

# Wadden Sea Board

## WSB 27

13 November 2018  
Copenhagen, Denmark



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<b>Agenda Item:</b>	<b>5</b>
<b>Subject:</b>	<b>Proposal for Wadden Sea World Heritage Area to be a pilot site for the development of a global assessment tool, the Climate Vulnerability Index (CVI)</b>
<b>Document No.:</b>	WSB 27/5.1/3
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<b>Submitted by:</b>	<b>CWSS</b>

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Climate change is the fastest growing threat impacting World Heritage (WH) properties worldwide. The consequence is a decline in the values that collectively comprise the Outstanding Universal Value (OUV) for many WH properties.

For a systematic global assessment of climate change related threats and risks to OUVs of World Heritage properties, a proposal of a Climate Variability Index (CVI) was developed by Jon Day from the ARC Centre for Coral Reef Studies, James Cook University, Townsville, Australia, a former manager at the Great Barrier Reef Marine Park Authority. The CVI has been successfully tested at three individual World Heritage properties within Australia. The need for such a tool has been underlined by World Heritage experts at the WH Committee meeting in Bahrain in 2018.

Mr Jon Day has now approached CWSS with the offer to comprehensively test the CVI at the Wadden Sea as pilot World Heritage property in Europe. For the Wadden Sea World Heritage property, the CVI may provide a standardised tool to rapidly assess impacts of climate change on the OUV, and it may provide a comparable tool for the Periodic Reporting, State of Conservation reports and may also prove helpful in the next Wadden Sea Quality Status Report exercise.

**Proposal:** The WSB is invited to consider supporting the development of the Climate Vulnerability Index (CVI) for the Wadden Sea in conjunction with international experts. As a first step, the WSB is requested to instruct the CWSS, together with TG-WH and TG-C, to recommend different options for cooperation, including time planning and budget. On basis of this recommendation, the WSB may decide on whether the Wadden Sea World Heritage property might become a pilot site for consideration of the CVI concept by UNESCO and the World Heritage Committee, and how to organise it trilaterally.

## Developing a Climate Vulnerability Index (CVI) A global assessment tool for World Heritage properties

### Background

Climate change is the fastest growing threat impacting all World Heritage (WH) properties, whether they are natural, cultural or mixed properties. The extent to which individual WH properties are currently being impacted by climate change varies, as is the variety of climate change-related drivers (or pressures) causing those impacts (refer to Table 1) and the rate at which these impacts are occurring. The consequence, however, is a decline in the values that collectively comprise the Outstanding Universal Value (OUV) for many WH properties.

Currently the WH Operational Guidelines (the documentation used for managing all WH properties) has very limited 'tools' to deal with impacts on WH values. WH In-Danger (WHID) is the primary tool in the Guidelines, but WHID was developed to deal primarily with local threats that a State Party can resolve with sufficient capacity. Furthermore, the majority of WH properties could realistically be considered as being potentially in-danger from the impacts of climate change.

UNESCO and the WH Committee urgently need better guidance and a more appropriate tool to deal with climate change. WHID however should still be regarded as an option when the OUV of properties is in serious decline, or projected in the near future to be in serious decline.

Climate change presents a global threat which is ubiquitous in its coverage and causing a wide range of impacts, and needs to be assessed through a new and comprehensive framework. A **Climate Vulnerability Index (CVI)** is therefore currently being developed which aims to:

- be a **rapid assessment tool**, able to be consistently applied to **all WH properties** (natural, cultural and mixed);
- be **systematic and comprehensive** yet not overly complex (climate change itself is a complex issue, so the CVI needs to balance scientific and political credibility with an ability to be undertaken by managers or non-scientific users at the WH property level);
- assess **thematic groupings** to assist with the assessment of individual WH properties, particularly if exemplar WH properties can be used to assist the assessment of other WH properties with similar values;
- assess **individual properties** using the same process, so as to (where possible) build upon relevant assessment of thematic groupings;
- rapidly assess the physical and ecological impacts of CC on values, but also provide a high-level assessment of the **economic, social and cultural consequences** of CC;
- be undertaken **either by experts** at a thematic level .... or by **site managers** at the property level (with guidance and be able to be checked/ confirmed by other assessors);
- be **transparent and repeatable** allowing for repeat assessments over time to assess trends;
- be **proactive** (not waiting for climate change impacts to be obvious)
- put **climate change into context** – climate change is becoming a dominant threat to many WH values, but climate change is only one of many cumulative pressures impacting on WH properties;

- assist in **better understanding by local communities and users** of climate change and its impacts on WH properties;
- be **standardized** enough that it can ultimately become part of WH processes (such as State of Conservation reports, periodic reporting and nominations).

