

THE CONVENTION ON WETLANDS
64th meeting of the Standing Committee
Gland, Switzerland, 20-24 January 2025

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Proposed draft resolution on assessing wetland vulnerability

Submitted by the Republic of Korea

Action requested:

The Standing Committee is invited to review and approve the attached draft resolution for consideration by the 15th meeting of the Conference of the Contracting Parties.

Secretariat cover note

The draft resolution presents an overview of the Wetland Vulnerability Assessment Tool (WETVAT) developed by the Ramsar Regional Center – East Asia in collaboration with experts and the Government of the Republic of Korea and the Government of the Philippines. It invites Contracting Parties and other stakeholders to utilize the approach in the assessment and management of wetlands.

The STRP has been invited to review the draft resolution.

Introduction

This draft resolution responds to the need to ensure the wise use of wetlands and to recognize, assess and understand the vulnerability of wetlands to a multitude of threats.

The draft resolution presents an overview of the Wetland Vulnerability Assessment Tool (WETVAT) developed by the Ramsar Regional Center – East Asia in collaboration with experts and the Government of the Republic of Korea and the Government of the Philippines.

The draft resolution requests the Contracting Parties to take note of the WETVAT described in the Annex and invites Contracting Parties and other stakeholders, in a voluntary capacity, to utilize the approach in the assessment and management of wetlands.

The technical elements of the WETVAT have been subjected to consultation and evaluation with wetland managers from East Asia and beyond.

There are no financial implications of this draft resolution on the Secretariat.

Paragraph	Action	Cost (CHF)
All	None	None

Draft Resolution XV.x on Assessing wetland vulnerability

1. ACKNOWLEDGING that the concept of the wise use of wetlands, as described in Annex A to Resolution IX.1, *Additional scientific and technical guidance for implementing the Ramsar wise use concept*, is at the centre of the Convention's efforts to halt and reverse wetland loss;
2. RECOGNIZING that the wise use of wetlands requires a thorough understanding of the drivers of change so that the root causes of wetland loss and degradation can be addressed (*Global Wetland Outlook*, 2018);
3. ALERT to the fact that, globally, wetlands have declined by 35% since 1970 and that deterioration of wetlands continues to be widespread (*Global Wetland Outlook: Special Edition*, 2021), and CONCERNED that this trend, if not addressed adequately, will affect the achievement of the United Nations 2030 Sustainable Development Goals (SDGs), mitigation and adaptation to climate change under the Paris Agreement and the UN Framework Convention on Climate Change, and the Kunming-Montreal Global Biodiversity Framework adopted by the Convention on Biological Diversity;
4. AWARE of the need to assess the status, trends and threats to wetlands as set out in Annex E of Resolution IX.1, *Additional scientific and technical guidance for implementing the Ramsar wise use concept* and in the mandate to the Scientific and Technical Review Panel in Annex 2 of Resolution XIII.8, on *Future implementation of scientific and technical aspects of the Convention 2019-2021*, that explicitly highlights the need for best practice methodologies and/or tools to monitor Wetlands of International Importance;
5. NOTING that effective wetland management, as described in Resolution XII.15, *Evaluation of the management effectiveness of Ramsar Sites*, requires an understanding and evaluation of the threats to the ecological character of a site;
6. FURTHER NOTING the requirement under Resolution XI.8, on *Streamlining procedures for describing Ramsar Sites at the time of designation and subsequent updates*, to ensure that a comprehensive description of factors (actual and likely) adversely affecting a site's ecological character is provided in the Ramsar Information Sheet (RIS) of a Wetland of International Importance; and
7. CONCERNED that, without adequate assessment of the drivers of negative change, the vulnerability of wetlands, including Wetlands of International Importance, to a diversity of threats, will continue;

