TECHNICAL NOTE

on

Criteria and Process of Wetland Site Selection for Implementation of Testing and Improvement of WI and WEFASAM (including WBIA)

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Document history

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1. Background and Rationale

MRCS ED has initiated new project on "Sustainable Use and Management of Wetland in the Lower Mekong Basin" which is implemented during 2016-2020 with financial support from KfW Development Bank. This project aims to update the methodology and tool for wetland inventory (WI) which has been developed by the former MRCS EP in collaboration with IUCN Lao PDR and develop the methodology and tool for Wetland Ecosystem Functions, Assets, and Services Assessment and Management (WEFASAM) (including Wetland Biodiversity Indicator Assessment (WBIA). The testing and improvement of this methodology and tool will be implemented in 10 selected international/sensitive wetland sites in four member countries (MCs). It is agreed among 4 MCs in the Regional Technical Kick-off Meeting on 10th April 2017 that 3 sites each from Lao PDR and Viet Nam and 2 sites each from Cambodia and Thailand will be nominated by each National Mekong Committee (NMC). However, the criteria for wetland site selection are needed for the determination and nomination of wetland sites from each MC. Therefore, this technical note on wetland site selection criteria for implementation of testing and improvement of WI and WEFASAM (including WBIA) is developed by MRCS ED and the International Expert on Wetland Ecosystem Assessment and Management.

2. Objectives

The objectives of this technical note are to:

1. Provide details on the LMB wetland sites selection process; and
2. Provide details on the selection criteria of LMB wetland sites for the implementation of testing and improvement of WI and WEFASAM (including WBIA)

3. Wetland Sites Selection Process

This document provides guidance on how National Mekong Committees (NMCs) can determine which sites are the most important for testing the methodology and tool for WI and WEFASAM (including WBIA). It does not, necessarily, determine whether a particular site is "important" or not – but helps NMCs determine the relative importance of sites among a list of sites that are compared using common criteria. A site that is not short-listed using this approach can still be "important".

NMCs are responsible for determining which of their national sites are important. They can also decide which criteria to prioritise when determining the short-list. A site that meets any one of eleven criteria (as below) can be determined as a priority site for testing by a NMC. However, usually a number of sites will have varying degrees of priority (importance) among the eleven criteria and a methodology is suggested for how to make quantitative judgments among those sites by using a scoring system for each criterion.

The selection of wetland sites for testing and improvement of the methodology and tool for WI and WEFASAM (including WBIA) is based mainly on the criteria for designation of Ramsar Sites – that is, wetlands of international importance. Although Ramsar Sites have "international" importance, all Ramsar Sites are designated nationally and are, therefore, also nationally important. The same Ramsar Site designation criteria can be used at national level for determining national importance.

The issue of whether a particular site may also have regional or international importance is a separate topic and can only be assessed by comparing the attributes and characteristics of a particular national site with comparable wetlands at regional and international scales. This is usually done when developing networks of national sites across regions and is beyond the scope of this document. For current purposes if a site has regional or international importance then it will automatically have national importance too.

This site selection process will be based on assessing the best available existing information at national level. It is assumed that NMCs will liaise with relevant line-agencies in undertaking their assessments and consult with those national agencies and experts that have relevant information and/or involve them in the process. Where helpful, NMCs can seek further inputs from line agencies or experts through using a questionnaire or interview approach – at their discretion.

The selection of wetland sites for testing and improvement of methodology and tool for WI and WEFASAM (including WBIA) follows a three-step process:

3.1 Step 1: Identifying an initial set of wetlands of national importance

The following set of criteria will guide the identification of important sites for the first step selection. Criteria 1 to 9 relate mainly to biodiversity values associated with a site and are adapted from the Ramsar Convention criteria for the designation of wetlands of international importance – to be applied at national level.

Criterion 10 is added to expand the list to include consideration of the hydrological importance of a wetland. Criterion 10 as listed in this document is included as a component of Criterion 1 in the latest Ramsar Strategic Framework and guidance for the development of the list of Wetlands of International Importance (Ramsar 2012; http://www.ramsar.org/sites/default/files/documents/pdf/cop11/res/cop11-res08-e-anx2.pdf)

Criterion 11 is added to cover the importance of the benefits of a wetland to humans – that is, its ecosystem services. This topic is not currently well covered in the latest Strategic Framework and guidance but attention to human benefits/ecosystem services are contained in the latest version of the Ramsar Information Sheet – (http://www.ramsar.org/sites/default/files/documents/pdf/cop11/res/cop11-res08-e-anx1.pdf).

Criteria 10 and 11 have only recently been incorporated by the Ramsar Convention and experience in their application is growing.

The criteria are as follows.

1. Containing a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
2. Supporting vulnerable, endangered, or critically endangered species or threatened ecological communities.
3. Supporting populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
4. Supporting plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.
5. Regularly supporting 20,000 or more waterbirds.
6. Regularly supporting 1% of the individuals in a population of one species or subspecies of waterbird.
7. Supporting a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations.
8. An important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.
9. Regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.
10. Hydrological importance

11. Supporting important ecosystem services (benefits to people)

Secondary data on the existing LMB wetland sites will be reviewed and the initial set of LMB wetlands of national importance will be identified using the above-mentioned criteria.

Details of each criterion for the first step selection are presented in ***Section 4*** of this technical note.

3.2 Step 2: Short listing of potential sites for testing from the Lower Mekong Basin wetland list

As a second step in selecting wetland sites for testing and improvement of methodology and tool for WI and WEFASAM (including WBIA), the following criteria are suggested to be applied to define an initial short list of **some five sites in each member country**.

Selection criteria categories:

1. Characteristics
2. Operational factors
3. Management factors (tenure and institutional arrangement)
4. Threats and status

3.2.1 Characteristics

(i) Sites of national biodiversity significance (based on criteria 1 - 9) including:
   a. Regional representativeness of study wetland categories
   b. Rareness, uniqueness, limited to one country (e.g. Cambodia flooded forest), e.g. peat swamps, mangroves in Viet Nam
   c. Importance to biome maintenance, i.e. sustaining overall ecological balance e.g. Cambodian floodplains
   d. Etc.

(ii) Sites with hydrological importance (Criterion 10)

(iii) Sites supporting essential ecosystem services (Criterion 11)

(iv) Designated under international agreement or national legislation as of international and/or national importanceSize as an indicator of significance

3.2.2 Operational Factors

(i) Availability of information on the site

(ii) Existing or recent international/national wetland management project(s) (the presence of a team which can provide information, understanding of the situation and a management response to maintenance, use and threats)

(iii) Access to the site - distance from provincial centres (can the national teams reach and work there in the time available)

3.2.3 Management Factors

(i) Sites already under conservation management (e.g. designated as protected areas with management boards, staff and resources)
(ii) Sites under another form of management consistent with maintenance of the wetlands functions and values

3.2.4 Threats and Status

(i) Sites under extreme threat from other drivers of change.
  - ✓ Is the wetland category going to be around in 2050 - due to other threats?
  - ✓ Can those threats be potentially managed?
  - ✓ How does this relate to uniqueness and rareness?

