indeed to demarcate a potential natural/mixed World Heritage site, then the value distribution needs to be the most important criterion and political, socio-economic or logistical factors can only be of secondary importance.
- The natural values most relevant for boundary setting are those in relation to WH criteria ix and x: Since the success of a possible nomination under WH criterion viii is doubtful according to Garstecki & Amr (2011), and since values under WH criterion vii depend on those under WH criteria ix and x, the key criterion for the boundary setting of the property should be the distribution of values under WH criteria ix and x. This means the distribution and integrity of the three identified ecosystem processes (criterion ix) and of the endemic/near endemic and globally threatened species and subspecies (criterion x) need to be made the basis for the boundary setting.
- **The preliminary assessment of Garstecki & Amr (2011) suggests that the distribution of the identified values relevant to WH criteria ix and x is concentrated in Al-Hawizeh Marsh and – to a lesser extent – East Hammar:** Garstecki & Amr (2011) concluded that most of the confirmed bird and mammal biodiversity is concentrated in Al-Hawizeh Marsh and that the likelihood of the presence of unconfirmed vertebrate biodiversity is also highest there. Fish and invertebrates appeared to also have high biodiversity at East Hammar (partly because of the brackish character of this marsh), but this was not considered sufficient to outweigh the higher bird and mammal biodiversity in the former marsh. Since two of the three ecosystem values relevant to WH criterion ix also depend on biodiversity, the conclusion about the maximum potential for OUV at Al-Hawizeh holds true for this criterion as well.

Based on this preliminary assessment, a potential World Heritage nomination under natural criteria would probably have the highest likelihood of success if it would include Al-Hawizeh Marsh. According to the information available, Al-Hawizeh holds the highest natural values under WH criteria ix, x, and (as a consequence) potentially vii. Additional Marshes (e.g. Al-Hammar and/or Abu Zirig) could be added to this area to widen the representation of ecosystem types and species included in a potential nomination, but it appears unlikely that a nomination focused on those sites exclusively would stand.

However, the management planning team may wish to revisit the preliminary conclusions of Garstecki & Amr (2011) and the corresponding suggested boundaries of the property. In order to do so, the team should address the following questions:

- Where exactly within the marshes are the core values relevant to the chosen World Heritage criteria, and particularly to World Heritage criteria ix and x concentrated?
- Should there be additional areas included in the property, and should there hence be a serial nomination?
- Shall there be buffer zones included in the nomination? If yes, how big and where?

An approach/methodology for addressing each of the above questions in the framework of Objective setting and activity formulation (see Section 3.3, thematic area No. 15) is suggested below.

6.1 Site selection methodology

The following criteria should be used sequentially for site selection:

- **Distribution of values:** Where exactly are the values located? This question needs to be answered based on available data (e.g. from Nature Iraq's KBA work) and potentially based on additional field studies (see Section 8). Table 9 can be used as an analytical tool to find out where most of the values of the Marshes are concentrated. This is by far the most important criterion for site selection.
- **Inclusion of (the) entire hydrologically connected area(s):** Wetland ecosystems are defined by their hydrological connectedness, and the same is true for ecosystem level processes with potential relevance to WH criterion ix. Therefore, inclusion of the entire hydrologically connected ecosystem(s) of the Marsh(es) constituting the envisaged property appears to be the most appropriate principle for effective management of the ecosystem values present – and by extension of the biodiversity inhabiting the ecosystem.
- **Political feasibility:** There are also important political considerations to be taken into account. From a long-term perspective, it will be impossible to manage any trans-boundary site without adequate complementary protection of the parts of the ecosystem outside Iraq. This applies to Al-Hawizeh, which on the long run would require some cooperation by the Iranian authorities for effective management. The water allocation to this marsh is currently compromised because of a dam that was constructed along the Iraq-Iran border, and it will be important to gain support from the Iranian site to conduct the necessary engineering works to restore hydrological connectivity. The MoE and the management planning team need to assess to what extent this prerequisite for a successful management of a World Heritage site involving Al-Hawizeh can be met. This issue is discussed into more detail in Garstecki & Amr (2011). The lack of political feasibility would not automatically mean that another Marsh area can be inscribed instead. If nomination of the areas containing the richest biodiversity is politically unfeasible, and if the areas that could feasibly be nominated to not contain the main values of the area relevant to World Heritage criteria ix and x, then this may seriously compromise the chances of success of the nomination.
- **Synergies with existing designations:** From a practical point of view, a demarcation following existing designations may save efforts and create synergies. In the case of Al-Hawizeh, this applies to the existing Ramsar site there, which may offer a good basis for a designation of a potential natural/mixed World Heritage site and has already a draft management plan.

Therefore, the management planning team (1) needs to gain a more detailed picture of the distribution of key ecosystem and biodiversity values and use this knowledge to fill in Table 9. It then needs to (2) check if any part of the Marshes, is both particularly rich in these values and hydrologically sufficiently isolated to warrant nomination (either on its own or as part of a serial nomination).

Table 9. Format for deciding added value of component sites of the Marshes for inclusion in a potential serial property in the Marshes. All the key values of the Marshes of potential OUV as listed by Garstecki & Amr (2011) should be entered in the left-hand column of the Table, and their distribution between the individual Marshes analyzed as shown in the example.

Values (copy-paste key values under World Heritage criteria ix and x from Garstecki & Amr plus additional known values)	E Hammar	W Hammar	Chibayish	Al-Islah	Dawaya	Prosperity R.	Glory R.	Al-Hawizeh	Majnoon	Al-Sanaaf	Others...
Explanation: Occurrence or distribution of values of potential OUV in each Marsh	Indicate for each marsh to what extent each identified value occurs there, either using % distribution or a semi-quantitative scoring system (0-5 points for no occurrence to main stronghold of occurrence)										
Example: Occurrence of diadromous shrimps and fish	-	5	1	-	-	-	-	-	1	-	-
Add additional lines for additional values	...	...	...	...	...	...	...	...	...	...	...
Sum for overall comparison of Marshes	x	y	z	...	...	...	...	...	...	...	...

6.2 Single site or serial site?

The following criteria should be used sequentially to answer the question if one site should be demarcated as a single site or as a serial site together with additional Marsh areas:

- Added value of additional areas:** The key question in to answer in order to decide if a potential natural/mixed World Heritage nomination and corresponding management planning process should be for a single site only or for a serial is whether the addition of those sites would significantly increase the OUV of the site (Engels et al. 2009). This question can be answered with reference to the value description for the entire Marshes as contained in Garstecki & Amr (2011), and again with reference to Table 9 have compared the contribution of individual component sites of a serial World Heritage property to the chapters of a book – each chapter should tell its own part of the overall story, or should be omitted. In the case of the Marshes, a comprehensive representation of the potential OUV could for instance be achieved by including sites of different salinity, such as Al-Hawizeh and East Hammar.
- Integrity of values in additional areas:** Not only do additional sites need to contribute significantly to the overall OUV of a potential serial property – their values also have to be present at a sufficient level of integrity. In other words, the management planning team needs to be careful not to compromise the overall integrity of the final property by adding sites of poor integrity to a serial nomination.

- **Connectivity:** While not an official requirement of the WHC Operational Guidelines, it would strengthen any serial nomination if the component sites would be functionally connected by the processes that constitute the potential OUV of the overall property. For instance, if the main resting/wintering locations of migratory water birds are distributed between several marshes, or if these birds use one site for feeding and another for sleeping (for instance), then this would strengthen the case for a serial nomination. The same may be true if populations of key species under criterion x are shared between several marsh areas.
- **Practicability and logistical criteria:** Serial sites tend to be more difficult to manage than simple sites (see Engels 2008a, b for a more detailed discussion of potential management setups), and the management planning team may decide that, given the overall challenges to develop capacity for ecosystem and biodiversity management in Iraq, a simple site may be enough of an undertaking for the time being. This reasoning would appear particularly justified if the added value of including several marsh areas into a potential serial property would turn out to be marginal only, upon more in-depth analysis.