THE CONFERENCE OF THE CONTRACTING PARTIES

8. RECOGNIZES the need to assess the vulnerability of wetlands to a variety of threats and drivers of negative change in ecological character;
9. REAFFIRMS the long-term value of taking a participatory approach when evaluating threats to wetlands, including to Wetlands of International Importance;
10. CALLS ON Contracting Parties when monitoring the condition of Wetlands of International Importance, and other wetlands, to ensure that such assessments not only include biological and hydrological components but also consider the vulnerability of the ecological character of the wetlands to a variety of threats;

11. TAKES NOTE of the Wetland Vulnerability Assessment Tool (WETVAT) described in Annex 1 of this Resolution; and ENCOURAGES Contracting Parties to consider, as appropriate, using the approach to assess the vulnerability of wetlands, especially those related to Article 3.2 of the Convention;
12. FURTHER ENCOURAGES Contracting Parties, in the use of the approach described in Annex 1 or other similar approaches, to adopt adaptive management principles that allow for continuous data collection, periodic review, and iterative assessment as new information becomes available, thereby enhancing the effectiveness in responding to emerging threats and knowledge gaps;
13. ALSO ENCOURAGES Contracting Parties, as appropriate, to utilize the approach described in Annex 1, or other relevant approaches to assess wetland vulnerability, when describing the status of Sites on the List of Wetlands of International Importance in their National Reports and Ramsar Information Sheets;
14. INVITES Contracting Parties to allocate resources, where available, or seek partnerships with Ramsar Regional Initiatives and relevant international organizations to facilitate training, workshops, and resource sharing aimed at strengthening technical capacities for assessing and addressing wetland vulnerabilities;
15. CONFIRMS that this Resolution does not create additional reporting obligations for Parties, or financial implications on the Secretariat; and
16. THANKS the Ramsar Regional Center – East Asia for their sponsorship and organization that laid the foundation for the WETVAT.

Annex 1

Overview of the Wetland Vulnerability Assessment Tool (WETVAT)

Introduction

1. Throughout the world, wetlands are vulnerable as they are exposed to a range of pressures. In some locations, these pressures and potential impacts are well-documented and are being successfully addressed. However, at other locations, lack of data, resources and methods are hindering thorough vulnerability assessments. This is particularly the case in remote wetlands or those with limited management resources.
2. Assessment of threats to wetlands are often carried out as part of environmental impact analysis for development projects or as an element site management planning, particularly for Wetlands of International Importance. But in many cases assessment methods have been established in industrialized countries and are ill-adapted to conditions in less developed countries, where knowledge of wetlands is often less complete and resources more limited. The data required to carry out detailed assessment of many wetlands often does not exist and, as a result, few vulnerability assessments have been carried out. Furthermore, the communities that depend most heavily on a wetland are often those without the resources to carry out a formal assessment.
3. A joint Ramsar Convention-WWF-led initiative designed to foster the regional cooperation for long-term wetland conservation recommended development of tools to facilitate monitoring and evaluation of climate change and other impacts on Wetlands of International Importance and other wetland sites¹. As a result, the EU Asia Pro-Eco programme funded the development of a set of inventory and assessment methods for Greater Himalayan wetlands². An initial vulnerability assessment method was developed for high-altitude wetlands in the Himalayan region and was tested on both remote and non-remote sites³. The method was based on an earlier assessment of the ecosystem services provided by a wetland and the pressures that wetlands face⁴.

Recent development of the Wetland Vulnerability Assessment Tool

4. The method developed through the work on Greater Himalayan wetlands has subsequently been enhanced for application across the domain of the Ramsar Regional Center - East Asia (RRC-EA), and beyond, and tested on a wider range of sites in the region. The resulting Wetland Vulnerability Assessment Tool (WETVAT) is directly complementary to other tools and voluntary approaches available to wetland managers, such as the Rapid Assessment of Wetland Ecosystem Services (RAWES)⁵ and Ramsar Site Management Effectiveness Tracking Tool (R-METT)⁶. Furthermore, it contributes to ensuring that robust environmental impact assessments are undertaken and measures identified to minimize the impacts of projects on wetland

¹ WWF, 2006. Conservation of high-altitude wetlands in the Himalayas. Report of the Fourth Regional Workshop. Capacity building for high altitude wetlands conservation and management. New Delhi, India, 27–29 June 2006.