(ii) Has the site already been extensively modified so as to diminish its values?
  - ✓ Is it feasible to rehabilitate the site so as to restore its values?

3.3 Step 3: Prioritising wetland sites for each country from the short list

As a third step in selecting wetland sites for testing and improvement of methodology and tool for WI and WEFASAM (including WBIA), International and National Experts on Wetlands are asked to apply the following criteria in reducing the short list to 2 priority sites each for Cambodia and Thailand and 3 sites each for Lao PDR and Viet Nam:

(i) Biodiversity significance
(ii) Hydrological importance
(iii) Rareness and uniqueness
(iv) Importance to biome maintenance
(v) Importance to humans (ecosystem services)
(vi) Availability of information
(vii) Under conservation management

Experts are asked to score 0 to 3 for each candidate site against each of these criteria, and then rank the sites. The top two sites each for Cambodia and Thailand and top three sites each for Lao PDR and Viet Nam will be treated as selected sites. Adjustments may be required to ensure regional representativeness.

Details and definition of the scoring system for each criterion are presented in ***Section 5*** of this technical note.

Scores for the seven criteria are then added to achieve a final score – among which sites are then ranked. An example of a LMB wetland criteria matrix for achieving this is presented in ***Annex A*** of this technical note.

4. Details of Criteria for determining national importance in the First Step Selection

The following section describes in more detail the selection criteria for Step 1 which is adopted from the Ramsar Convention criteria for wetlands of international importance.

4.1 Criterion 1: Containing a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region

Criterion 1 identifies wetlands that are of importance, within a biogeographical context, as examples of wetland types or habitats (rather than for the species contained within the wetland). The Criterion relates to sites which contain one or more natural or near-natural wetland types which are – nationally - either:

a) representative examples;
b) rare examples or
c) unique.

For this criterion, the study teams are encouraged to:

(i) determine biogeographic regions within their territory or at the supranational/regional level;
(ii) within each biogeographic region, determine the range of wetland types present (using MRC Wetland Classification Coding Supporting Inventory as shown in ***Annex B*** of this technical note), noting in particular any rare or unique wetland types;
(iii) for each wetland type within each biogeographic region, identify for designation of those sites which provide the best examples;

A national wetland inventory is the fundamental requirement for the proper application of this Criterion, since it is only with such information that it is possible to assess whether a wetland is representative, rare or unique. In the absence of such an inventory MCs will have to judge the situation based on the best available information and expert opinion. In cases where there s more limited specific information available for a particular site, this judgment can also be based on past experiences or existing studies or knowledge for similar sites through "knowledge transfer".

Some further guidance and information:[1]

[1] These sections, for each criterion, are intended to give an indication of some useful sources of information and guidance at international level. It should be noted that the primary sources of information and data should be at national level and, where relevant, in particular based on local knowledge of sites in question – including that held by local communities.

Although not restricted to wetland ecosystems, IUCN's guidance related to proposed Red List criteria for threatened ecosystems (Rodríguez *et al.*, 2010) may be useful in undertaking national assessments of wetland type rarity.

Ramsar Strategic Framework and Guidelines (2012) – Annex E.

4.2 Criterion 2: Supporting vulnerable, endangered, or critically endangered species or threatened ecological communities

Criterion 2 identifies wetlands that are important for the conservation of such dependent species, either individually or as communities, and reflects the important role that a site may have in the conservation of nationally or globally threatened species and ecological communities.

For this criterion, particular consideration should be given to listing wetlands that support globally threatened communities or species at any stage of their life cycle. Those wetlands should include those that support threatened ecological communities or are critical to the survival of species identified as vulnerable, endangered or critically endangered under national endangered species legislation/programmes or within international frameworks such as the IUCN Red Lists or Appendix I of CITES and the Appendices of CMS.

The Criterion is non-quantitative and merely requires that the site support threatened species in the categories given. It provides no numerical threshold for the numbers supported in the site concerned, and thus the Criterion is particularly valuable in those cases where a site is known to be important for the species concerned but population assessments are not available. Criterion 2 can be applied to subspecies and biogeographic populations of threatened species.

When the study teams are reviewing candidate sites for listing under this Criterion, greatest conservation value will be achieved through the selection of a network of sites providing habitat for rare, vulnerable, endangered, or critically endangered species or ecological communities. Ideally, the sites in the network will have the following characteristics. They:

(i) support a mobile population of a species at different stages of its life cycle; and/or
(ii) support a population of a species along a migratory pathway or flyway – noting that different species have different migratory strategies with different maximum distances needed between staging areas; and/or
(iii) are ecologically linked in other ways, such as through providing refuge areas to populations during adverse conditions; and/or
(iv) hold a high proportion of the population of a dispersed sedentary species that occupies a restricted habitat type.

For identifying sites with threatened ecological communities, greatest conservation value will be achieved through the selection of sites with ecological communities that have one or more of the following characteristics. They:

(i) are globally threatened communities or communities at risk from direct or indirect drivers of change, particularly where these are of high quality or particularly typical of the biogeographic region; and/or
(ii) are rare communities within a biogeographic region; and/or
(iii) include ecotones, seral stages, and communities which exemplify particular processes; and/or
(iv) can no longer develop under contemporary conditions (because of climate change or anthropogenic interference for example); and/or
(v) are at the contemporary stage of a long developmental history and which support a well-preserved paleoenvironmental archive; and/or
(vi) are functionally critical to the survival of other (perhaps rarer) communities or particular species; and/or
(vii) have been the subject of significant decline in extent or occurrence.

It should be aware also of the biological importance of many karst and other subterranean hydrological systems.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.2.

4.3 Criterion 3: Supporting populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region

This Criterion considers the significance of the wetland for biodiversity support within its wider regional context. It should particularly consider the role of the site as a "source" of wetland dependent species dispersing to surrounding areas as well as its significance in the definition and maintenance of characteristic regional biodiversity.

Although not necessarily required, the Criterion can be used to recognize the importance of large-scale wetlands extending across landscapes (or of broad coastal/inshore waters). These large-scale sites define regional biodiversity.

For this criterion, the greatest conservation value will be achieved through the selection of a suite of sites that have the following characteristics. They:

(i) are "hotspots"[2] of biological diversity and are evidently species-rich even though the number of species present may not be accurately known; and/or

[2] For the purposes of this document, a "hotspot" is an area that has two significant features: (i) it is thought to or known to support a high concentration of biodiversity that makes it significantly different to nearby areas; and (ii)

(ii) are centres of endemism or otherwise contain significant numbers of endemic species; and/or
(iii) contain the range of biological diversity (including habitat types) occurring in a region; and/or
(iv) contain a significant proportion of species adapted to special environmental conditions (such as temporary wetlands in semi-arid or arid areas); and/or
(v) support particular elements of biological diversity that are rare or particularly characteristic of the biogeographic region.

It should consider also the biological importance of many karst and other subterranean hydrological systems.