Section 6.5.3 of Garstecki & Amr (2011) provides some additional considerations in relation to the possible establishment of a serial property in the Marshes. The easiest approach to a potential serial property would probably be to have one overall management plan, because none of the existing potential component sites currently have effectively implemented management plans, and only coordinated management planning would result in a coherent management regime.

6.3 Definition of buffer zones

According to Paragraph 103 of the WHC Operational Guidelines, "wherever necessary for the proper protection of the property, an adequate buffer zone should be provided". Paragraph 104 adds that "for the purposes of effective protection of the nominated property, a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection. The area constituting the buffer zone should be determined in each case through appropriate mechanisms. Details on the size, characteristics and authorized uses of a buffer zone, as well as a map indicating the precise boundaries of the property and its buffer zone, should be provided in the nomination."

Buffer zones are also a standard feature of protected areas in general. This raises the following central question for the planning of a buffer zone for a property in the Marshes.

- **Against which pressures and threats originating outside the property could a buffer zone protect its values, and how would the buffer zone need to be designed to effectively fulfill this protective function?**

In order to answer this question, the known pressures and threats (see Garstecki & Amr 2011) to the site need to be systematically assessed, for instance using a tabulated format as shown in Table 10.

Such an analysis would show, for instance, that the overall quantity of available water as a main pressure on the values of the property cannot be improved by establishing a buffer zone, whereas non-point water

pollution from agricultural areas and domestic sewage could be addressed through a "hydrological buffer zone" with the corresponding restrictions on pesticide/fertilizer use and sewage discharge. Similarly, the aesthetic values of the property (which may be relevant to a potential nomination under WH criterion vii) could be protected by banning major construction projects from the immediate vicinity of the property, where they might impair the visual impression of the property.

From the above reasoning, it is obvious that buffer zones need to be designed from a functional point of view, i.e. with an explicit idea against what they should buffer and how. Practically, this means that there may be several overlapping buffer zones with different management prescriptions (even if formally they are all part of one legally designated buffer zone). A hydrological buffer zone will have a different management regime and extent than a "visual" buffer zone prohibiting major construction projects.

Generally, buffer zones only make sense if their conservation regime – and most importantly that of the core property that they surround – is effectively enforced. Therefore, the design of buffer zones needs to go hand in hand with the development of a strong and widely accepted enforcement regime and implementation capacity (see Objectives, thematic areas 18-20) for the overall property.

Table 10. Derivation of the need and specifications for a buffer zone from the pressures and threats affecting the property.

Identified pressure or threat to the property	Potential of the pressure to affect the property from outside	Description of need for buffer zone
Explanation: Use checklist of IUCN-CMP (2010) and Column 2 of Table 6 to identify and enter pressures and threats affecting the property, in order of importance.	Assess if the pressure/ threat could affect the values of the property from its outside.	For those pressures that could have an effect from the outside: Define need for buffer zone (size – "thickness", management prescriptions) necessary to minimize impact on property
Example: Pressure: 9.3 Agricultural effluents (pesticide contamination and nitrification of property from non-point agriculture sources)	Yes, negative impact of effluents from the entire watershed feeding into the Marsh area in question	1 km extensive agricultural use zone (grazing and extensive meadows only) around the property and all major tributaries, 100 m uncultivated strip with natural vegetation around property.
Add additional lines for all values..	...	...
Aggregate need for overall buffer zone		Description of buffer zone that consolidates all the pressure-specific needs for buffer zones listed in this column above.

7 Evaluation of baseline information and prioritization of knowledge gaps

Garstecki & Amr (2011) summarized the available baseline information for ecosystem and biodiversity management in the Marshes, and concluded that the values present warrant efforts at establishing a sustainable management regime and a potential nomination as a mixed World Heritage site involving WH criteria ix and x, and potentially vii, among the natural criteria. They further identified 21 important value related and another 13 management related knowledge gaps with direct relevance to a potential nomination and management planning process in the Marshes.

The question now is to what extent this baseline information needs to be actualized and re-evaluated, particularly from a management planning point of view, and taking into account the information needs for management planning specified in Section 3.3.2 – 3.3.5 of this document. Secondly, the knowledge gaps identified by Garstecki & Amr (2011) need to be compared to information that has become available since, and also need to be re-evaluated from a management planning point of view.

7.1 Actualization and re-evaluation of baseline information

The revision process during the finalization of the screening study (Garstecki & Amr 2011) and the results of the workshop on 17 February 2012 with key Iraqi experts did not reveal any major factual mistakes or errors of evaluation in the study. One set of additional comments on the avifauna of the Marshes has since been received by IUCN (Salim 2012) and is provided separately.

While no major errors or misjudgments were identified since the publication of the screening study, it has become obvious that current natural resource use patterns in and around the Marshes including their impact on the identified ecosystem and biodiversity values and their contribution to the livelihoods of the local inhabitants need to be considered more thoroughly, in order to integrate a sustainable NRM component into the overall management regime. This is true for fisheries resources, reed and pasture (including for water buffalo), and hunting on waterfowl. The management methodology in Section 3.3 contains specific guidance on how this issue can be researched into more detail in order to inform the management planning process.

With the exception of this information and the specific knowledge gaps identified below, the already compiled information will be sufficient to initiate a management planning process aimed at sustainable ecosystem and biodiversity management in the Marshes. An additional actualization of this information will remain a continuous task of the management planning team.

7.2 Re-evaluation and prioritization of knowledge gaps

The screening study of Garstecki & Amr (2011) put most emphasis on information relevant to the discussion of potential OUV in the Marshes. Although there is considerable overlap between the research needs in preparation of a Statement of Outstanding Universal Value in the context of a possible World Heritage nomination on the one hand and the more general research needs for sustainable ecosystem and biodiversity management on the other hand, there is a need for choosing those knowledge gaps that are most relevant to the management of the property.

Therefore, a re-evaluation and prioritization of key knowledge gaps in relation to the management planning process as identified by Garstecki & Amr (2011) is presented in Table 11 (scientific research needs) and Table 12 (research needs related to the management framework). The criteria for the prioritization are (1) the relevance for management decisions (the more relevant, the higher the priority), (2) the degree to which some information to fill a given knowledge gap is already available (the more is available, the lower the priority), and (3) the potential for better informed management actions to really improve the status of ecosystems and biodiversity.

For the re-evaluation and actualization of knowledge gaps, the participants of the workshop on 16 February 2012 were presented a questionnaire and asked to enter any new information (publications, laws etc.) for each knowledge gap. The results of the planning workshop on 17 February 2012 were also fed into this re-evaluation.

Ten of the scientific research needs and five of the management framework related research needs were characterized as high priority by the re-evaluation (Tables 10 & 11). Among the scientific research needs, the main reasons for prioritization of knowledge gaps were the need to

- understand the values of the property (knowledge gaps 13, 14, 17),
- set meaningful boundaries for the property (knowledge gaps 6, 13, 14, 17),
- define a desired conservation state of ecosystem and hydrological system (knowledge gaps 2, 7, 9),
- develop effective management activities to reach objectives (knowledge gaps 12, 10, 16), and
- develop a sustainable NRM regime for the Marshes jointly with local resource users, including an understanding of acceptable/sustainable use levels and techniques for the main resources of the property (knowledge gaps 12, 16).

Concerning the values of the site, it appears particularly striking that none of the mammal or reptile species highlighted as potentially contributing to the OUV of the property under WH criteria ix and x by Garstecki & Amr (2011) were found during the KBA 2010 site review (NI & MoE 2011). One of the key bird species (*Ardea goliath*) was apparently also not found. Irrespective of the potential OUV question it is crucial to understand these key elements of the biodiversity of the Marshes, in order to develop a meaningful conservation regime.