² ICIMOD, 2009. *A manual for an inventory of Greater Himalayan wetlands*. Kathmandu, Nepal: International Centre for Integrated Mountain Development (ICIMOD).

³ Stratford, C. J., Acreman, M. C., & Rees, H. G. 2011. A simple method for assessing the vulnerability of wetland ecosystem services. *Hydrological Sciences Journal*, 56(8), 1485-1500.

⁴ Stratford, C.J., Acreman, M.C., Rees, H.G. and Shilpakar, R., 2008. A vulnerability assessment method for wetlands in the Himalayan region. Report to the Asia Pro-Eco Programme of the European Commission.

⁵ Resolution XIII.17: Rapidly assessing wetland ecosystem services.

⁶ Resolution XII.15: Evaluation of the management and conservation effectiveness of Ramsar Sites.

ecosystems, and consequently to protect and maintain the ecological character of wetlands as encouraged through Resolution XIV.16⁷.

5. WETVAT integrates the fundamental importance of wetlands for conserving biodiversity and their role in delivering ecosystem services founded on that biodiversity. The method described in this Annex identifies biodiversity separately as a fundamental component of the ecological character of a wetland but integrates the importance of wetlands both for conserving biodiversity and their role in delivering ecosystem services. The term “value” is used to cover both these elements, since the Convention uses the term to indicate both the intrinsic importance of wetlands for biodiversity and the significance of ecosystem services to people.

Aim of the tool

6. Wetlands are vulnerable to a wide range of human threats and environmental change including overgrazing by livestock, dam construction, pollution, drainage and climate change. Therefore, if the intrinsic characteristics and values that these wetlands possess are to be conserved, identification, assessment and management of threats must be undertaken. WETVAT does not address natural dynamics of wetlands that may alter their characteristics over time, rather it assesses the vulnerability of the system to a range of threats.
7. The aim of this tool is to equip governments, conservation agencies and wetland managers throughout the world with the ability to assess the vulnerability of their wetlands and to combine information with other wetland assessments to assess vulnerability at multiple scales. The tool has been specifically developed based on the knowledge that many organizations do not have the information or expertise required to carry out a full, detailed assessment. However, it recognizes that local and Indigenous knowledge of a site is often extremely comprehensive and just needs to be collated and structured in a way that facilitates vulnerability assessment.

Method overview

8. WETVAT is an interactive spreadsheet-based tool (in Microsoft Excel). It is complementary to the Convention’s published framework for assessing the vulnerability of wetlands to climate change⁸. Both assess the likely response of the values associated with the wetland system to the range of identified threats. However, WETVAT assesses a much wider set of threats including, but beyond, climate change. WETVAT is deliberately set up to assess the values and threats from a local stakeholder perspective and in its analysis is likely to include both quantitative and qualitative data.
9. WETVAT uses a risk-based approach to assess vulnerability of wetlands to threats. Vulnerability is based on the likelihood of occurrence of negative impacts and the severity of any impact on biodiversity and ecosystem services. The risk score (High, Medium, Low) enables wetland managers to prioritize conservation activities, and their required resources, and identifies wetlands in need of further consideration and more detailed impact assessment.

⁷ Resolution XIV.16 Integrating wetland protection, conservation, restoration, sustainable use and management into national sustainable development strategies.

⁸ Gitay, H., Finlayson, C.M. and Davidson, N.C., 2011. A framework for assessing the vulnerability of wetlands to climate change. Gland, Switzerland: Ramsar Convention Secretariat, and Montreal, Canada: Secretariat of the Convention on Biological Diversity, Ramsar Technical Report no. 5 / CBD Technical Series no. 57. ISBN 92-9225-361-1 (print); 92-9225-362-X (web).