Even where small absolute numbers of individuals or sites may be involved, or that only poor quality quantitative data or information may be available, particular consideration should be given to using this Criterion for listing wetlands that support globally threatened communities or species at any stage of their life cycle.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.3.

Conserving hot spots of endemism is particularly important in the context of Criterion 3. Information on centres of endemism for a number of taxa is readily available; for example, Appendix II of Langhammer et al. (2007) lists many online sources of relevant data and information. These include:

- Centres of Plant Diversity: a guide and strategy for their conservation (WWF & IUCN 1994- 1997)
- BirdLife International‟s Endemic Bird Areas of the World (Stattersfield et al. 1998) and other data available at www.birdlife.org/datazone;
- Alliance for Zero Extinction (AZE) sites (www.zeroextinction.org);
- Biodiversity Hotspots species database (www.biodiversityhotspots.org); and
- Global Amphibian Assessment (www.globalamphibians.org).

4.4 Criterion 4: Supporting plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions

This Criterion identifies those wetlands that are critically important in enabling plant and/or animal species to fulfill life cycles by providing necessary ecological support (for example, essential food resources, breeding sites) on a basis that is either regular or annual or is more infrequent though nonetheless predictable.

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the continued existence or health of the area is significantly threatened or the area has already been significantly degraded or reduced.

All aspects of the environment provide support or refuge to those plants and animals that live within it. A test of "importance", therefore, needs to be applied in the application of this Criterion. Thus, its use typically (though not necessarily always) occurs in conjunction with one or more of the other Criteria. The life-cycle support, or refuge, being acknowledged by the application of this Criterion should thus apply to important numbers of a species (Criteria 5, 6, 7 or 9) and/or to species or communities that are important by virtue of their presence or rarity (Criteria 2 or 8). The Criterion can especially be used to identify sites whose loss would be critical in the context of the life-cycle of the species occurring there.
Critical sites for mobile or migratory species are those that contain particularly high proportions of populations gathered in relatively small areas at particular stages of life cycles. This may be at particular times of the year. For example, many waterbirds use relatively small areas as key staging points (to eat and rest) on their long-distance migrations between breeding and non-breeding areas. For Anatidae species, moulting sites are also critical. Sites in semi-arid or arid areas may hold very important concentrations of waterbirds and other mobile wetland species and be crucial to the survival of populations, yet may vary greatly in apparent importance from year-to-year as a consequence of considerable variability in rainfall patterns.

Non-migratory wetland species are unable to move away when climatic or other conditions become unfavourable and only some sites may feature the special ecological characteristics to sustain species' populations in the medium or long term. Thus in dry periods, some crocodile and fish species retreat to deeper areas or pools within wetland complexes, as the extent of suitable aquatic habitat diminishes. These restricted areas are critical for the survival of animals at that site until rains come and increase the extent of wetland habitat once more. Sites (often with complex ecological, geomorphological and physical structures) which perform such functions for non-migratory species are especially important for the persistence of populations and should be considered as priority candidates for listing.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.4.

Information on life cycles and influencing factors for all bird species is available at www.birdlife.org/datazone . For all IUCN Red-listed species, information is available at www.iucnredlist.org .

MRCS has a database and information on fish migratory pathways and important refuges.

4.5 Criterion 5: Regularly supporting 20,000 or more waterbirds

This Criterion identifies those wetlands that are of numerical importance for waterbirds through their support of internationally important numbers, either of one or more species, and often the total numbers of the waterbird species assemblage.

For this criterion, the greatest conservation value will be achieved through the selection of a network of sites that provide habitat for waterbird assemblages containing globally threatened species or subspecies. Non-native waterbirds should not be included within the totals for a particular site. It should be applied not only to multi-species assemblages, but also to sites regularly holding more than 20,000 waterbirds of any one species. For populations of waterbirds of more than 2,000,000 individuals, a 1% threshold of 20,000 is adopted on the basis that sites holding this number are of importance under this criterion. To reflect the importance of the site for the species concerned, it is also appropriate to list such a site under Criterion 6.

This criterion will apply to wetlands of varying size. While it is impossible to give precise guidance on the size of an area in which these numbers may occur, the candidate wetland sites should form an ecological unit, and may thus be made up of one big area or a group of smaller wetlands. Consideration may also be given to turnover of waterbirds at migration periods, so that a cumulative total is reached, if such data are available.

Turnover of individuals, especially during migration periods, leads to more waterbirds using particular wetlands than are counted at any one point in time, such that the importance of such a wetland for supporting waterbird populations will often be greater than is apparent from simple census information.

When turnover is known to occur in a wetland but it is not possible to acquire accurate information on migration volume, the study teams will continue to consider recognizing the importance of the wetland as a migratory staging area through the application of Criterion 4, as the basis of ensuring that their management planning for the site fully recognizes this importance.

Where a site being designated is only part of a wetland or wetland complex, it is important that the waterbird counts used must be from within only that part of the site being designated, and not from a broader wetland area.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.5.

This Criterion can be simply applied using data from regular counts of waterbirds at a site. Typically data from national level waterbird monitoring schemes and the International Waterbird Census collated by Wetlands International are a reference source (https://www.wetlands.org/?s=waterbird+census), although other site-specific survey data may also be used where it exists.

Other information on bird numbers should be available from local and regional bird-related organisations and community groups.

4.6 Criterion 6: Regularly supporting 1% of the individuals in a population of one species or subspecies of waterbird.

This Criterion identifies wetlands of numerical importance for waterbirds through their support of a significant proportion of specific biogeographic populations (more than 1%), noting that in most cases the biogeographic range of waterbird population is larger than the territory of one country.

For this criterion, the greatest conservation value will be achieved through the selection of a suite of sites that hold populations of globally threatened species or subspecies. Consideration may also be given to turnover of waterbirds at migration periods, so that a cumulative total is reached, if such data are available.

At some sites, more than one biogeographical population of the same species can occur, especially during migration periods and/or where flyway systems of different populations intersect at major wetlands. Where such populations are indistinguishable in the field, as is usually the case, this can present practical problems as to which 1% threshold to apply. Where such mixed populations occur (and these are inseparable in the field) it is suggested that the larger 1% threshold be used in the evaluation of sites.

Turnover of individuals, especially during migration periods, leads to more waterbirds using particular wetlands than are counted at any one point in time, such that the importance of such a wetland for supporting waterbird populations will often be greater than is apparent from simple census information.

This Criterion can be simply applied with just two elements of information, but both these elements are essential for its application:

i) a count of the total number of the waterbirds of a particular population of a species or subspecies using the wetland; and
ii) 1% threshold from the current estimate of the size of the relevant biogeographic population of the waterbird concerned.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.6.

Site-related population data are available for many wetlands from the International Waterbird Census (IWC) of Wetlands International (https://www.wetlands.org/?s=waterbird+census), the publication Waterbird Population Estimates (http://wpe.wetlands.org) and from national waterbird monitoring schemes contributing to the IWC, or indeed from specific surveys undertaken at the site concerned.

Other information on bird numbers should be available from local and regional bird-related organisations and community groups.