The CVI methodology (see Figure 1) is based on a risk assessment approach and systematically considers the following:

- the **likelihood** and **consequences** of 3-5 key climate change drivers determined by experts who know the relevant property or its thematic grouping;
- the **adaptive capacity** at the level of an individual property;
- the **economic, social and cultural consequences** of climate change on the property.

Once the CVI is assessed for an individual property, the outcome is a relative assessment rather than an absolute ranking. However, the CVI has the added advantage in that it enables WH properties with similar values but less expertise to benefit from assessments undertaken in key exemplar properties.

Fruitful discussions have occurred with several European WHAs and it is hoped they will conduct trials in the near future (one of these is a serial WH property, which introduces an additional level of scrutiny for the methodology).

The IUCN Protected Areas Climate Change Specialist Group has taken the CVI on as a project for their current (2018-19) work plan; the ICOMOS Climate Change and Heritage Working Group has also been briefed and is supportive of the CVI.

Australia's peak scientific agency (CSIRO) were present at the Shark Bay WHA workshop and some of their datasets will be extremely useful when applying the CVI in all Australian WHAs; additional datasets for Qld WHAs at an even finer resolution have recently been located.

Table 1 – list of key climate change drivers/stressors leading to impacts on WH values.

Driver/stressor	Synonyms	Timeframe
air temperature change	warming; hotter average weather; increased evaporation; desiccation	chronic
change in wind	gale; gusts; storms ... also changes in wind direction?)	chronic
drought frequency and severity	aridity; dehydration; below average rainfall; prolonged water shortage	chronic
extreme temperature events	heatwaves, bleaching; hot spell; desiccation	acute
humidity change	evaporation; moisture content; oppressiveness; condensation; clamminess; sweatiness	chronic
precipitation change	rainfall; rainstorms; showers; drizzle; heavy dew; hailstorms; sleet; snow	chronic
storm intensity and frequency	cyclone; hurricane; typhoon; blizzard; tornado; storminess	acute
water temperature change	SST; warming	chronic
storm surge	storm floods; storm tides; coastal flooding; cyclones; hurricanes	acute
storm intensity and frequency	cyclone; hurricane; typhoon; waterspout; blizzard; storminess	acute
extreme heat events	heatwaves, bleaching; hot spell; desiccation	acute
sea level change	sea level rise; flooding; subsidence; post-glacial rebound; coastal vulnerability	chronic
precipitation change	rainfall; rainstorms; showers; drizzle; heavy dew; hailstorms; sleet; snow	chronic
ocean acidification	OA; pH change; acidity; calcification rate; chemical reaction	chronic
changing ocean currents	ocean circulation; ocean dynamics; ocean 'conveyor-belt'	chronic

The final CVI incorporates elements of natural and/or cultural vulnerability, as well as the economic-social-cultural consequences of CC

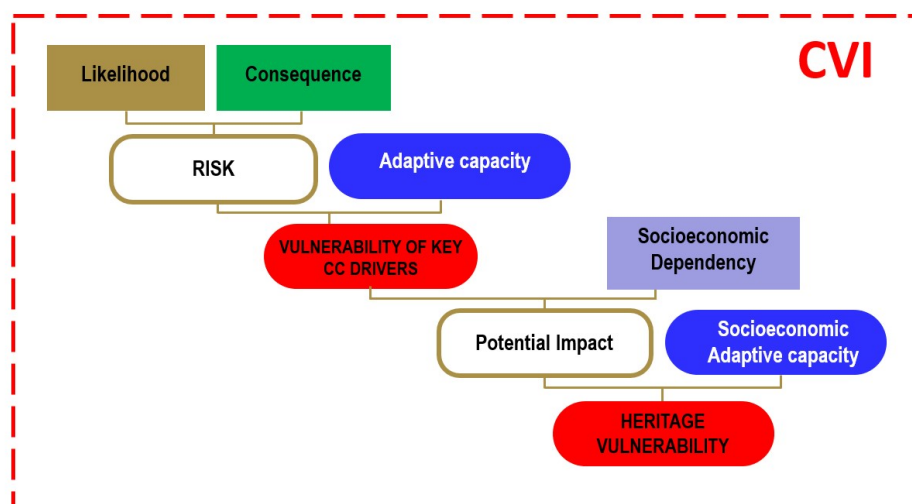


Figure 1 – The Climate Vulnerability Index (CVI) methodology

Further information about the CVI is available from:

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