10. The WETVAT spreadsheet tool consists of six linked worksheets within one Microsoft Excel file:
 - Worksheet 1: Start page
 - Worksheet 2: Ecosystem components
 - Worksheet 3: Ecosystem services
 - Worksheet 4: Threats
 - Worksheet 5: Assessment
 - Worksheet 6: Summary
11. *Worksheet 1: Start page.* General information, for instance on the name of the site, the date of the assessment and the assessor(s), is entered into Worksheet 1. The worksheet also highlights, through a simple traffic light system, the status of the subsequent worksheets with regards to their state of completion (Fig. 1).
12. *Worksheet 2: Ecosystem components.* The ecosystem components record the biodiversity interest of the site (at genetic, species and ecosystem levels). Information is recorded under five categories: (i) wetland-dependent fauna; (ii) wetland-dependent flora; (iii) habitat diversity; (iv) genetic diversity; and (v) other ecological values (Fig. 2).
13. For each of the categories, an evaluation is made of the importance of the component using a four-point scale: (i) ++ highly significant component; (ii) + significant component; (iii) 0 negligible component; (iv) ? gaps in evidence. These scores represent the relative magnitude of the value of the component at the site. The assessor also has to enter a second score for each of the five ecosystem components. This second score relates to the certainty of the value. These two scores are combined in a simple matrix to give a single score that reflects both the magnitude and certainty of the value of each of the five ecosystem component categories.
14. To complete Worksheet 2 requires the assessor to identify survey data in local and national inventories and datasets held in government departments and universities, by non-governmental organisations, such as wildlife groups and knowledge held by local and Indigenous people. It can also include data from international databases, such as the Ramsar Sites Information Service and IUCN Red Lists.
15. *Worksheet 3: Ecosystem services.* The ecosystem services record the multiple benefits that the site is providing to human society. Information is recorded for different ecosystem services under four main categories (with the total number of services in each category given in parenthesis): provisioning (10), regulatory (16), cultural (8) and supporting services (6) (Fig. 3).
16. For each ecosystem service, an evaluation is made of the importance of its contribution to beneficiaries of the service using a four-point scale: (i) ++ significant positive contribution; (ii) + positive contribution; (iii) 0 negligible contribution; (iv) ? gaps in evidence. These scores represent the relative magnitude of the value of the ecosystem service at the site. The assessor also has to enter a second score for each of the ecosystem services. This second score relates to the certainty of the value. These two scores are combined in a simple matrix to give a single score that reflects both the magnitude and certainty of the value of each of the ecosystem services.
17. The structure of Worksheet 3 is directly compatible with the RAWES worksheet. This allows for a direct transfer from one tool to another. Where a RAWES assessment has been undertaken it would be normal to assign a high degree of certainty to the inputs. However, in situations where RAWES has not been applied, the assessor will have to evaluate the ecosystem services

being provided by the site through other means such as conducting participatory workshops, utilizing other formal ecosystem service assessment methodologies or consulting with local stakeholders, knowledge holders and staff. Under these circumstances the certainty may be lower.

18. *Worksheet 4: Threats.* The threats are recorded under the 13 categories presented in Data Sheet 3 of RMETT, namely:
 - Residential and commercial development (within site)
 - Agriculture and aquaculture (within site)
 - Energy production and mining (inside the site)
 - Transportation and service corridors inside the site
 - Biological resource use and harm within the site
 - Human intrusions and disturbance within the site
 - Natural system modifications
 - Hydrological change
 - Invasive and other problematic species and genes
 - Pollution entering into, or generated from within, the site
 - Geological events
 - Climate change and severe weather
 - Specific cultural and social threats

19. Further, more detailed threats are listed under each of the 13 categories. A total of 48 threat categories are available for reporting. For each threat two scores, one for likelihood of the threat and one for the severity of threat, are recorded and a simple matrix is automatically generated to give a single score for each threat. The allocated score is based on: (H) high significance are those which are seriously degrading the site's values; (M) medium are those threats having some negative impact; (L) those characterized as low are threats which are present but not seriously impacting values; (N/A) where the threat is not present or not applicable to the site; and (U) where information on the threat is unknown.