4.7 Criterion 7: Supporting a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations

Fishes are the most diverse and abundant vertebrates associated with wetlands. The Mekong is notable in having a very high diversity of fish species with high endemism – with much regional endemism within the Mekong. Many wetlands are characterised by the highly endemic nature of their fish fauna.

Criterion 7 refers largely to the biodiversity (conservation) value of a wetland regarding fishes, and not to its importance for maintaining fisheries – which may or may not be also important at the site but fisheries are a benefit for people covered specifically in Criterion 8 (later).

Criterion 7 identifies those wetlands important to the maintenance of biodiversity through their support of fish species (which include shellfishes). It emphasizes the different forms that diversity might take, including the number of taxa, different life-history stages, species interactions, and the complexity of interactions between the above taxa and the external environment. In addition, the different ecological roles that species may play at different stages in their life cycles needs to be considered.

Criterion 7 can have a very complex formulation. It can best be interpreted as: "A wetland should be considered internationally important if it supports a significant proportion of: wetland should be considered internationally important if it supports a significant proportion of: that diversity might take, including the number of taxa, different life-hi"

Some measure of the level of endemism should be used to distinguish sites of international, regional and national importance. If at least 10% of fish are endemic to a wetland, or to wetlands in a natural grouping, that site should be recognized as internationally, regionally and nationally important, but the absence of endemic fishes from a site should not disqualify it if it has other qualifying characteristics.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.7.

Useful sources of online data and information on fish include:

- A Catalog of the Species of Fishes (http://www.calacademy.org/scientists/projects/catalog-of-fishes)
- Fishbase (www.fishbase.org/home.htm)
- ReefBase (www.reefbase.org)

4.8 Criterion 8: An important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend

This is a fishery related Criterion. Criterion 8 identifies those wetlands that support internationally or nationally important fish-stocks (including bivalves/shellfish) through aspects of their ecological functioning. "Fish-stocks" means fish resources that support fisheries[3]. This support includes via the role of the wetland in providing food and/or as a spawning ground, a nursery area, or a migration path. The emphasis of this Criterion is not on the fish themselves as species (the subject of Criterion 7) but rather on the ecological functions provided by the wetland, notably as a source of food, or as a spawning ground or nursery, or as a migration path. The Criterion notes that the importance of these functions need not just be for fish within the wetland itself but may also be for fish stocks further afield. For example, many coastal wetlands such as estuaries or mangrove swamps are crucially important as nursery areas for fish stocks living in deeper waters offshore.

The following attributes are likely to be associated with a wetland that is internationally important under Criterion 8. These include functions that support fish stocks:

(i) across extensive areas or multiple wetlands;
(ii) across national borders;
(iii) of multiple species (including, but not restricted to those that are of high conservation status and/or are endemic within a biogeographic region);
(iv) and/or which further support significant ecosystem services related to fish.

Many fishes (including shellfishes) have complex life histories, with spawning, nursery and feeding grounds widely separated and long migrations necessary between them. It is important to conserve all those areas that are essential for the completion of a fish's life cycle if the fish species or stock is to be maintained. The productive, shallow habitats offered by coastal wetlands (including coastal lagoons, estuaries, saltmarshes, inshore rocky reefs, and sandy slopes) are extensively used as feeding and spawning grounds and nurseries by fishes with openwater adult stages. These wetlands therefore support essential ecological processes for fish stocks, even if they do not necessarily harbour large adult fish populations themselves.

Furthermore, many fishes in rivers, swamps or lakes spawn in one part of the ecosystem but spend their adult lives in other inland waters or in the sea. It is common for fishes in lakes to migrate up rivers to spawn, and for fishes in rivers to migrate downstream to a lake or estuary, or beyond the estuary to the sea, to spawn. Many swamp fishes migrate from deeper, more permanent waters to shallow, temporarily inundated areas for spawning. Wetlands, even apparently insignificant ones in one part of a river system, may therefore be vital for the proper functioning of extensive river reaches up- or downstream of the wetland.

[3] Technically a fish "stock" and "population" are similar (both mean geographically distinct groups of fish with distinct genetic characteristics) – but "population" in this note refers more to biodiversity conservation objectives as referred to in e.g. Criteria 6, 7 and 9. "Stock" implies the population is exploited by fisheries.

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.7.

Useful sources of online data and information on fish are given under Criterion 7.
The MRCS fisheries programme holds important relevant information, and a database, on LMB fish migrations and their migratory corridors.

4.9 Criterion 9: Regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species

This is essentially Criterion 6 – for non-avian taxa. This Criterion identifies wetlands of numerical importance for non-avian wetland dependent animals through their support of a significant proportion of specific biogeographic populations (more than 1%), noting that in most cases the biogeographic range of such populations is larger than the territory of one country.

For this criterion, the greatest conservation value will be achieved through the selection of a suite of sites that hold populations of globally threatened species or subspecies. Consideration may also be given to turnover of individuals of migratory animals at migration periods, so that a cumulative total is reached, if such data are available.

This criterion is applied to nationally endemic species or populations, where reliable national population size estimates exist. When making such an application of the criterion, information concerning the published source of the population size estimate should be included in the justification for the application of this Criterion. Such information can also contribute to expanding the taxonomic coverage of the information on population estimates and 1% thresholds published in the *Ramsar Technical Report* series.

It is anticipated that this Criterion will be applicable to populations and species in a range of non-avian taxa including, *inter alia,* mammals, reptiles, amphibians, fish and aquatic macro-invertebrates. However, only species or subspecies for which reliable population estimates have been provided and published should be included in the justification for the application of this criterion. Where no such information exists, the study team should give consideration to designation for important non-avian animal species under Criterion 4.

To ensure international comparability, wherever possible countries should use the most current international population estimates and 1% thresholds provided and regularly updated by IUCN‟s Specialist Groups though the IUCN Species Information Service (SIS) and being published in the Ramsar Technical Report series, as the basis for evaluating sites for the List using this Criterion. (Note: An initial listing is provided in the paper Population estimates and 1% thresholds for wetland-dependent non-avian species, for the application of Criterion 9.)

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.7.

Langhammer *et al*. (2007) lists many online sources of relevant species data and information. These include:

- Alliance for Zero Extinction (AZE) sites: www.zeroextinction.org
- World Turtle Database: http://emys.geo.orst.edu/main_pages/database.html
- Global Amphibian Assessment: www.amphibians.org/redlist/
- erpNet: www.herpnet.org
- Mammal Species of the World: www.bucknell.edu/msw3/
- Mammal Networked Information System: http://manisnet.org/

4.10 Criterion 10: Hydrological importance

Criterion 10 reflects the importance of a wetland for supporting hydrology – principally for supporting general ecosystem functions to support ecosystem health and maintaining the values of wetlands for Criteria 1 to 8.

There are additional hydrological functions of wetlands that provide more direct benefits for people: for example, drinking water supply, water for irrigation, storage and delivery of water as water supply systems for agriculture and industry, water purification/waste treatment or dilution, hazard reduction (flood regulation for people). These are reflected in Criterion 11 (below).

