

**TASK GROUP
World Heritage
TG-WH 28**

**30 August 2019
Wilhelmshaven**

Common
Wadden Sea
Secretariat



Agenda Item:	6
Subject:	Climate Vulnerability Index (CVI): progress and participant list
Document No.:	TG-WH 28/6/1
Date:	26 July 2019
Submitted by:	CWSS

At WSB28, a [proposal](#) by The Task Groups Climate (now: Expert Group Climate, EG-C), taking into account comments by TG-WH was endorsed, for the Wadden Sea World Heritage property to be a pilot site for development and application of a Climate Change Vulnerability Index (CVI).

This document contains an overview of workshop logistics and a draft work programme, drafted by CWSS, with input from EG-C and the CVI developers Jon Day and Scott Heron. Logistics and work programme are based on experiences gained during recent workshops in Shark Bay Australia and Orkney.

In addition, the document contains an extended list of possible participants, as suggested by TG-WH, EG-C and CWSS, which will be further discussed at the EG-C at its meeting on 17 – 19 September 2019.

Proposal: **TG-WH is invited to note the information and to comment on the draft participant list as appropriate.**

Task 2.1: Organisation of a CVI workshop

This draft outline is based on experiences from CVI workshops in Shark Bay and the Orkneys, as outlined by the CVI developers Mr Jon Day and Mr Scott Heron.

1. Planning committee

Chairpersons of TG-WH and EG-C (Ms Barbara Engels, Mr Robert Zijlstra)
CWSS (Mr Harald Marencic, Ms Julia Busch)
CVI developers (Mr Jon Day, Mr Scott Heron)

The planning committee (virtually) meets regularly before the workshop.

The CVI developers will act as independent facilitators of the workshop.

2. Workshop Participants

Aim is to invite approx. 30-35 participants to ensure that work in four small groups is manageable while ensuring diversity. The group of participants should include geologists/morphologists, biologists/ecologists, site managers, planners, climate scientists, local NGOs and agency representatives. Some of these should be members of the trilateral Expert Group Climate and the Task Group World Heritage. The three countries of the TWSC Denmark, Germany and the Netherlands should be represented, as well as the three German Länder and CVI developers from Australia

A list with suggested participants (Annex 1) has been compiled by CWSS, EG-C, TG-WH and the CVI developers. The selection will be made based on the background of suggested participants as outlined above, taking into account that the CVI workshop will cover the OUV vulnerability (first part of the CVI process) and therefore respective experts for this part should be invited. The community vulnerability (full CVI assessment) may be addressed after successful completion of the workshop.

3. Workshop location

Need for 1) plenary room (approx. 30-40 persons) and 2) preferably four small rooms for group sessions.

The location should be central, e.g., Hamburg (BSU) or Bremen (TBD), D. Other options: Leeuwarden (House for the Wadden), NL; Husum (Kreishaus), D.

4. Workshop date and duration

Date: Second half of January 2020 (postponed to 2020, due to availability of CVI developers)

Duration: 1.5 days, noon to evening.

5. Pre-workshop information and tasks for participants

A short framing document on the CVI process, climate change in general, and climate change in the Wadden Sea is being prepared by CWSS, EG-C and CVI developers. This document will base on the World Heritage Nomination Dossier where appropriate. The document will be shared with the workshop participants before the workshop.

In addition, pre-workshop tasks will be sent to the participants, with the request to 1) read the Statement of OUV and compiled list of attributes/key values, to understand how the latter were compiled and to document queries or concerns; and to 2) consider which climate change drivers are significant for the OUV and for attributes/key values.

6. Follow up (under development)

- D1.1rev Revised list of attributes/key values will be used, e.g., for development of the Single Integrated Management Plan, and QSR;
- D1.3 rev: Possibly updated list of CVI climate stressors;
- D2.1: short workshop report on main climate stressors and potential impact
- Insights / lessons learnt on CVI method will serve method development and future workshop planning;
- WSB will be informed on results and possible next steps;
- Second part of the CVI assessment (Community Vulnerability) in a second workshop.

7. Draft programme

The programme and times are adapted from the Orkneys workshop, but shortened to 1.5 days.

The workshop is planned for 1.5 days (ie. 0.3 day familiarisation, 1 full day on the CVI assessment and 0.2 day summary/ evaluation). An outline of the agenda will be distributed to participants before the workshop;

The actual program will comprise a mixture of Plenary and Group sessions:

Plenary session

Group session

Four small group sessions undertaking assessments and then reporting back to plenary sessions. The make-up of the small groups was deliberately chosen to, as far as possible, ensure a similar mix across each group of background, experience and agency representation.