20. *Worksheet 5: Assessment.* The assessment worksheet automatically links the wetland values (ecosystem components and ecosystem services) and the threats to the wetland. This worksheet determines how the threats are likely to impact on the components and services. This worksheet has pre-defined default values based on information derived from multiple publications and peer-reviewed literature.

21. Worksheet 5 combines all of the values in a single matrix and gives a single output for each value and threat intersection (based on equation (1)). The assessment worksheet presents a synthesis of all the values that the wetland provides, the threats that the wetland is under, and shows which threats impact on which values.

$$\text{Final Assessment Value} = \text{Value Score} \times \text{Link} \times \text{Threat Score} \quad (\text{Equation 1})$$

22. Since the threat scores H, M, L and N can be assigned numerical values of 3, 2, 1 and 0, respectively, the final assessment score is a number between 0 and 27. Scores between 0 and 9 are colour coded green, considered to be relatively low threats, scores between 10 and 18 are colour coded amber and scores between 19 and 27 are colour coded red, to emphasize the components and services under significant threat.

23. The method is designed so that an assessment can still be conducted in situations where data are limited or missing and, in those cases, the finished assessment will highlight missing data. By

entering a U (Unknown) next to a value or threat, the spreadsheet looks to see whether there is the potential for a negative impact and, if so, highlights this in the assessment in Worksheet 5. Flexibility is incorporated into the method by providing space for “other values/threats”, in which the user can write in their value or threat (or both), and these will appear in the subsequent worksheets. This facilitates input of any unanticipated values or threats present at the site.

24. *Worksheet 6: Summary.* Because Worksheet 5 contains a significant range of information, the main threats and the components and services under threat are summarized in Worksheet 6 to assist wetland managers with prioritizing future management actions.

Utilizing the results

25. WETVAT has been designed to be used for both Wetlands of International Importance and other wetlands. The results can be utilized for a range of purposes including *inter alia* investigating actual or potential threat scenarios of projects or developments which may impact on a wetland site; for informing the prioritization of resource allocation for intervention to mitigate threats; to inform management planning activities within site management plans; or to highlight knowledge gaps and to prioritize resourcing towards understanding and addressing the most significant threats.

Figure 1. Worksheet 1: Start page



WetVAT

RRC-EA Wetland Vulnerability Assessment Tool

Developed by: Charlie Stratford, Mike Acreman and Rob McInnes
 Created: Nov-21
 Last Updated: Oct-24
 Version 3.0

Assessment Status	
Ecosystem Components	Incomplete
Ecosystem Services	Incomplete
Threats	Incomplete
X-Ref	Complete

Figure 2. Worksheet 2: Ecosystem components

Ecosystem Components		
Ecosystem Components	Score	Comments
Wetland Dependent Fauna	<input type="text"/>	cent wetland survey identified 36 endangered species dependent on the wetland system.
Wetland Dependent Flora	<input type="text"/>	Locally rare orchid present throughout wetland complex.
Habitat Diversity	<input type="text"/>	Very diverse habitat - not present elsewhere in region
Genetic Diversity	<input type="text"/>	Not currently quantified
Other ecological values	<input type="text"/>	No other important ecological components of value
INSTRUCTION: ENTER INFORMATION IN ALL THE GREY CELLS (NOTE: THEY WILL CHANGE COLOUR FOLLOWING DATA ENTRY) USING THE DROP DOWN MENU, SELECT THE APPROPRIATE SCORE FOR EACH COMPONENT BASED ON THE VALUES BELOW		
Scoring system	Score	Description
++	Significant Positive	Including all Red List species or nationally important species and habitats
+	Positive	Including sub-nationally important species and habitats
0	Negligible	Limited or no important ecological components
?	Gaps in Evidence	No relevant evidence or information currently available