Wetlands can be selected for their hydrological importance that, *inter alia*, may include the following attributes. They may:

(i) play a major role in the natural control, amelioration or prevention of flooding;
(ii) be important for seasonal water retention for wetlands or other areas of conservation importance downstream;
(iii) be important for the recharge of aquifers;
(iv) form part of karst or underground hydrological or spring systems that supply major surface wetlands;
(v) be major natural floodplain systems;
(vi) have a major hydrological influence in the context of at least regional climate regulation or stability (e.g., certain areas of cloudforest or rainforest, wetlands or wetland complexes in semi-arid, arid or desert areas, tundra or peatland systems acting as sinks for carbon, etc.); and
(vii) have a major role in maintaining high water quality standards.

Most wetlands will provide at least some of the above functions. This Criterion will, therefore, be difficult to assess for some wetlands. Where relevant the existence of the above importance should be described and explained. In order to try to quantify the relative importance of the above aspects of hydrological importance the following scoring system will be used:

0 = not relevant for site
1 = present but low importance/extent or significance
2 = present, medium importance/extent or significance
3 = present, high importance/extent or significance

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – section 6.1.1.

Ramsar 2010. Handbook 8 – Water related guidance.

Russi *et. al.*, 2012. The Economics of Ecosystems and Biodiversity for Water and Wetlands

4.11 Criterion 11: Supporting important ecosystem services (benefits to people)

All wetlands are important to people. They are the most valuable of all ecosystem types. Most wetlands will provide at least some, and usually a high, level of ecosystem services. This Criterion can, therefore, be difficult to quantify in terms of the relative importance of ecosystem services relative to other wetlands.

Ecosystem services are important for determining the overall value of a site. They are particularly important for engaging with stakeholders beyond the biodiversity/environment/conservation interests. This is an essential step in making wetlands inventory and assessment relevant to other stakeholder groups including engaging with those groups regarding promoting the wise and sustainable use of wetlands. Successful wetlands conservation and management involves managing the drivers of change of wetlands degradation and loss. Ecosystem services is the key framework for engaging with other stakeholders/interests that can positively influence those drivers of change – and hence also mutually support biodiversity conservation outcomes.

The Criterion will often be used in conjunction with other criteria to establish “importance” but the existence of ecosystem services at a site is sufficient on its own to determine importance.

Where relevant the existence of ecosystem services should be described and explained. In order to try to quantify the relative importance of the ecosystem services the following scoring system will be used:

0 = not relevant for site
1 = present but low importance/extent or significance
2 = present, medium importance/extent or significance
3 = present, high importance/extent or significance

This can be done for each ecosystem service individually to build up an assessment of the overall value of a wetland. However, the existence of only one ecosystem service with high importance can be sufficient to determine a wetland as important; for example, a wetland might be critical for supplying drinking water, or as storm protection.

In addition, where feasible, an estimate (or best guess) of the number of people benefitting from the service should be made: (i) those benefitting locally (at or inside the site); (ii) those benefitting beyond the site.

Irrespective of whether this criterion is used to establish the importance of a wetland in terms of its short-listing or future designation as an important site – as far as possible, details of ecosystem services should be listed for all wetlands in the WI. At least basic details are essential for any wetland decided to be important based on any other criteria. This is because human uses/benefits are a major determinant of the current, and future, characteristics of, and options for management (including conservation), of the wetland. This is why much attention is given to identifying ecosystem services in the Ramsar Information Sheet – even where they are not used for as site designation criteria.

Tools are available for undertaking ecosystem services valuations in order to obtain science-based robust quantitative and qualitative information. Their full application, however, can be time consuming and may, in some cases, require capacity building. For the purposes of this initial short-listing basic simple estimates of importance will have to be used. In due course, guidelines for the rapid assessment of wetland ecosystem services in the field need to be further developed.

The first stage in an assessment of wetland ecosystem services is to consider each ecosystem service possibly in play in a wetland and then assess the importance of each using the aforementioned scoring system. Initially, in many cases, this will need to be a qualitative approach based on information review, expert opinion and local knowledge. Ecosystem services associated with a wetland can include:

Ecosystem Services	Examples	Notes
Provisioning services – products obtained from the wetland		
Food for humans	Sustenance for humans (e.g. fish, molluscs, plants/grains, other invertebrates)	The products of fisheries, aquaculture or farming. This refers to products from the wetland in question. The

Ecosystem Services	Examples	Notes
		role of a wetland in supporting fisheries beyond the wetland should be addressed in Criterion 8. Including foods traded (not just subsistence). An indicator is the level of dependency of communities (at local/national/regional scale) on the foods in question (livelihood support). There should be an assumption that the maintenance of the ecological health of the wetland is required to sustain this benefit.
Fresh water for human uses	Drinking water for humans	Locally or regionally (e.g. drinking water supply for cities) There is some overlap with Criterion 10 sub-topic (vii) have a major role in maintaining high water quality standards. Criterion 11 refers more to where there is a direct link to human use (drinking water supply) whereas Criterion 10 refers to more general functions in maintain water quality. If in doubt use both.
	Drinking water for livestock	
	Water for irrigated agriculture	
	Water for Industry	
	Water for energy (hydropower)	
Wetland non-food products	Timber	
	Fuel wood	

Ecosystem Services	Examples	Notes
	Peat (for human use)	
	Livestock fodder	
	Reeds and fibres	
	Other	
Biochemical products	Extraction of non-living material from biota	
Genetic materials	Medicinal products	Pay attention to traditional medicines and practices
	Genes for tolerance to certain conditions (e.g. drought/salinity, plant pathogens)	Include crop and livestock (including fish) wild relatives (species, varieties, races) supported by the wetland.
	Ornamental species (live or dead)	
Regulating services – benefits obtained from the regulation of ecosystem processes such as climate, water, and natural hazard regulation		
Maintenance of hydrological regimes	Groundwater recharge and discharge	
	Storage and delivery of water as part of water supply systems for agriculture and industry	
Erosion protection	Soil, sediment and nutrient retention	
Pollution control and detoxification	Water purification/waste treatment or dilution	
Climate regulation	Local climate regulation/buffering of change	This is <u>not</u> limited to mitigating or adapting to climate change. Many wetlands play an important role in the local and national/regional climates – irrespective of climate change. E.g. the role of evapo-transpiration from wetlands as a contribution to regional rainfall; local wetlands and cooling local communities in severe hot weather etc. However, the role of a wetland in adapting to or
	Regulation of greenhouses gases, temperature, precipitation and other climatic processes	

Ecosystem Services	Examples	Notes
		mitigating climate change is also important.
Biological control of pests and diseases	Support of predators for agricultural pests	
Hazard reduction	Flood control, flood storage Coastal shoreline and river bank stabilization and storm protection	This can be extremely important and deliver some of the highest values for wetlands benefits. Consider not just the role of the wetland in regulating common floods/events but pay particular attention to the role or potential role in infrequent and extreme events. This service includes the role of wetlands in hydrology with respect to protecting humans and infrastructure from damage. The role of wetlands in hydrology regarding sustaining biodiversity and ecosystems (including moderating extremes) is covered under Criterion 10.