In relation to the management framework, the main reasons for prioritization of knowledge gaps were the need to

- understand the legal, policy and planning framework for sustainable ecosystem and biodiversity management in the Marshes (knowledge gaps 1, 3, 4),
- understand potential constraints on the location or management of a future PA in the Marshes (knowledge gaps 10, 11),
- embed the ecosystem and biodiversity management planning process into the wider management and development planning of the Marshes, particular in relation to the water allocation (knowledge gaps 3, 4).

When talking about the requirement to better understand the legal, policy and planning framework for the Marshes, it needs to be kept in mind that part of the limited understanding of this framework is caused by the fact that it is still under development. Since a clear framework is needed as a prerequisite for an effective management regime for a property in the Marshes, this highlights the need to continue the various initiatives aimed at legal, policy and institutional framework development at the national level.

The high priority knowledge gaps should be closed as early as possible during the management planning process. This is reflected in the methodological recommendations below and in section 3.3 on the management planning methodology (plus the budget in Section 4.2), which include actions at filling them.

Table 11. Re-evaluation and prioritization of scientific knowledge gaps as identified by Garstecki & Amr (2011) and

Knowledge gap	Relevance to OUV	Management relevance
1. Description/ documentation of development of water level in Marshes since spring 2010	Integrity of OUV criterion ix	Management baseline for water allocation planning
2. Minimum discharge and hydroperiod to maintain Marsh succession and seasonality	-	Definition DCS for water allocation objective setting
3. Secondary succession of Marsh ecosystem since reflooding (trends, drivers, stable states)	Integrity of OUV criterion ix	Definition DCS for water allocation objective setting
4. Occurrence and status of endemic and globally threatened plant species	OUV criterion x	Definition DCS for criterion x
5. Economic and livelihood value of reed and other plants	-	Participatory sustainable NRM planning
6. Differences between flora, vegetation and plant species richness between individual marshes	Distribution of OUV criteria ix, x	Boundary setting, decision on serial property
7. Tolerance limits for key plant species and vegetation to desiccation, salinization, nutrification, temperature etc.)	OUV criterion ix, x	Definition of DCS for criteria ix, x particularly in terms of acceptable limits of these factors
8. Current status of endemic (to the Euphrates/Tigris system) fish species	OUV, integrity criterion x	Definition DCS for criteria ix, x
9. Habitat requirements and ecological tolerances of Marsh fish	-	Activity setting criteria ix, x
10. Impact of introduced fish species	Integrity criterion x	Definition of DCS, activity setting for criterion x

d identification of responsible and/or competent entities for filling them.

New information post-2010	Possible responsible institution/person	Priority
CRIM data, UNAMI-UNCT (2011)	CRIM	Low (development of water level already being monitored by CRIM)
-	CRIM (?)	High (important prerequisite for management objective setting)
NI & MoE 2011, Salim 2011	Nature Iraq, Academic institutions	Medium (useful to understand scope and constraints on Marsh recovery but no immediate management implications)
NI & MoE 2011, but no specific information on plants found yet	Nature Iraq	Medium (data on Marsh plants not included in NI & MoE 2011 publication, important for objective setting)
-	Ministry of Agriculture	Medium (critical for developing sustainable NRM programme, jointly with local stakeholders)
NI & MoE 2011, Salim 2011	Dr. Agab, Thi Qar Uni, Marsh Research Centre; Dr. A. A. Alwan, Basrah Uni	High (important for boundary setting)
-	Colleges of Agriculture of Thi Qar and Basrah Uni (?)	High (important for water allocation including water quality objective setting)
-	Dr. Brian Coad; Dr. Talib Uqaab (+964 78801202916); Thi Qar Uni Marsh Research Centre; Basrah Uni, Natural History Museum	Low (situation recently summarized by Coad 2010, little added knowledge attainable)
	As above	High (important for water allocation including water quality objective setting)
	Mr. Hussein Al-Assadi; Marine Science Centre of Basrah Uni	Medium (generally important to know but limited management relevance, as there is little that can be done) High (potential threat from species currently in cage aquaculture within Marshes)

11. Importance of individual marsh areas for diadromous fish species	Distribution of OUV criteria ix, x	Boundary setting, decision on serial property
12. Role of fisheries in Marsh inhabitants' livelihoods	OUV criterion v	Participatory sustainable NRM planning, threat assessment
13. Current status and distribution of the Euphrates Soft-shelled Turtle <i>Rafetus euphraticus</i> in the Marshes	OUV, integrity criterion x	Definition of DCS for criterion x
14. Current status and distribution of globally threatened species, endemic subspecies and isolated populations of birds	OUV, integrity criterion x	Definition of DCS for criteria ix, x
15. Current quantitative importance of the Marshes as a waterbird resting / wintering area	OUV criterion ix, x	Definition of DCS for criteria ix, x, boundary setting
16. Current extent of hunting pressure on waterbirds in the Marshes	Integrity criteria ix, x	Activity planning for criteria ix, x
17. Current status and distribution of <i>Lutrogale perspicillata</i>, <i>Allactagus euphraticus</i>, <i>Nesokia bunnii</i> and <i>Myotis cappacini</i>	OUV, integrity criteria ix, x	Definition of DCS for criteria ix, x
18. Current status of insectivorous bats in the Marshes	OUV, integrity criteria ix, x	Definition of DCS for criteria ix, x
19. Current status of globally threatened dragonfly and butterfly species in the Marshes	OUV, integrity criterion x	Definition of DCS for criteria ix, x
20. Status and trends of migratory shrimp species in the Marshes	OUV, integrity criteria ix, x	Definition of DCS for criterion ix
21. Are there important references on the outstanding natural beauty of the Iraqi Marshlands in the Arab literature?	OUV criterion vii	-

	Marine Science Centre and College of Agriculture of Basrah Uni	Medium (already clear that East Hammar appears most important for diadromous fish – little added knowledge attainable)
	Nature Iraq, Thi Qar Uni Marsh Research Centre	High (critical for threat assessment, objective setting e.g. on banning electrofishing, developing sustainable NRM programme, jointly with local stakeholders)
NI & MoE 2011, Salim 2011 (but no information on this species)	Nature Iraq; Mr. Salam Al-Hashmi, Basrah Uni Natural History Museum	High (high conservation value species possibly inhabiting Marshes)
NI & MoE 2011, Salim 2011 (but no information on some high conservation values species)	Nature Iraq, Dr. Mudhafar Salim	High (high conservation value species possibly inhabiting Marshes)
NI & MoE 2011, Salim 2011	Nature Iraq, Dr. Mudhafar Salim	planning, but some information available already)
NI & MoE 2011, Salim 2011	Nature Iraq, Dr. Mudhafar Salim	High (maybe an important secondary pressure on waterbirds in Marshes, also important for development of sustainable NRM programmes)
NI & MoE 2011, Salim 2011 (but no specific information on these species)	Mudhafar Salim,	High (high conservation value species possibly inhabiting Marshes)
	Nature Iraq	Medium (poorly known species group, some of high conservation value, but limited management implications)
NI & MoE 2011 (?)	Dr. M. S. Abdul-Rassoul (079 01664487), Baghdad Uni, Natural History Museum; Dr. Kadhum Salih, Basrah Uni, Dep. Of Biology	Medium (poorly known species group, some of high conservation value, but limited management implications)
	Basrah Uni, Marine Science Centre	Medium (both economic and conservation importance, but small species group only)
	?	Low (very limited management relevance)

Table 12. Re-evaluation and prioritization of management framework related knowledge gaps as identified by C (where not listed already) and organizations needs to be arranged at the beginning of the management planning