Figure 3. Worksheet 3: Ecosystem services

Ecosystem Services		
Provisioning Services	Score	Comments
Fresh water	<input style="width: 100%;" type="text"/>	
Food	<input style="width: 100%;" type="text"/>	
Fuel	<input style="width: 100%;" type="text"/>	
Fibre	<input style="width: 100%;" type="text"/>	
Genetic resources	<input style="width: 100%;" type="text"/>	
Natural medicines or pharmaceuticals	<input style="width: 100%;" type="text"/>	
Ornamental resources	<input style="width: 100%;" type="text"/>	
Clay, mineral, aggregate harvesting	<input style="width: 100%;" type="text"/>	
Energy harvesting from natural air and water flows	<input style="width: 100%;" type="text"/>	
Other provisioning services	<input style="width: 100%;" type="text"/>	
Regulatory Services		
Air quality regulation	<input style="width: 100%;" type="text"/>	
Local climate regulation	<input style="width: 100%;" type="text"/>	
Global climate regulation	<input style="width: 100%;" type="text"/>	
Water regulation	<input style="width: 100%;" type="text"/>	
Flood hazard regulation	<input style="width: 100%;" type="text"/>	
Storm hazard regulation	<input style="width: 100%;" type="text"/>	
Pest regulation	<input style="width: 100%;" type="text"/>	
Disease regulation - human	<input style="width: 100%;" type="text"/>	
Disease regulation - livestock	<input style="width: 100%;" type="text"/>	
Erosion regulation	<input style="width: 100%;" type="text"/>	
Water purification	<input style="width: 100%;" type="text"/>	
Pollination	<input style="width: 100%;" type="text"/>	
Salinity regulation	<input style="width: 100%;" type="text"/>	
Fire regulation	<input style="width: 100%;" type="text"/>	
Noise and visual buffering	<input style="width: 100%;" type="text"/>	
Other regulatory services	<input style="width: 100%;" type="text"/>	
Cultural Services		
Cultural heritage	<input style="width: 100%;" type="text"/>	
Recreation and tourism	<input style="width: 100%;" type="text"/>	
Aesthetic value	<input style="width: 100%;" type="text"/>	
Spiritual and religious value	<input style="width: 100%;" type="text"/>	
Inspiration value	<input style="width: 100%;" type="text"/>	
Social relation	<input style="width: 100%;" type="text"/>	
Educational and research	<input style="width: 100%;" type="text"/>	
Other cultural services	<input style="width: 100%;" type="text"/>	
Supporting Services		
Soil formation	<input style="width: 100%;" type="text"/>	
Primary production	<input style="width: 100%;" type="text"/>	
Nutrient cycling	<input style="width: 100%;" type="text"/>	
Water recycling	<input style="width: 100%;" type="text"/>	
Provision of habitat	<input style="width: 100%;" type="text"/>	
Other supporting services	<input style="width: 100%;" type="text"/>	

Scoring system	Score	Description
++	Significant Positive	Important service with many beneficiaries
+	Positive	Minor service with relatively few beneficiaries
0	Negligible	Limited or no service with very few beneficiaries
?	Gaps in Evidence	No relevant evidence or information currently available

NOTE: SCORING IS BASED ON THE RAPID ASSESSMENT OF WETLAND ECOSYSTEM SERVICES (RAWES) APPROACH

INSTRUCTION: ENTER INFORMATION IN ALL THE GREY CELLS (NOTE: THE SCORE CELLS WILL CHANGE COLOUR FOLLOWING DATA ENTRY)
USING THE DROP DOWN MENU, SELECT THE APPROPRIATE SCORE FOR EACH SERVICE BASED ON THE VALUES ABOVE