Cultural services – the non-material benefits people obtain from ecosystems such as through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences

Cultural services/values can be highly important regarding wetlands in the Mekong. Although they can be intangible, they can represent the highest levels of importance placed on a wetland – particularly by local communities. Cultural importance can override any other values of wetlands and be the primary driver/motive for sustaining a wetland. It is justifiable, and possible, to identify cultural services as the primary importance of a wetland – and to use this as the sole basis of designating it for special attention (it can, for example, be used as a primary Criterion for designation as a Ramsar Site).

Some cultural benefits (services) can be measured quantitatively (e.g. tourism) but many cannot be valued quantitatively. They show that quantitative and non-quantitative (qualitative) approaches must be used for assessing ecosystem services. For example, there are cases where non-tangible cultural values override any other values for any services based

Ecosystem Services	Examples	Notes
on monetary or quantitative valuation.		
Recreation and tourism	Recreational hunting and fishing	For food is under provisioning services
	Water sports and activities	
	Picnics, outings and touring	
	Nature observation and nature-based tourism (eco-tourism)	
Spiritual and inspirational	Inspiration	These are not necessary different and included to illustrate some dimensions of spiritual services
	Cultural heritage (historical and archaeological)	
	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	
	Spiritual and religious values	
	Aesthetic and "sense of place" values	
Scientific and educational	Educational activities and opportunities	
	Important knowledge systems, importance for research (scientific reference area)	
	Long-term monitoring site	
	Major scientific study site	
	"Type location" for taxon	
A site can also be considered important if it: (i) provides a model of wetland wise use (sustainable management/conservation); (ii) has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland; (iii) where the ecological character depends on the interaction with local communities or indigenous peoples; (iv) non material values (e.g. sacred sites) are present and their existence is strongly linked with the maintenance of the ecological character of the site.		
Supporting services – services necessary for the production of all other ecosystem services such as water cycling, nutrient cycling and habitat for biota. **These services will generally have an indirect benefit to humans or a direct benefit over a long period of time**		
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the	

Ecosystem Services	Examples	Notes
	ecosystems of which they form a part	
Soil formation and sediment transfer	Sediment transfer and retention	This can be extremely important. For example, the natural flow of sediments across land, through wetlands, down rivers and into coastal regions underpins land/ development in coastal areas/estuaries/deltas. Disruption of this can lead to wetland break-down and collapse and loss of significant disaster risk reduction services of wetlands.
	Accumulation of organic matter	
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	
Carbon storage/sequestration	Storage and build up of carbon	The role of wetlands in the carbon cycle varies considerably between wetland types. However, particular attention should be paid to wetlands containing high levels of carbon (either in sediments or soils – notably peatlands – or forested wetlands. These can be important carbon sinks and/or sequesters of carbon and therefore provide opportunities for funding for climate change mitigation including under the climate change agreements (including the Paris agreement).
Pollination	Support for pollinators	Can be important regarding

Ecosystem Services	Examples	Notes
		sustaining animal pollinated crops (i.e., the bulk of crops in some regions) – take note of local knowledge on the source of and status and trends in pollinators (which are in significant decline world-wide)
Other ecosystem services not included above: **List these as appropriate. Note – if unsure how a particular benefit of a wetland (e.g. as reported locally) is expressed in ecosystem services terminology (e.g. as above) then just write it down here in simple and understandable terminology. Capturing ecosystem services/benefits (whatever they are called) is more important than figuring out which "box" they fit into.**		

Some further guidance and information:

Ramsar Strategic Framework and Guidelines (2012) – sections 5.10; 7.3.16; 7.3.17; Annex E

De Groot *et. al*. 2006. Valuing wetlands: Guidance for valuing the benefits derived from wetland ecosystem services.

Russi *et. al.* 2012. The Economics of Ecosystems and Biodiversity for Water and Wetlands

5. Criteria and Scoring for the Third Step Selection

Site designation Criteria 1 to 9 (as per section 4 above) are determined on simple yes/no criteria – that is the site is either deemed important or not when considering each criterion.

Criteria 10 and 11 are more flexible and assessments will result in scoring between 0 and 3 for each of these at any one site (see sections 4.10 and 4.11 above).

There will need to be some flexibility in determining the final short-list. Mathematical approaches that try to score each criterion and then compare scores across multiple criteria can be helpful in moving towards consensus on priorities. However, a single attribute of a site can in principle, and justifiably, outweigh cumulative scores for all other criteria: for example, a site may be the last refuge of an iconic species and therefore have very high important despite other sites having cumulatively higher scores.

The following section describes the details of the third step selection criteria and the basis of scoring. The suggested scoring system is for guidance only and national teams are encourage to use their own sound judgement and expertise when determining the relative priority among sites

5.1 Biodiversity Significance

This is a measure of the degree to which a candidate wetland site supports significant fauna and/or floral components. This measure essentially addresses the characteristics of a site as determined by aspects of Criteria 1 to 9.

This criterion focuses on a site's contribution toward supporting the suite of significant of fauna and/or floral components listed below. The list of components includes groups of organisms that are known to be dependent upon freshwater or freshwater estuary habitats for their entire life cycle, or a crucial part of their life cycle. Evaluation of this criterion will rely on the best professional judgement of National Experts on Wetland and data regarding occurrences of rare species, and potential supplemental fauna and flora data from national line agencies of 4 MCs and other sources.

Potential Faunal and Floral Components

1. Native Fish Spawning and/or Nursery Grounds
2. Migratory Birds and/or Waterfowl
3. Bird Nesting and/or Roosting Areas
4. Critical Mammal Habitat
5. Non-Game Animals (amphibians, reptiles, mussels, etc.)
6. Nationally Legal and/or Conservational Protected Species (animal or plant)
7. IUCN Red Listed Species (NT/ VU/ EN/ CR) (animal or plant)

Definition of each scoring for each site is presented in the following table:

Score	Definition
3 Points	The candidate site supports or serves as an important site for a wide range of the faunal and floral components listed above and as determined by Criteria 1 to 9 and/or is an extremely important site for any one threatened or endangered species. This means that the site qualifies under 5 or more of criteria 1-9.
2 Points	The site supports or serves as an important site for a moderate range and diversity of the significant faunal and floral components listed above and as determined by Criteria 1 to 9. This means that the site qualifies under 3-5 of criteria 1-9.
1 Point	The site supports or serves as an important site for some of the significant faunal and floral components listed above and as determined

	by Criteria 1 to 9. This means that the site qualifies under 1-2 of criteria 1-9.
0 Point	The site does not support significant faunal and floral components and does not have high importance in any one of the Criteria 1 to 9. This means that the site does not qualify under any of criteria 1-9.

5.2 Hydrological importance

Note that hydrological importance under Criterion 10 refers mainly to the importance of the site for maintaining hydrology to sustain the health of the ecosystem including supporting biodiversity and the integrity of other sites. This is, therefore, supplementary information on importance regarding "biodiversity" criteria. The importance of hydrology to humans (e.g. water supply, flood mitigation etc.) is addressed in Criterion 11.