Knowledge gap	Relevance to OUV	Management relevance
1. Current legal basis for protected areas in Iraq (new legislation since 2009)	Management of OUV	Legal basis of management regime
2. Specific legislation on the establishment of a World Heritage site (or component protected areas thereof) in the Marshes	Management of OUV	Legal basis for WH designation
3. Main national policy/planning documents for ecosystem management and biodiversity conservation in Iraq (changes since 2009)	Management of OUV	Policy basis for introduction of ecosystem/ biodiversity management
4. Main national planning documents for ecosystem management in the Marshes	Management of OUV	As above
5. Existing and planned protected areas in the Marshes and relationship to possible World Heritage site (part of it or not)	Demonstration of ongoing management efforts	Avoidance of duplication of planning efforts
6. Estimated minimum available water quantity for the marshes until 2020	Integrity outlook	Feasibility of sustainable Marshes management
7. Ongoing hydrological management projects within or affecting the Marshes	Demonstration of already initiated improvement of water allocation	As above, potentially also a threat to hydrological integrity of Marshes
8. Existing plans to remove flood protection dams in the Marsh area	Management of OUV, integrity outlook	Identification of constraints to sustainable hydrological management
9. Ongoing projects on rational use of water in the area	Management of OUV, integrity outlook	Identification of opportunities for sustainable hydrological management
10. Ongoing or planned large infrastructure projects in the Marshes	Integrity of OUV	Identification of constraints to sustainable ecosystem management
11. Ongoing or planned oil exploration/ exploitation projects in the Marshes	Integrity of OUV	Identification of constraints to sustainable ecosystem management
12. Existing or expected regional development plans and spatial land use plans	Management of OUV	Identification of constraints to and/or opportunities for sustainable ecosystem management, potential mainstreaming tool
13. Changes in the institutional responsibilities and mandates for management of the Marshes since 2009	Management of OUV	Institutional framework for Marshes management

Garstecki & Amr (2011). A more detailed allocation of tasks between specific representatives of the below institutions is ongoing process.

New information post-2010	Possible responsible institution/ person	Priority
Draft PA regulation of MoE	National Committee for Protected Areas	High (effective ecosystem/ biodiversity management regime needs legal basis)
Heritage Law, implemented by Ministry of Heritage and Tourism	National Committee for Protected Areas	Medium (nomination but not management depend on legal basis in relation to World Heritage)
4th National Report to CBD, NBSAP and National Strategy for PA system development (under preparation)	Dr. Ali Abdul-Zahra Al-Lami, Advisor to the Minister of the Environment	High (consistency with national policy a key prerequisite for establishing effective management regime)
MoWR 25-year water master plan (under preparation)	National Committee for Protected Areas, CRIM	High (ecosystem management depends on water allocation)
Al-Hawizeh Ramsar site and MMNP apparently not actively managed to date; status of Al-Safia PA (Basrah Govt) unclear	National Committee for Protected Areas; Nature Iraq	Medium (some potential synergies but currently reportedly no functioning PAs in the Marshes)
See (4.) above	Mrs. Shaima Obaid Kream, CRIM	Low (estimates of minimum available water quality not likely to be reliable)
UNAMI-UNCT (2011)	Mrs. Shaima Obaid Kream, CRIM, National Committee for Protected Areas	Medium (potential to use lessons learned and integrate into overall hydrological management regime)
?	Mrs. Shaima Obaid Kream, CRIM	Medium (contribution to realization of hydrological management regime)
Several CRIM projects	Mrs. Shaima Obaid Kream, CRIM	Medium (contribution to realization of hydrological management regime)
-	Mrs. Aseel Adel Fattah, Ministry of Planning	High (may critically constrain plans to develop ecosystem and biodiversity management regime)
Shell Majnoon project to the South of Al-Hawizeh; CRIM coordinates with MoO	Ministry of Oil	High (may critically constrain plans to develop ecosystem and biodiversity management regime)
-	Mrs. Aseel Adel Fattah, Ministry of Planning; Mrs. Inam Ibrahim Mohammed Ali, Ministry of Municipalities and Public Works	Medium (need to mainstream sustainable ecosystem/biodiversity management into regional development and land use plans, but currently such plans appear to play a limited role only)
Dissolution of State Ministry of the Marshes, now MoWR mainly responsible, trends towards overall stronger decentralization to Governorates	National Committee for Protected Areas	Medium (institutional framework of property crucial, but continuity of MoE leadership in relation to WH nomination/management planning guarantees process sustainability)

8 Methodological suggestions for identified high-priority knowledge gaps

The knowledge gaps identified in Section 7 above will need to be filled by national experts, who in most cases will be the most competent persons to develop an adequate research methodology. However, a general recommendation for the overall approach can be made for closing each knowledge gap:

- **Water allocation (minimum discharge and hydroperiod to maintain Marsh succession and seasonality):** Desk study and options for concrete actions regarding minimum water allocations and hydrological management for the maintenance of key ecosystem and biodiversity values of the Marshes, in accordance with Action 2.5, building on published and existing information and scenarios (e.g. CIMI 2010, New Eden Group 2006) to the extent possible. See Action 2.5 for timeline and budget. Potential implementer: CRIM.
- **Differences between flora and vegetation between individual marshes:** Definition of a characteristic set of plant species for key habitats according to Abdulhasan et al. (2009) and comparison to published data of Alwan (2006), complemented by field surveys to the extent necessary. The research objective would be to identify the smallest set of marsh sites that encompasses all the key vegetation and habitat types, as well as key threatened and endemic species of flora. Timeline and budget: See Action 2.2 (one of four Actions). Potential implementer: Nature Iraq.
- **Tolerance limits for key plant species and vegetation to desiccation, salinization, nitrification, temperature:** Desk study to analyze published correlative and experimental studies including grey literature and unpublished data, complemented by simple field experiments in cooperation with an academic research institution of Iraq (e.g. Thi Qar or Basrah University). Objective is to define an envelope (multifactorial range) of abiotic environmental factors (as above) within which the Marsh vegetation can be expected to remain functional overall. Timeline and budget: See Action 2.2 (one of four Actions). Potential implementer: Thi Qar or Basrah University.
- **Habitat requirements and ecological tolerances of fish:** Desk study by a leading ichthyologist (preferably B. Coad, Canadian Museum of Nature) in cooperation with national experts. Objective is to define an envelope (multifactorial range) of abiotic environmental factors (as above) within which key species of the Marsh ichthyofauna can be expected to remain functional viable and reproductive.
- **Potential impacts of release of fish and other environmental impacts from aquaculture farms (cages):** Collection of information about the species used in aquaculture in and around the Marshes (or the use of which is planned), elaboration of a generic EIA on these fish by a national consultant with backstopping support from an international ichthyological expert (preferably B. Coads, Canadian Museum of Nature). Nitrification and similar effects of fish farms should be addressed by such an EIA as well. Timeline and budget: See Action 2.2 (one of four Actions). Potential implementer: Basrah or Thi Qar University.
- **Ecological and economic role of fisheries:** Socio-economic desk study and field survey on natural resources use and management (fisheries, hunting, grazing, reed harvest etc.) including its livelihood significance and ecological impact in the Marshes, as described in Action 2.4 of Section 3.3.2. Identification of particularly damaging natural resource use methods

(e.g. electro-fishing, use of poisons) and suggestion of alternatives. Participatory elaboration of scenarios for sustainable NRM in the Marshes. See Action 2.4 for timeline and budget. Potential implementer: Nature Iraq.