Figure 4. Worksheet 4: Threats

Threats						
Threat Categories	Overall Threat Score	Overall Confidence Score	Threat Severity	Severity Confidence	Threat Likelihood	Likelihood Confidence
1. Residential and commercial development (within site)						
Housing and settlement	M	2	M	H	M	M
Commercial and industrial areas	H	1	H	L	H	L
Tourism and recreation infrastructure	M	2	H	M	L	M
2. Agriculture and aquaculture (within site)						
Annual and perennial non-timber crop production		0				
Drug cultivation		0				
Wood pulp and plantations		0				
Livestock farming and grazing		0				
Marine and freshwater aquaculture		0				
3. Energy production and mining (inside the site)						
Oil and gas drilling		0				
Mining and quarrying		0				
Energy generation, including from hydropower dams, wind farms and solar panels		0				
4. Transportation and service corridors inside the site						
Roads and railroads		0				
Utility and service lines		0				
Shipping lanes and canals		0				
Flight paths		0				
Ports with large scale loading and unloading of goods		0				
5. Biological resource use and harm within the site						
Hunting, killing and collecting of terrestrial animals		0				
Collecting terrestrial plants or plant products (non-timber)		0				
Logging and timber harvesting		0				
Fishing, killing and harvesting of aquatic resources		0				
6. Human intrusions and disturbance within the site						
Recreational activities and tourism		0				
War, civil unrest and military exercises		0				
Research, education and other work-related activities		0				
Activities of site managers		0				
Vandalism, destructive activities or threats to staff and visitors		0				
7. Natural system modifications						
Habitat clearing		0				
Fire and fire suppression		0				
Dams, hydrological modification and water management/use		0				
Increased fragmentation within the site		0				
Isolation from other natural habitats		0				
Other 'edge effects' that degrade the site values		0				
Loss of keystone species		0				
7a. Hydrological change						
Dams within or upstream of the site, which alter the hydrological regime		0				
Water extraction / diversion within the site or catchment		0				
Excess ponding of water onsite		0				
Loss of hydrological connectivity		0				
Drought conditions		0				
Desertification		0				
8. Invasive and other problematic species and genes						
Invasive plant species		0				
Invasive animal species		0				
Pathogens		0				
Introduced genetic material		0				
9. Pollution entering into, or generated from within the site						
Household sewage and urban waste water from outside the site		0				
Sewage and waste water from site facilities		0				
Industrial, mining and military effluents		0				
Agricultural and forestry effluents		0				

Score	Description
H	Threat is seriously degrading the site's values.
M	Threat has some negative impact on the site's values.
L	Threat is present but does not seriously impact the site's values.
N	N/A - the threat is not present or applicable to the site.
U	Unknown

NOTE: SCORING IS BASED ON THE R-METT APPROACH

INSTRUCTION: ENTER INFORMATION IN ALL THE GREY CELLS (NOTE: THE SCORE CELLS WILL CHANGE FOLLOWING DATA ENTRY). ENTER SUPPORTING DETAILS IN THE COMMENTS CELLS.

USING THE DROP DOWN MENU, SELECT THE APPROPRIATE SCORE FOR EACH THREAT THE VALUES ABOVE

Figure 4. Worksheet 4: Threats (continued)

Threats					
Dams within or upstream of the site, which alter the hydrological regime		0			
Water extraction / diversion within the site or catchment		0			
Excess ponding of water onsite		0			
Loss of hydrological connectivity		0			
Drought conditions		0			
Desertification		0			
8. Invasive and other problematic species and genes					
Invasive plant species		0			
Invasive animal species		0			
Pathogens		0			
Introduced genetic material		0			
9. Pollution entering into, or generated from within the site					
Household sewage and urban waste water from outside the site		0			
Sewage and waste water from site facilities		0			
Industrial, mining and military effluents		0			
Agricultural and forestry effluents		0			
Garbage and solid waste		0			
Air-borne pollutants		0			
Excess energy		0			
10. Geological events					
Volcanoes		0			
Earthquakes / tsunamis		0			
Avalanches / landslides		0			
Erosion and siltation / deposition		0			
11. Climate change and severe weather					
Habitat shifting and alteration		0			
Droughts		0			
Temperature extremes		0			
Storm and flooding		0			
12. Specific cultural and social threats					
Loss of cultural links, traditional knowledge and / or management practices		0			
Natural deterioration of important cultural site values		0			
Destruction of cultural heritage buildings, gardens, sites, etc.		0			