Evaluation of this criterion will rely on the best professional judgement of National Experts on Wetlands and Hydrology and existing records and potential supplemental analysis using aerial photography, topographic maps, and other existing resources. Interpretation of the terms "high", "medium" and "low" importance will need to be based local expert opinion and can be to some extent subjective. Likewise "not relevant" for the site can also only be determined absolutely through a more thorough investigation. Teams should bear in mind that they are not trying to provide a definitive professional opinion of whether a site is hydrologically important or not (almost all wetlands actually are) – but are attempting to provide supplementary information to prioritise among an existing pre-determined set of wetland sites and therefore the issue is to what extent these wetland sites compare among themselves based on this criterion.

The process for considering hydrological importance under Criterion 10 will result in a scoring of 0 to 3 for each site considered.

Definition of each scoring is presented in the following table:

Score	Definition
3 Points	Hydrological importance present, high importance/extent or significance
2 Points	Hydrological importance present, medium importance/extent or significance
1 Point	Hydrological importance present but low importance/extent or significance
0 Point	Not relevant for the site

5.3 Rareness and Uniqueness

Rareness and uniqueness are aspects of Criteria 1 to 9, and most notably Criteria 1 and 2, referring to biodiversity and ecosystems. Data on these are usually assembled when Criteria 1 to 9 (especially 1 and 2) are considered for each site.

This criterion is primarily determined by the presence of rare or unique natural communities within a candidate site or that the site has these and other characteristics that make it distinctly different (and therefore rare or unique) in comparison to all other wetland sites. This criterion recognizes the importance of emphasizing unique areas in the selection process, in addition to the representativeness of the candidate site in terms of ecosystem and natural community diversity.

The essential determinant of "rareness and uniqueness" is to consider the implications of the total loss of the site on biodiversity – would it have a significant impact or involve total loss of that biodiversity (if so – it is rare or unique; if not resulting in significant or total loss it is less rare or unique).

Evaluation of this criterion will rely on the best professional judgement of National Experts on Wetland and existing records and potential supplemental analysis using aerial photography, topographic maps, and other existing resources.

<u>LMB Critically Imperilled, Imperilled, or Rare Ecosystems</u>

Ecosystem Type I : Seasonal Flooding Wetlands;

- Flooded forest
- Floodplain marshes and swamps
- Floodplain grasslands
- Peatlands

Ecosystem Type II : Permanently Flooded Lakes and Ponds

Ecosystem Type III : Man-made/ Regulated;

- Reservoirs
- Rice fields
- Fish ponds and aquacultures
- Urban wetland

Ecosystem Type IV : Rivers;

- Rivers/ streams
- Rivers/ streams with pools and rapids

Ecosystem Type V : Coastal and Marine Wetlands;

- Saline lakes/ ponds/ marshes/ swamps
- Mangrove forests

Definition of each scoring is presented in the following table:

Score	Definition
3 Points	The site contains three or more "unique" natural communities within its boundaries and/or is a rare or unique wetland type whose loss would be significant.
2 Points	The site contains two "unique" natural communities within its boundaries and/or is an uncommon wetland type whose loss would be substantial.
1 Point	The site contains one "unique" natural community within its boundaries and/or is not an abundant wetland type.
0 Point	The site contains no "unique" natural communities within its boundaries and is a common wetland type.

Note that in principle, although rareness and uniqueness are usually associated with biodiversity directly, it is feasible to use "rareness and uniqueness" also regarding Criterion 11 (ecosystem services) regarding cultural values of a wetland – where there is a rare or unique culture associated with a wetland (whether or not the wetland itself is rare or unique). For example, a wetland may be associated with important cultural systems that are the last remaining examples of the kind in a region and where its preservation is important regarding maintaining cultural diversity and local knowledge. Where appropriate the above table can be used to score such examples.

5.4 Importance to Biome Maintenance

This is a measure of the biome maintenance opportunities presented by the site's characteristics. The assumption is that a site with representative, unique and highly diverse characteristics will be important to biome maintenance than one lacking these characteristics.

Definition of each scoring is presented in the following table:

Score	Definition
3 Points	The site has (1) a high diversity of ecosystem/natural community types; (2) a high number of unique natural communities; (3) support significant fauna and flora; (4) excellent geomorphologic integrity and uniqueness; and (5) minimal disturbance or invasive species threats.
2 Points	The site has three or four of the five above.
1 Point	The site has one or two of the five above.
0 Point	The site has none of the five above.

5.5 Importance to Humans/Ecosystem Services

This refers specifically to initial site selection Criterion 11 (see section 4).

Sources of information might include:

(i) National databases
(ii) International databases
(iii) Knowledge of national experts
(iv) Knowledge of non-governmental organisations
(v) Local knowledge – where this is accessible (as opposed to the importance of local knowledge during wetlands visits).

Evaluation of this criterion will rely on the best professional judgement of National Experts and in some cases existing records and potential supplemental analysis using aerial photography, topographic maps, and other existing resources. Practically all wetlands in the LMB (as elsewhere) provide important ecosystem services. Interpretation of the terms "high", "medium" and "low" importance will need to be based local expert opinion and can be to some extent subjective. Likewise "not relevant" for the site can also only be determined absolutely through a more thorough investigation. Teams should bear in mind that they are not trying to provide a definitive professional opinion of whether a site provides important ecosystem services (almost all wetlands actually do) – but are attempting to provide supplementary information to prioritise among an existing pre-determined set of wetland sites and therefore the issue is to what extent these wetland sites compare among themselves based on this criterion.

Definition of each scoring is presented in the following table:

Score	Definition
3 Points	Ecosystem services present have high importance, extent or significance
2 Points	Ecosystem services present have medium importance/extent or significance
1 Point	Ecosystem services present have low importance/extent or significance
0 Point	No information or not relevant for the site

5.6 Information Availability

Since the current activity is to select priority sites for testing, the availability of information on a site will be an important determinant of selection. Although information can be gathered during a site visit, the extent of available information prior to a visit helps prioritisation.

Sources of information might include:

(i) National databases
(ii) International databases
(iii) Knowledge of national experts
(iv) Knowledge of non-governmental organisations
(v) Local knowledge – where this is accessible (as opposed to the importance of local knowledge during wetlands visits).

Some additional sources of information are included for each criterion description in section 4.

Evaluation of this criterion will rely on the best professional judgement of National Experts. Interpretation of the terms "high", "medium" and "low" information availability will need to be based local expert opinion and can be to some extent subjective. Likewise "no information" for the site can also only be determined absolutely through a more thorough investigation. Teams should bear in mind that they are not trying to provide a definitive professional opinion of information availability compared to all other wetlands – but are attempting to provide supplementary information to prioritise among an existing pre-determined set of wetland sites and therefore the issue is to what extent these wetland sites compare among themselves based on this criterion.