- **Ecological and economic role of hunting:** See above.
- **Current status and distribution of Euphrates Soft-shell Turtle *Rafetus euphraticus*:** Field survey by national experts based on a concise habitat/lifestyle profile elaborated by international experts on the species or the genus *Rafetus*. Objective is to determine if the species occurs in the Marshes or not (and if yes, where exactly). Can be combined with the following two investigations. Timeline and budget: See Action 2.2 (one of four Actions). Potential implementer: Nature Iraq.
- **Current status and distribution of globally threatened species endemic subspecies and isolated populations of birds (including *Ardea goliath*):** Field survey by national experts based on a concise habitat/lifestyle profile elaborated by international ornithologists. Objective is to determine if the species occurs in the Marshes or not (and if yes, where exactly). Can be combined with the two investigations above and below. Timeline and budget: See Action 2.2 (one of four Actions). Potential implementer: Nature Iraq.
- **Current status and distribution of *Lutrogale perspicillata*, *Allactagus euphraticus*, *Nesokia bunnii* and *Myotis cappacinii*:** Field survey (also looking for indirect evidence including feces or testimony by local inhabitants) by national experts based on a concise habitat/lifestyle profile elaborated by international experts on these species. Objective is to determine if these species occur in the Marshes or not (and if yes, where exactly). Can be combined with the two investigations above. Timeline and budget: See Action 2.2 (one of four Actions). Potential implementer: Nature Iraq.
- **Legal basis for protected areas:** Analysis of Iraqi legislation other than the draft regulation on PAs for provisions relevant to PA establishment and management (e.g. legislation on land use and tenure, infrastructure development, EIA and SEA etc.). Analysis of draft PA regulation and recommendations for amendments if needed. Can be implemented jointly with the two investigations below – see Action 2.3 for timeline and budget.
- **Main national policy/planning documents for ecosystem management in biodiversity conservation in Iraq:** See above.
- **Main national planning documents for the Marshes:** See above.
- **Ongoing or planned large infrastructure projects in the Marshes:** Enquiry and establishment of regular communication mechanism between the MoE and relevant Ministries (e.g. Ministry of Municipalities and Public Works) and Governorate authorities. Mapping of ongoing and planned large infrastructure projects in the Marshes as an input into management planning.
- **Ongoing or planned large oil exploration/exploitation projects within the Marshes:** Enquiry and establishment of regular communication mechanism between the MoE and the Ministry of Oil, possibly building on existing communication channels between the Ministry of Water Resources and the Ministry of Oil. Mapping of ongoing and planned

oil/exploration/exploitation projects in the Marshes as an input into management planning. Detailed analysis of possible impacts of the operation of Majnoon Oil Field on potential parts of the property (particularly the southern part of Al-Hawizeh) by a national consultant, based on the discussion of the issue in Garstecki & Amr (2011).

The largest of the above investigations have been included as separate actions into the management planning methodology, and budgeted accordingly. Additional knowledge gaps including the high priority ones listed above are covered and budgeted under Action 2.2 of the Management Planning Framework (section 3.3.2).

9 Template for draft interim management plan

The Operational Guidelines of the WHC leave open the possibility not to submit a finalized management plan with a possible nomination file, but to delay submission by a limited period (usually up to 2 years, according to IUCN (2008)). It is not clear if this could be relevant to a possible nomination of the Marshes, as it appears that there is still sufficient time for a full management planning process for the property, because of the timeline for the finalization and submission of a potential nomination file itself.

Paragraph 115 of the WHC Operational Guidelines states that "In some circumstances, a management plan or other management system may not be fully in place at the time when a property is nominated for the consideration of the World Heritage Committee. The State Party concerned should then indicate when the management plan or system will be fully in place, and how it proposes to mobilize the resources required to achieve this. The State Party should also provide documentation which will guide the management of the site until the management plan or system is finalized fully in place." IUCN (2008) gives further guidance on the scope and content of interim provisional management plans for World Heritage properties.

This Section provides a template showing how the management planning team could meet the above requirements in case the management planning process set out in Section 3 of this framework has not been completed by the time the State Party wishes to submit a nomination. **A complete interim management plan cannot be written at this stage**, because of the following reasons:

- The boundaries of the property have not been defined by the State Party yet. This would be a direct prerequisite for an interim management plan, but it is also crucial in an indirect way as specific management objectives and prescriptions for the management of the property would depend on its exact location,
- There is no legal basis for the legal establishment of a PA at the property yet, and the PA Regulation is currently only at the draft stage. The interim management plan will need to be legally binding and this will only be possible once the exact wording of the PA Regulation has been decided and it has been officially approved,
- Setting a detailed management vision and objectives requires extensive input of national/local knowledge and expertise, which will be made available by bringing together relevant experts during the management planning process only.

However, the existence of the baseline study on a potential World Heritage nomination and a clear

roadmap on how to develop a management plan (this document), together with the fact that there are already management plans for two sites within the Marshes – the Al-Hawizeh Ramsar site (Nature Iraq 2008a, b) and the Mesopotamian Marshes National Park (New Eden Group 2010a, b) – means that construction of an interim management regime would be feasible if indeed the main management planning process is still under way at the time of nomination.

9.1 Documentation of the ongoing management planning process

In order to comply with Paragraph 115 of the OG, a documentation of the ongoing management planning process should be submitted with a possible nomination. This should focus on the following evidence:

- **Statement of commitment:** An explicit commitment of the MoE or another appropriate representative of the State Party to produce a full management plan by an explicitly stated date.
- **Documentation of already initiated management planning efforts:** The screening study of Garstecki & Amr (2011 and this document), both of which benefited from the input of the MoE and other key Iraqi stakeholders, both clearly document that the management planning process for the Marshes has been initiated.
- **Documentation of progress with the implementation of this management planning framework:** If implementation of this management planning framework has commenced by the time of a possible nomination, the State Party could submit a progress report which describes the management planning steps that have already been taken by the management planning team.
- **Documentation of resource mobilization:** Any funds mobilized from the State Budget, the World Heritage Fund or other donors, to support this management planning process, should be documented by the State Party as a further indication of its commitment to follow through with the management planning process.

In combination, these four elements will demonstrate sufficiently clearly that the State Party is complying with the first part of Paragraph 116 of the WHC OG (second sentence). What remains to be demonstrated then is how the State Party is complying with the second part of Paragraph 115: "(...) The State Party should also provide documentation which will guide the management of the site until the management plan or system is finalized fully in place."

9.2 Reference to existing management plans as an interim solution

Depending on the site(s) that are finally chosen for inclusion in a potential natural/mixed World Heritage nomination, it might theoretically be possible to adapt and use the management plans for Al-Hawizeh Ramsar site (Nature Iraq 2008a, b) and/or the Mesopotamian Marshes National Park (New Eden Group 2010a, b) – one of the two existing management plans mentioned above as an interim management plan.

However, none of these plans were considered fully adequate for guiding sustainable ecosystem and

biodiversity management in the Marshes by Garstecki & Amr (2011). The main weaknesses in these plans as pointed out by the screening study would need to be eliminated, the link to the potential OUV would need to be clarified, and the complex system of goals and recommendations of them would need to be replaced by a clearer logical framework and SMART objectives. While the descriptive sections of the Al-Hawizeh Ramsar site and MMNP management plans may be useful, it would not be practicable to change a few actions in these plans and thereby make them a useful basis for short-term management of these component sites. Therefore, no further efforts have been made to adapt and use these plans.

9.3 Elements of the interim management plan

According to IUCN (2008), the following elements are essential for an interim management plan:

- A commitment to implementing the plan to fulfill the obligations of the World Heritage Convention.
- An initial assessment and factual statement of the condition of the property's natural values, including its features of Outstanding Universal Value, and an indication of their relationship to its other characteristics.
- A review of the issues and challenges associated with maintaining the property's values and integrity within its local geographic and socio-economic context.
- The long term ambition for the property, i.e. its vision and objectives.
- The legislative policies and measures provided or to be introduced, and the financial and human resources to be provided in order to prevent the property's integrity from being compromised prior to completion of the complete plan.

The following sections discuss how each of these minimum requirements can be met by an interim management plan.