Day 1 13:00 – 17:30 (4:15 plus 15 minutes coffee break)

A working lunch will be provided when the workshop participants arrive from 11:45-12:45

1. Overview of workshop aims, introductions, use of plenary and small-group sessions, logistics (toilets, coffee-breaks, etc.) - presentation (~25 min)

AIM 1: Understand Climate Change Vulnerability Index (CVI) framework and its application in the Wadden Sea

2. Provide full overview of CVI concept, followed by discussion - presentation (~35 min (20+15min))

AIM 2: Understand the significant values that comprise the OUV for the Wadden Sea

3. Ensure all participants are aware of the Statement of OUV for the Wadden Sea and how the table of key values was derived from the SoOUV - interactive (~30 mins)

4. Room to discuss important values not yet covered by key values (~15 mins)

AIM 3: Understand future CC scenarios facing the Wadden Sea

5. Provide overview of CC scenarios, differences in projected impacts from scenarios including timescales, and geographically-specific projections - presentation (~45 min)

AIM 4: Assess the Climate Change (CC) drivers impacting the values of the Wadden Sea and select key CC drivers

6. Show list of CC drivers – check for (i) understanding? (ii) timescales? Do example together of brainstorming key CC drivers impacting ONE OUV attribute from Table 1- presentation (~45 min).

7. Using the list of CC drivers as provided, ask small groups to brainstorm what are the key CC drivers impacting the OUV attributes - interactive (~60 min)

Day 1 evening 19:00

Joint dinner?

Day 2 morning 09:00 – 13:00 (3:50 plus 10 minutes coffee break)

8. Bring outputs from **#Fehler! Verweisquelle konnte nicht gefunden werden.** back to plenary and

Day 2 morning 09:00 – 13:00 (3:50 plus 10 minutes coffee break)
ensure all participants agree on which CC drivers are impacting the attributes of OUV - interactive (~30 min)
AIM 5: Evaluate vulnerability of OUV to key CC drivers, considering exposure and sensitivity. Analyse one or two scenarios ('Business as Usual' and 'Paris Agreement').
9. Revisit process, including detail of thresholds, for exposure and sensitivity. Review the potential impact matrix that combines these. Revisit process for adaptive capacity and review the OUV vulnerability matrix that combines these - - presentation (~40 min).
10. Participants in groups assess the exposure and sensitivity (thus determining potential impact) and adaptive capacity (thus determining OUV vulnerability) for the key CC drivers. Analyse one agreed scenario e.g. 'Business as Usual' - interactive (~90 min)
11. Bring outputs from #Fehler! Verweisquelle konnte nicht gefunden werden. back to plenary and discuss any variation in assessments of exposure, sensitivity and adaptive capacity, and any effect on OUV vulnerability (~40 min).
Lunch 13:00 – 14:00
Day 2 afternoon 14:00 – 17:00 (2:50 h plus 10 minutes coffee break)
12. Identify industries directly dependent upon WH property - interactive (~50 min)
AIM 6: Consider economic, social and cultural dependencies (sensitivity) and adaptive capacity, to determine Community Vulnerability (~60 min).
13. Revisit process for analysing economic, social and cultural dependency. Review the socio-economic potential impact matrix that combines these. Revisit process for analysing economic, social and cultural adaptive capacity - presentation (~20 min).
14. Plenary discussion/brainstorming on economic, social and cultural dependency and adaptive capacity. Discuss any variation in assessments of economic, social and cultural dependency, and corresponding adaptive capacity. Examine any effect of these on Community vulnerability - interactive (~40 min).
AIM 7: Summary, feedback and next steps - interactive (~60 min)
16. Summarise outcomes from workshop, following final analysis worksheet. Receive feedback on CVI framework and workshop process.
17. Recap on those items that had been 'parked' during the workshop
18. Conduct workshop evaluations; other feedback from participants.
Workshop will conclude at 17:00
Day 3 (one day ,committee only)
AIM wrap up committee Debriefing and drafting sections of the report

Annex 1: Draft List of participants to be invited to the CVI workshop

This list contains possible participants of the CVI workshop as suggested by EG-C, TG-WH and CWSS and the CVI developers.

Participants should include geologists/morphologists, biologists/ecologists, site managers, planners, climate scientists, local NGOs and agency representatives. Some of these should be members of the trilateral Expert Group Climate and the Task Group World Heritage. The three countries of the TWSC Denmark, Germany and the Netherlands should be represented, as well as the three German Länder and CVI developers from Australia

A selection of approx. 30-35 participants will be made based on the background of suggested participants, taking into account that the CVI workshop will cover the OUV vulnerability (first part of the CVI process) and therefore respective experts for this part should be invited.