Definition of each scoring is presented in the following table:

Score	Definition
3 Points	High level of information available for most of the site selection criteria used in stage 1 (Criteria 1 to 11)
2 Points	Moderate level of information available for many of the site selection criteria used in stage 1 (Criteria 1 to 11)
1 Point	Some information available for some of the site selection criteria used in stage 1 (Criteria 1 to 11)
0 Point	No relevant information available for most of the site selection criteria used (Criteria 1 to 11)

5.7 Under Conservation Management

The extent to which a site is under existing conservation management is important regarding selecting sites for site testing. Existing conservation management measures usually mean: (i) the site will have a support network and experts that can assist with knowledge generation and on-site field testing; (ii) there will be an existing management system which can be used as a framework to build strengthened wetlands inventories, monitoring, evaluation, site designation and on-site management measures (rather than starting from scratch).

Conservation management can be assessed by whether the site has:

(i) Legal status: as per national and/or international category and legal status of protected areas: For example-
   a. Global international legal and other formal designations: Ramsar, World Heritage site, UNESCO Biosphere Reserve {Other global designation} etc.
   b. Regional international legal and other formal designations
   c. National legal and other formal designations

(ii) Non-statutory designations, e.g. Important Bird Area, Important Plant Area (Other non-statutory designations), etc.

(iii) Informal (community-based) conservation management arrangements.

Particular importance should be given to the known existence of strong local, informal, community-based conservation management arrangements at a site. These often represent the most effective and knowledgeable platforms for site management.

Guidance and a draft data collection form for assessing the level of management and conservation status of a wetland are provided in Annex H-7 of the Preliminary Guidelines for The Implementation of the LMB Wetland Inventory using the Methodology and Tool of Wetland Ecosystem Functions, Assets and Services Assessment and Management (WEFASAM) and Wetland Biodiversity Indicator Assessment (WBIA) (document 4/2017).

Definition of each scoring is presented in the following table:

Score	Definition
3 Points	Very strong conservation management measures in place
2 Points	Moderate conservation management measures in place
1 Point	Limited conservation management measures in place
0 Point	No known conservation management measures in place

References

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Annex A: Example of National Wetland Ranking Matrix

National Wetland Ranking Matrix	
Country	
Participant	

SHORT-LISTED WETLANDS		Step 3 Wetland Ranking Criteria							Total wetland score (0 to 21)	RANK
		1. bio-diversity significance	*2. Hydro-logical importance*	*3. Rareness and uniqueness*	*4. Importance to biome maintenance*	*5. Human use/ ecosystem services*	*6. avail-ability of information*	*7. under conservation management*		
0	*Name: example*	*Insert individual scores 0-3* Score A	Score B	Score C	Score D	Score E	Score F	Score G	*Add up all the average scores for total score = (A+B+C+D+E+F+G)*	
1										
2										
3										
4										
5										
6										
7										

Annex B: MRC Wetland Classification Coding Supporting Inventory

MRC WETLAND CLASSIFICATION CODING_SUPPORTING INVENTORY

MARINE		ESTURINE	
Wetland types/habitats (Level 2- 5)	Coding	Wetland types/habitats (Level 2- 5)	Coding
subtidal/permanent flooding			
non-vegetated			
bare - rocky/consolidated	MS1a	bare - rocky/consolidated	ES1a
bare - unconsolidated	MS1b	bare - unconsolidated	ES1b
mariculture	MS1dm	mariculture	ES1dm
salt works	MN1im	salt works	ES1im
coral and vegetated			
coral	MS2a	coral	ES2a
artificial coral	MS2am	artificial coral	ES2am
seagrass	MS2b	seagrass	ES2b
seaweed	MS2c	seaweed	ES2c
seaweed farm	MS2cm	seaweed farm	ES2cm
mariculture	MS2dm	aquaculture	ES2hm
watercourse	MS3	**watercourse**	ES3
intertidal/temporary flooding			
non-vegetated			
beach/sandy	MI1c	beach/sandy	EI1c
mudflat/silty	MI1d	mudflat/silty	EI1d
cliff/rocky	MI1f	cliff/rocky	EI1f
tidal pool	MI1g	tidal pool	EI1g
salt works	MI1im	salt works	EI1im
aquaculture	MI1hm	aquaculture	EI1hm
coral and vegetated			
coral	MI2a	coral	EI2a
artificial coral	MI2am	artificial coral	EI2am
seagrass	MI2b	seagrass	EI2b
seaweed	MI2c	seaweed	EI2c
seaweed farm	MI2cm	seaweed farm	EI2cm
mangrove/forest	MI2d	mangrove/forest	EI2d
mangrove/plantation	MI2dm	mangrove/plantation	EI2dm
saltmarsh/forbs	MI2e	saltmarsh/forbs	EI2e
agriculture	MI2jm	agriculture	EI2jm
Marine - lagoon	ML	other	EI2k

RIVERINE	
Wetland types/habitats (Level 2- 5)	Coding
neutral/permanent flooding	
deep pool	RRa
natural channel	RRb
artificial channel	RRbm
rapid/riffles	RRc
waterfall	RRd
thermal spring	RRe
subterranean spring/stream	RRf
temporary flooding	
deep pool	RRta
natural channel	RRtb
artificial channel	RRtbm
rapid/riffles	RRtc
waterfall	RRtd
thermal spring	RRte
subterranean spring/stream	RRtf
BEACH/BANK/BAR/ROCKY	
beach/bank/bar	RB
rocky outcrop	RK
LAKE	
Lake > 8 ha	
neutral flooding	
natural	LL
manmade	LLm
temporary flooding	
LLt - natural	LLt
LLtm - manmade	LLtm
pond/lake < 8 ha	
neutral flooding	
natural	LP
manmade	LPm
aquaculture	LPma
sewage treatment	LPmb
farm	LPmc
cooling	LPmd
borrow pit/quarry	Lpme
other	LPmf
temporary flooding	
natural	LPt
manmade	LPtm
Saline lake > 8 ha	LS

FRESHWATER WETLANDS/VEGETATION	
Wetland types/habitats (Level 2- 5)	Coding
neutral/permanent flooding	
wet grassland/marsh (nature)	FW1
wet grassland/marsh (manmade)	FW1m
rice/agriculture (recession)	FW2rr
rice/agriculture (rainfed)	FW2rf
rice/agriculture (irrigated)	FW2i
swamp/woody scrub	FW3
swamp/woody scrub (introduced/alien species)	FW3m
Emergent woody scrub	FW3a
flooded forest (nature)	FW4
flooded forest (plantation)	FW4m
other wet crops	FW5
other wet crops (irrigated)	FW5m
peatlands: bryophytes/sedges/rushes	FW6
Peatlands: woody shrubs/trees	FW6a
temporary flooding	
wet grassland/marsh (nature)	FWt1
wet grassland/marsh (manmade)	FWt1m
rice/agriculture (recession)	FWt2rr
rice/agriculture (rainfed)	FWt2rf
rice/agriculture (irrigated)	FWt2i
swamp/woody scrub	FWt3
swamp/woody scrub (introduced/alien species)	FWt3m
Emergent woody scrub	FW3at
flooded forest	FWt4
flooded forest (plantation)	FWt4m
other wet crops	FWt5
other wet crops (irrigated)	FWt5m