Score	Description
H	Threat is seriously degrading the site's values.
M	Threat has some negative impact on the site's values.
L	Threat is present but does not seriously impact the site's values.
N	N/A - the threat is not present or applicable to the site.
U	Unknown

NOTE: SCORING IS BASED ON THE R-METT APPROACH

INSTRUCTION: ENTER INFORMATION IN ALL THE GREY CELLS (NOTE: THE SCORE CELLS WILL CHANGE FOLLOWING DATA ENTRY). ENTER SUPPORTING DETAILS IN THE COMMENTS CELLS.
USING THE DROP DOWN MENU, SELECT THE APPROPRIATE SCORE FOR EACH THREAT THE VALUES ABOVE

Figure 6. Worksheet 6: Summary




Threats Summary		
	Overall Threat Score	Overall Confidence
1. Residential and commercial development (within site)		
Housing and settlement		
Commercial and industrial areas		
Tourism and recreation infrastructure		
2. Agriculture and aquaculture (within site)		
Annual and perennial non-timber crop production		0
Drug cultivation		0
Wood pulp and plantations		0
Livestock farming and grazing		0
Marine and freshwater aquaculture		0
3. Energy production and mining (inside the site)		
Oil and gas drilling		0
Mining and quarrying		0
Energy generation, including from hydropower dams, wind farms and solar panels		0
4. Transportation and service corridors inside the site		
Roads and railroads		0
Utility and service lines		0
Shipping lanes and canals		0
Flight paths		0
Ports with large scale loading and unloading of goods		0
5. Biological resource use and harm within the site		
Hunting, killing and collecting of terrestrial animals		0
Collecting terrestrial plants or plant products (non-timber)		0
Logging and timber harvesting		0
Fishing, killing and harvesting of aquatic resources		0
6. Human intrusions and disturbance within the site		
Recreational activities and tourism		0
War, civil unrest and military exercises		0
Research, education and other work-related activities		0
Activities of site managers		0
Vandalism, destructive activities or threats to staff and visitors		0
7. Natural system modifications		
Habitat clearing		0
Fire and fire suppression		0
Dams, hydrological modification and water management/use		0
Increased fragmentation within the site		0
Isolation from other natural habitats		0
Other 'edge effects' that degrade the site values		0
Loss of keystone species		0
7a. Hydrological change		
Dams within or upstream of the site, which alter the hydrological regime		0
Water extraction / diversion within the site or catchment		0
Excess ponding of water onsite		0
Loss of hydrological connectivity		0
Drought conditions		0
Desertification		0
8. Invasive and other problematic species and genes		
Invasive plant species		0
Invasive animal species		0
Pathogens		0
Introduced genetic material		0

Figure 6. Worksheet 6: Summary (continued)

9. Pollution entering into, or generated from within the site		
Household sewage and urban waste water from outside the site		0
Sewage and waste water from site facilities		0
Industrial, mining and military effluents		0
Agricultural and forestry effluents		0
Garbage and solid waste		0
Air-borne pollutants		0
Excess energy		0
10. Geological events		
Volcanoes		0
Earthquakes / tsunamis		0
Avalanches / landslides		0
Erosion and siltation / deposition		0
11. Climate change and severe weather		
Habitat shifting and alteration		0
Droughts		0
Temperature extremes		0
Storm and flooding		0
12. Specific cultural and social threats		
Loss of cultural links, traditional knowledge and / or management practices		0
Natural deterioration of important cultural site values		0
Destruction of cultural heritage buildings, gardens, sites, etc.		0

Score	Description
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Overall Threat Score

	Low threat
	Medium threat
	High threat

Overall Confidence

	High confidence
	Medium confidence
	Low confidence

INSTRUCTION: VALUES ARE AUTOMATICALLY GENERATED