9.3.1 Commitment to implementing the plan to fulfill the WHC

In the case of a potential nomination, the interim management plan should be accompanied by an official statement of commitment to the implementation of the World Heritage Convention and its Operational Guidelines through nomination of a natural/mixed World Heritage site in the Marshes, and the finalization of the management planning process as mapped by this document, as well as the implementation of the resulting plan.

This statement needs to be made by a sufficiently high Government institution (ideally the Council of Ministers in the case of the Iraqi Marshes) and should also be officially endorsed by other key stakeholders, including the Ministry of the Environment and Ministry of Water Resources, and the Governorates on which the property will be situated.

The statement could read like the following: "The **Council of Ministers** of the Republic of Iraq is fully committed to the implementation of the World Heritage Convention and its Operational Guidelines

through the nomination of a natural/mixed World Heritage site in the Iraqi Marshes, and to the full resourcing and finalization of the management planning process as defined by Garstecki (2012) until the year 20XY. The Council of Ministers of the Republic of Iraq is equally committed to the full resourcing and implementation of the resulting management plan in agreement with the Iraqi legislation (particularly the Regulation on Protected Areas management, Establishment and Generation), to safeguard and maintain the Outstanding Universal Value of the site. This commitment is fully shared and particularly supported by the Ministry of Environment, the Ministry of Water Resources, and the Governors of the Governorates of Basrah, Maysan and Thi Qar".

9.3.2 Initial assessment of the property's natural values, including its OUV

An **initial** assessment of the property's natural values including its potential OUV is provided by Garstecki & Amr (2011). Section 4 of the screening study could be annexed to the interim management plan. The more of the knowledge gaps as discussed in Sections 7 and 8 of this document can be closed (and the screening study be amended accordingly) the better.

9.3.3 Review of the issues and challenges

An initial review of the issues and challenges that the property is facing is also included in Garstecki & Amr (2011) – particularly in Sections 4.3.3, 4.4.2, 4.5.4, 4.6.7, 5, and 6.4. These sections could be updated and annexed to the interim management plan to fulfill this requirement. If the management planning steps described in Sections 3.3.3 (assessment of values including their status) and 3.3.4 (assessment of constraints and opportunities) of this management planning framework have already been completed by the time of submission of a possible nomination, then the outcomes of these sections should be included in the interim management plan.

9.3.4 Vision and objectives

In the overall management planning process for the Marshes, the visions and objectives are derived from an actualized and revised version of the screening study of Garstecki & Amr (2011), plus a reevaluation of all the values of the future property and a reappraisal of constraints and opportunities. If these management planning steps have already been taken by the time the nomination and the interim management plan is submitted (e.g. if the draft management plan has already been produced, but not been publicly consulted yet), then the step on vision and objective setting as described in Section 3.3.5 of this planning framework should be brought forward, so that its outcomes can already be included in the interim management plan.

If this is not the case, then the management planning team needs to develop an interim vision and interim objectives for each of the thematic areas included in Section 3.3.5. An interim vision could read as follows:

"In 25 years, the Iraqi Marshes including the area of the property nominated for inscription will have been restored to 75% of their 1973 extent, and will be supported by a water allocation of

XY billion m³ per year on average. The Marsh ecosystem including its ecological succession, function as a resting and wintering area of global importance for migratory waterbirds, role as a hotspot of evolution and speciation, and function as a habitat of endemic and globally threatened biodiversity will have recovered its full functionality within these areas, and the unique Maidan lifestyle that is based on the sustainable use of this ecosystem will have been revived. The Marshes including its ecosystem and biodiversity will be managed in a sustainable way for the benefit of local inhabitants and resource users, the Iraqi people and humankind."

Instructions for the formulation of interim objectives are included in Section 3.3.5.

9.3.5 Legislative policies/measures and resources until completion of full plan

This part of the interim management plan will need to prove that the overall legislative, policy and institutional framework for ecosystem and biodiversity management in Iraq and particularly in the Marshes is conducive to safeguarding the identified values of the Marshes even until the full management plan has been finalized and approved and is being implemented. This should be shown on the legislative, policy, institutional and resource level:

- **Legislative level:** The adequate proof of a favorable legislative framework for Marsh conservation will exist once the draft Regulation on PA Management, Establishment and Generation has already been approved and the prospective property has already been legally established under this Regulation by the appropriate Government institution of Iraq. If these requirements have not been met yet, than the progress towards them should be described and other, weaker forms of legal designation should be applied and declared as part of the interim management plan.
- **Policy level:** This section should demonstrate that the conservation and sustainable management of the Marshes is a policy priority of the Government of Iraq. This can be shown first and foremost by highlighting relevant commitments of Iraq under Multilateral Environmental Agreements, such as the Convention on Biological Diversity. Relevant parts of Iraq's Fourth National Report to CBD or of the upcoming National Biodiversity Strategy and Action Plan (NBSAP – in preparation in collaboration with UNEP) would need to be referenced to achieve this. National strategies such as the planned PA system development study of Iraq should also be cited. To show wider Government support beyond the Ministry of Environment, any commitments to water allocations to the Marshes under the Water master Plan of Iraq, which is reportedly being prepared by CRIM currently, should be highlighted in this section.
- **Institutional level:** The establishment of the national Committee for on PAs, which is headed by Dr. Al-Lami, is the most relevant institutional development that should be mentioned in the interim management plan. Any already established PA management bodies in the Marsh area itself should also be listed to show that a favorable institutional framework for the sustainable management of the Marshes is under construction.
- **Resources:** Significant resources have been dedicated to creating the basis for the sustainable management of the Marshes already, including through the UNEP-UNESCO World Heritage Initiative for the Marshlands. These resources plus any additional resources mobilized

by the Ministry of the Environment (be it from donors or the state budget) should be listed to document that the management of the marshes will be sufficiently resourced until the approval and implementation of the final management plan.

In combination, documentation of these ongoing efforts and developments will result in an interim management plan that will be sufficient to bridge the gap until the finalization of the overall management planning process.

In any case, it will be best if the State Party has the full management plan developed by the time a nomination file is submitted for a Marsh property. The interim management plan according to Paragraph 116 of the OG is merely a contingency, and intended more the nomination than for detailed guidance of management actions.

Other than committing a sufficient water allocation to the Marshes (reportedly somewhere in the order of 8 billion m³ annually – see UNAMI-UNCT 2011), the most high-priority immediate measure to improve ecosystem and biodiversity management in the Marshes is the initiation of a broad, participative management planning process as explained in Section 3.3 of this management planning framework.

10 Development of a stakeholder engagement strategy

The Marshes present a complex stakeholder environment, ranging from small fishermen and pastoralists to some of the largest private business companies worldwide. These stakeholders need to be addressed in a planned and systematic way, in order to maximize stakeholder ownership and support to sustainable ecosystem and biodiversity management. Without proactive and extensive stakeholder engagement, there is a significant risk that any protected area established in the Marshes (be it a World Heritage site or not) will end up as a "paper park" – a protected area that only exists on paper but not in reality.

The public consultation of the draft management plan for the Marshes will be a key element of the stakeholder engagement for the planned property (see Section 3.3.8), but this needs to be accompanied by a wider communications and participation effort (see Action 1.6 for timing and estimated budget). This effort should involve an in-depth stakeholder analysis, the definition of objectives for informing and involving key stakeholders, and specific activities to meet these objectives, based on an adaptive management approach.