Table: List of suggested participants for CVI workshop: GM geologists/ morphologists BE biologists/ ecologists SMg Site Managers, P Planners, CS Climate Scientist NGO local NGOs AR Agency representatives

#	Name	Affiliation	Country	why/expertise	GM	BE	SMg	P	CS	NGO	AR	CVI
1	Adam Markham	Union of concerned scientists	US	CVI								
2	Klaus Ricklefs	FTZ - Christian-Albrechts-University Kiel	D	Geology								
3	Christian Winter	marum/Christian-Albrechts-University Kiel	D	Geomorphology / QSR author geomorphology								
5	Albert Oost / Ad van der Spek	Deltares	NL	OUV geological perspective; QSR author geomorphology								
6	Martin Baptist	WMR/WUR	NL	OUV ecological perspective								
7	Maike Paul	Ludwig-Franzius-Institute- Leibniz University Hannover	D	seagrass/geomorphology								
8	Friederike Bungenstock	NIHK	D	QSR author geomorphology								
9	R Schrijvershof	Deltares	NL	QSR author geomorphology								
10	Frank Ahlhorn	Küste und Raum	D	geomorphology								
11	Quirin Lodder/ Rinse Wilmink	RWS	NL	BwN, geomorphology								
12	Per Sorensen/Anni Lassen	Kystdirektoratet	DK	BwN, geomorphology								
13	Ralf Vorberg	Marine Science Services	D	Expert Group Fish								
14	Katja Philippart	NIOZ	NL	QSR author climate ecosystem								
15	Eldar Rakhimberdiev	NIOZ	NL	Ornithologist								

#	Name	Affiliation	Country	why/expertise	GM	BE	SMg	P	CS	NGO	AR	CVI
16	Kai Jensen	University Hamburg	D	Salt marsh relation								
17	Justus E.E. van Beusekom	HZG	D	QSR author Eutrophication								
18	Christian Buschbaum	AWI	D	QSR author climate ecosystem								
19	Anders Galatius	Arhus University	DK	trilateral experts groups on seals								
20	Marco Brode	Bird life Denmark	DK	ornithologist								
21	Lies van Nieuwerburg	RWS	NL									
22	Alma de Groot	Wageningen Univ. Research	NL									
23	Jantsje van Loon	Wageningen Univ. Research	NL									
24	Kelly Elschot	Wageningen Univ. Research	NL									
25	Peter Herman	Deltares	NL									
26	Han Olf	RUG	NL									
27	Klemens Eriksson	RUG	NL									
28	Tom van der Have	Bureau Waardenburg	NL									
29	Jaap van der Meer	Wageningen Marine Research	NL									
30	Helmut Hillebrand	University Oldenburg	D	Plankton Ecology Lab/biodiversity & ecosystem processes								
31	Jesper Bartholdy	University of Copenhagen	DK	geomorphology / QSR author geomorphology								
32	Achim Wehrmann	Senckenberg	D	QSR author geomorphology								
33	Pier Vellinga	Waddenacademie	NL									
34	Dr. Martin Stock	National Park administration SH	D	Biology/ salt marshes, dunes								
35	Peter Südbeck/Gregor Scheiffarth	National park authority LS	D									
36	Anne Husum Marboe	Nationalpark Vadehavet	DK	TG World Heritage								
37	Klaus Janke/Peter Körber	National park authority HH	D									
38	Ute Ahrends	Oldenburg	D									

#	Name	Affiliation	Country	why/expertise	GM	BE	SMg	P	CS	NGO	AR	CVI
39	Insa Meinke	HZG, Leitung Norddeutsches Klimabüro	D	Climate scientist								
40	Ralf Weisse	HZG	D	QSR author climate change/ & socio economics								
41	Hans Ulrich Rösner	WWF	D	WWF								
42	NN	Waddenvereniging	NL									
43	Vera Knoke	Ministry of Energy, Agriculture, the Environment, Nature and Digitalization Schleswig Holstein	D	Further involved experts								
44	Saa Kabuta	RWS	NL	trilateral working group Alien Species								
45	Maren Bauer	Ministry of Energy, Agriculture, the Environment, Nature and Digitalization Schleswig Holstein	D	TG World Heritage								
46	Margrita Sobotka	National Park administration LS	D	TG World Heritage								
47	Heidi Nielsen	Danish Environmental Protection Agency (EPA)	DK	TG World Heritage								
48	Bernard Baerends	CWSS (from 15 September 2019)	NL	TG World Heritage								
49	Henrik Jorgensen	Danish Environmental Protection Agency (EPA)	DK	TG Management								
50	Jacobus Hofstede	Ministry of Energy, Agriculture, the Environment, Nature and Digitalization Schleswig Holstein	D	EG-C and QSR author climate change								
51	Carlo Sass Sørensen	Miljø- og Fødevareministeriet, Kystdirektoratet, Højbovej 1 7620 Lemvig	DK	morphological expert								
52	successor Bernard Baerends?	Ministry of Agriculture, Nature and Food Quality	NL									
53	Thomas Borchers	BMU Bonn	D									
54	NN	UNESCO commission Bonn	D	UNESCO								
55	Birgitta Ringbeck	Koordinierungsstelle Welterbe	D	UNESCO cultural expert								
56	Eelke O. Folmer	NIOZ - currently in Canada?	NL									
57	Sandra Fatoric	Delft University of Technology	NL	Cultural World Heritage; Climate-Smart Adaptation Planning								
58	Burghard Flemming	retired	D	OUV geological perspective								
59	Cor Smit	retired	NL	OUV ecological perspective								