10.1 Stakeholder analysis

As a first step, a stakeholder analysis needs to be conducted in order to gain a detailed understanding of who may need to be addressed in relation to the establishment of a PA and/or the initiation of sustainable ecosystem and biodiversity management in the Marshes. This stakeholder analysis needs to pay particular attention to the following categories of stakeholders:

- Municipalities of the areas concerned
- Governorate/provincial governments including planning authorities and those responsible for agriculture and natural resource use

- Informal local organizations, tribal leaders, CBOs
- Associations or other organizations of small scale natural resource users (farmers, pastoralists including water buffalo breeders, fishermen, hunters).
- Other national Ministries and national Government agencies including their branch offices at Governorate level
- Businesses, including agricultural businesses and extractive industry
- Nature conservation, environmental and sustainable development related NGOs with activities or interests in the Marshes

Following a tentative first decision on the area of a future PA in the Marshes, the management planning team needs to establish who/which exactly are the relevant individuals and institutions within each of the above categories, and why they are stakeholders. Institutions or individuals can be stakeholder of the management planning process for the following reasons:

- **Interests** (e.g. natural resource use interests or oil exploration interests).
- **Rights** (e.g. legal rights or competencies for policy and activities affecting the Marshes such as infrastructure development, or traditional use rights of natural resources).
- **Ownership** (e.g. land ownership).
- **Knowledge** (e.g. knowledge that could fill the identified knowledge gaps listed in Section 7 above).
- **Impact or influence** (e.g. impacted by the establishment of a PA through restrictions of access or natural resource use, or impacting the establishment through political influence, financing, public opinion leadership)
- **Contributions** (e.g. resources, funding, volunteer contribution of expertise, advocacy support etc.).

The results of this identification process, which should be informed by Section 7 of Garstecki & Amr (2001), previous experience of the planning team and input from existing local and national partners, could be summarized in tabular form as shown in Table 13.

Identified stakeholders will then be mapped on a power-interest grid (Imperial College London 2007) as shown in Table 14. This grid has two dimensions:

- On the interest axis, the strength of the stake (interest, right, knowledge) etc. is mapped. Those stakeholders that depend strongest on the Marshes, or for which the marshes are most important in another way, are mapped furthest on the right on this axis.
- On the power axis, the power of the stakeholders to influence the direction or outcome of the management planning process is mapped. It is important to note that "power" specifically refers to power to practically influence the planning and implementation of the management regime for a future PA, and does not necessarily imply general socio-economic power (although these

are often related). For instance, under weak law enforcement conditions, poor local resource users can have a very powerful impact on PA management, because they might simply continue unsustainable resource use practices.

- This mapping can be refined by mapping stakeholders in a more gradual manner, i.e. by replacing the dichotomy "high/low" with a gradual scale and mapping stakeholders accordingly.

It is also important to map the various stakeholders in relation to the overall management regime including its implementation, and not just the formal management planning process. Many local stakeholders may have only limited power in relation to the formal planning process but considerable power in relation to the implementation of the final plan on the ground (particular under weak enforcement conditions). They need to be engaged as powerful stakeholders from the onset, in order to avoid production of unrealistic plans.

This power-interest grid will be used in the objective setting step in relation to stakeholder’s engagement, in order to design specific sets of engagement objectives for each quadrant of the grid.

A preliminary stakeholder analysis at the management planning training workshop on 16 February yielded a wide range of stakeholders and a differentiated yet controversial picture of the relative powers and interests of the various stakeholders (Figure 1). It is obvious that this was only a first snapshot of the stakeholder spectrum affecting the management planning process and that a more in-depth analysis will need to be conducted during the main process.

Table 13. Analytical table for identifying and prioritizing stakeholders of the management process for the Marshes.

Stakeholder	Category	Description of stake	Interest	Power	Priority
Explanation: Name identified stakeholder	List category (national Government, local resource user, etc.),	Verbal description of stake (interest, right, ownership, influence etc.) in the Marshes	Score interest and power on a semi-quantitative scale of 1(low) to 5 (high)	Define priority for stakeholder engagement (very low, low, moderate, high, very high)	
Example: Oil company XY	business	Interest in large-scale oil exploitation in immediate vicinity of property	5	5	Very high
Add additional lines for additional stakeholders	...	...	...	...	...

10.2 Objective setting for stakeholder engagement

The objective setting for stakeholder engagement will be based on the analysis in the previous Section. Table 15 shows the overall generic engagement approach that will be taken for the organizations in each of the quadrants of the grid.

These four overall approaches for stakeholder engagement objectives are explained into more detail below:

- **Low power-low stake:** This stakeholder category will only have a minimum impact on PA management including the planning process and will accordingly not be addressed by major communication efforts. However, it will be important to monitor the status and involvement of the stakeholders in this group as they may transition into another category. Typically, stakeholders of this category can be involved and informed through general communication means (newsletters etc.) and invited to general information events.
- **Low power-high stake:** Stakeholders that have a strong interest in the management planning process but lack the means to affect (low power) it should in any way be kept well informed about this process. This can be through media such as newsletters or regular information events. However, the fact that a stakeholder has limited powers to influence the management planning process does not mean that their legitimate interests (e.g. livelihood dependency on natural resources from the Marshes) can be ignored. Since it is an overarching objective of the World Heritage Initiative to promote sustainable development in the Marshes for the benefit of their inhabitants and the overall population of Iraq, the stakeholder engagement strategy of the management planning process should reflect this. In practice, this may mean including efforts to increase the power of disfranchised stakeholders through socio-economic empowerment activities.
- **High power-low stake:** High power-low stake stakeholders are those stakeholders who might have a strong impact on the management planning process, based on their relevant institutional power, but are unlikely to do so because their interests or rights are only marginally affected by this process. It is often easiest to keep it this way, by satisfying the limited interests of these stakeholders – which should incur only limited costs to the project. Examples are line Ministries that have power but no strong interaction with sustainable ecosystem and biodiversity management in the Marshes. For instance, the Ministry of Health could be kept satisfied and supportive by including management activities that result in reduced bacterial pollution and improved public health in the Marshes.
- **High power-high stake:** This is the most important stakeholder group because it consists of stakeholders who may have both an interest and the ability to influence the management planning process. Examples may be strong national Ministries such as the Ministry of Oil, or strong local stakeholders such as tribal leaders in the Marshes themselves. These stakeholders need to be managed intensely, and the management plan needs to be negotiated with them from as early a stage as possible. All high power-high stake institutions/individuals should also be involved in regular stakeholder participation structures that will be developed according to Action 21 of Section 3.3.5.

Based on this overall differentiation of approaches to the various stakeholder groups, specific objectives can be derived for each stakeholder, and compiled in a stakeholder engagement strategy.

Each objective needs to formulate the desired state of support of the stakeholder in question. For the Ministry of Water Resources, for instance, the objective could read: "The Ministry of Water Resources supports, through its policy, planning and specific management actions including those of CRIM, the provision of a water allocation of XY billion cubic meters per year of YZ quality to the Marsh ecosystem."

In general, more specific objective setting will only be possible following the analysis as listed above and supported by the considerable local expertise of the management planning team and its wider network.

10.3 Definition of stakeholder engagement activities

Adequate stakeholder engagement activities need to be defined depending on the objectives developed for each of the stakeholder categories above. **These will be summarized as stakeholder engagement campaign, which is scheduled and budgeted as Activity 1.6.** While specific activities depend on the stakeholders and objectives, the general spectrum of stakeholder engagement measures for each category can be summarized as in Table 16. No specific activities are needed for low interest-low power stakeholders.

Another key way of stakeholder participation will be the public consultation of the draft management plan (see Section 3.3.8) and the participatory development of sustainable natural resource management plans in and around the property (see Section 3.3.5).

Table 16. Range of possible stakeholder engagement activities for each of the stakeholder categories as identified in Table 15. All the activities relevant to the lower interest/power categories are also relevant to the higher interest/power categories, but not vice versa.

Stakeholder category	Activities	Comments
High interest – low power	Circulation of CEPA materials such as newsletters, information events and information boards	These activities are mainly aimed at informing, i.e. a one-way flow of information to stakeholders.
	Announcement on MoE website and other relevant websites such as those	
	Press releases and media reports	
	Public consultation of draft management plan	Aimed at consultation of stakeholders during the management planning process, including the integration and use of stakeholders' views and expertise in the draft management plan.
	Townhall meetings	
	Involvement (through contract or voluntarily) in specific management planning tasks	
	Consultation committees	
Delegation of co-management authority to local organizations	Aimed at continuous involvement of stakeholders in the practical management of the site and the decision making processes on which it is based.	
Low interest – high power	Bilateral negotiations	Aimed at identifying and fulfilling the typically limited interests of this stakeholder category. These stakeholders are typically not interested in the management planning process itself, where it doesn't touch their specific interest.
	Joint planning to satisfy limited specific needs of stakeholders	
	Involvement in wider stakeholder consultation activities (e.g. draft management plan)	Only where an interest is explicitly stated by the stakeholder.
High interest – high power	Invitation to steering committee of management planning process	Aimed at giving special privileges to Government institutions and other high-power stakeholders (the latter only to the extent foreseen by Iraqi law), the support of which is a prerequisite for the establishment of a successful management regime.
	Involvement in internal review of draft management plan prior to public consultation (Government institutions only)	
	Involvement in formal approval of management plan by Council of Ministers (Ministries only)	
	Engagement to influence policy to promote sustainable Marshes management through policies and practice in respective spheres of authority	Proactive engagement of high power stakeholders to mainstream sustainable ecosystem and biodiversity management in the Marshes into their policies and practice.
	Involvement in governing body of PA (to the extent permitted under Iraqi law)	If a decision making body is established for each individual PA, then a limited number of high power stakeholders can be involved in it.

The stakeholder engagement campaign should be developed early in parallel to the initiation of the management planning process (see Section 4), and should be implemented, monitored and revised (if needed) based on adaptive management principles.

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12 Appendices

Appendix 1: Ramsar and UNAMI-UNCT checklist of wetland ecosystem services

BOX 1. [A] Indicative list of {ecosystem services} for the evaluation of Socio-economic features of wetlands for management planning

(derived from [Appendix 2] of CBD's [Voluntary guidelines on Biodiversity-inclusive environmental impacts], see Resolution [X.7] [and Handbook 16m in the present series])

Regulating services responsible for maintaining natural processes and dynamics

Biodiversity-related regulating services

- maintenance of genetic, species and ecosystem composition
- maintenance of ecosystem structure
- maintenance of key ecosystem processes for creating or maintaining biodiversity

Land-based regulating services

- decomposition of organic material
- natural desalinization of soils
- development / prevention of acid sulphate soils
- biological control mechanisms
- pollination of crops
- seasonal cleansing of soils
- soil water storage capacity
- coastal protection against floods
- coastal stabilization (against accretion / erosion)
- soil protection
- suitability for human settlement
- suitability for leisure and tourism activities
- suitability for nature conservation
- suitability for infrastructure

Water related regulating services

- water filtering
- dilution of pollutants
- discharge of pollutants
- flushing / cleansing
- bio-chemical/physical purification of water
- storage of 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
- suitability for navigation

Water related regulating services (ctd.)

- suitability for leisure and tourism activities
- suitability for nature conservation

Air-related regulating services

- filtering of air
- carry off by air to other areas
- photo-chemical air processing (smog)
- wind breaks
- transmission of diseases
- carbon sequestration

Provisioning services: harvestable goods

Natural production:

- timber
- firewood
- grasses (construction and artisanal use)
- fodder & manure
- harvestable peat
- secondary (minor) products
- harvestable bush meat
- fish and shellfish
- drinking water supply
- supply of water for irrigation and industry
- water supply for hydroelectricity
- supply of surface water for other landscapes
- supply of groundwater for other landscapes
- genetic material

Nature-based human production

- crop productivity
- tree plantations productivity
- managed forest productivity
- rangeland/livestock productivity
- aquaculture productivity (freshwater)
- mariculture productivity (brackish/saltwater)

Cultural services providing a source of artistic, aesthetic, spiritual, religious, recreational or scientific enrichment, or nonmaterial benefits.

Supporting services necessary for the production of all other ecosystem services

- soil formation,
- nutrients cycling
- primary production.
- evolutionary processes

Source: Ramsar Convention Secretariat 2010b

Table 2.1. Ecosystem Services Provided by or Derived from the Iraqi Marshlands

Service	Sub-category	Examples
Provisioning services – the goods of products obtained from Marshlands' ecosystems		
Food	Crops	Paddy rice, great millet, dates, vegetables and fruits
	Livestock	Asian water buffalo, cattle, sheep, water-buffalo milk and yogurt
	Capture fisheries	Shrimp, yellowfin seabream, khishni
	Aquaculture	Cyprinids, grass carp, shellfish
	Wild foods	Wild boar, waterfowl (coot, teal), desert monitor
Freshwater		Freshwater for drinking, cleaning, cooling, and transportation (canoeing and boating)
Fiber and fuel	Fiber	Reeds for housing and mats; date palm wood
	Fuels	Reeds, crude oil, cattle dung
Biochemical		Potential use of Marsh flora extracts, native herbs for pharmaceuticals and pest control
Genetic materials		Resistance and breeding of native plant and animal species
Regulating services – the benefits obtained from the Marshland ecosystems' control of natural processes		
Climate regulation		Moderation of the national rainfall patterns and control desertification and dust storms
Water regulation	Hydrological flows	Storage and retention of water flowing from Euphrates-Tigris system upstream and tidal flow downstream; Permeable clay and silt facilitates recharge of the Recent Alluvium aquifer
	Water purification and waste treatment	Removal of harmful pollutants from water by trapping metals and organic materials; soil microbes degrade organic waste rendering it less harmful
Erosion regulation		Reeds, grasses and estuarine vegetation retain soils and sediments
Natural hazard regulation		Marsh areas naturally absorb seasonal floods and tidal surges; moderation of drought at a local scale
Pollination		Habitat for bees and birds, the key pollinators of economically important crops
Cultural services – the nonmaterial benefits that Iraqis obtain from Marshlands ecosystems		
Ethical values		Customs, oral traditions, knowledge and rituals attached to the use of the land and rivers; Iraqi tangible and intangible cultural heritage; an area of global importance
Recreation and tourism		Canoeing, bird and wild-life watching, recreational fishing, archaeological site visitation, Marsh communities
Aesthetic		Globally significant natural beauty
Educational		Science, cultural awareness, specialized vocational training, public awareness of national, regional and global importance
Supporting services – the underlying processes that are necessary for the production of all other ecosystems services		
Soil formation		Retention of sediment, recycling and supporting the health of the ecosystem
Nutrient cycling		Returning phosphorus, sulfur and nitrogen to Iraq's atmosphere, water and soils

Appendix 2: Guidance on the development of management options Thomas & Middleton (2003) p. 38

Box 11. Guidelines for identifying and evaluating management options

First:

Ask these questions:

- In what different ways might the objectives be achieved?
- What possible options exist?
- What combination of options fit together to form coherent plans?

In answering such questions, the planner should:

- repeatedly refer back to, and check options against objectives, to ensure that any option does contribute to achieving what was originally intended; and look forward and work out the interaction of options – and the design and management implications of possible solutions;
- be aware of constraints and evaluate each option to see if it is realistic (inspiration, intuition, lateral thinking and originality have a special place here); and
- develop options to the stage where they have spatial expression and the management implications of each are clear (although it is wasteful to develop each option to detailed design).

Then:

Ask these questions:

- Which options represent the best value for money?
- What is the ‘best’ set of options?
- Which options meet pre-agreed criteria?

In answering such questions, the planner may wish to consider:

- which alternative meets the objective best;
- whether the alternative will work;
- whether each scheme is financially feasible;
- how acceptable the options are to politicians and the wider public; and
- who wins and who loses– that is which groups of society will benefit from the scheme and which will suffer disadvantages.