#	Name	Affiliation	Country	why/expertise	GM	BE	SMg	P	CS	NGO	AR	CVI
60	Norbert Dankers	retired	NL	OUV ecological perspective								
61	Karsten Reise	retired	D	Ecology								
62	Jan.P. Bakker	retired	NL	Salt marsh								
63	Peter Becker	retired	D	Ornithology								
64	Karsten Laursen	retired	DK	Wadden Sea ecology / birds (ex member of trilateral JMMB)								
65	Hubert Farke	retired	D	Further involved experts/ex national park authority LS								
66	Gerard Janssen	retired	NL	QSR author climate change								
67	Adi Kellermann	retired	D	Chair TG-MA and Swimway								
68	Karel Essink	retired	NL	Further involved experts								
69	Jens Enemark	retired	DK									

Annex 2: Work packages of proposal for Wadden Sea World Heritage as pilot site for the development of the Climate Change Vulnerability Index (CVI) as adopted by WSB28

Work package title	1. Preparatory work		Duration: April – Jun 2019 ¹
Participants	TG-WH (lead), TG-C, CWSS, 1-2 external experts		
Objective	Preparation of input for CVI trial for Wadden Sea		
Description of work	<p>Task 1.1 Assessment of attributes of OUV of the Wadden Sea World Heritage property (including consideration of WSP2010 targets) during TG-WH regular meeting and/or commissioned work.</p> <p>Task 1.2 Literature review vulnerability/impact studies in the Wadden Sea Area (External).</p> <p>Task 1.3 Update list of climate stressors and pre-discuss priority for climate stressors and set outlook/climate scenarios for CVI (TG-C)</p>		
Deliverable	<p>D1.1 List of attributes to OUV of Wadden Sea World Heritage property</p> <p>D1.2 Report on vulnerability/impact studies Wadden Sea</p> <p>D1.3 List of climate stressors for the Wadden Sea and outlook CVI</p>		
Effort	<p>Person months (PM): 0.88</p> <p>External: 0.60 PM</p> <p>TWSC groups: 0,23 PM (covered by regular meetings)</p> <p>CWSS: 0.05 PM, incl. admin. activities</p>	<p>Costs: 10,000 EUR</p> <p>Attributes: Commissioned (TG-WH), within WH SP budget: 5,000 EUR</p> <p>Literature review: Commissioned (TG-C) 5,000 EUR</p>	

Work package title	2. Workshop: CVI for Wadden Sea – expert workshop		Duration: October 2019 ^{Fehler!} Textmarke nicht definiert.
Participants	TG-C & Mr Day (lead), TG-WH, CWSS, approx. 15-25 trilateral external experts & stakeholders (managers/national park authorities, NGOs, researchers/climate science,..)		
Objective	Determination of three key drivers of climate change for OUV attributes and assessment of vulnerability		
Description of work	<p>Task 2.1: organisation of a workshop.</p> <p>Organisation of an expert workshop. During the workshop the core of the CVI is to be discussed, and as far as possible, strive to get consensus on the most important risks for the OUV by climate change.</p> <p>During the workshop the following items will be presented or discussed with the experts:</p> <ul style="list-style-type: none"> • Present OUV and their attributes, share results of preliminary work on stressors and possible impacts of climate change • Discuss the possible impact of climate change stressors on all attributes of OUV including a time scale prioritised by attendees and selection of three main drivers (all workshop participants) • Assessment of likelihood of future exposure (<i>very likely, likely, possibly, unlikely, very unlikely</i>) and sensitivity of the OUV to each of the three drivers and future consequences (<i>catastrophic, major, moderate, minor, negligible</i>). Aspects of temporal frequency and 		

¹ The timeline may be adapted to align the process with the development of the UNESCO Single Integrated Management Plan (SIMP).

	<p>trend, spatial scale of impact, and any compounding factors should be considered to determine the risk of potential impact of each climate driver and determination of risk by likelihood x consequence (<i>low, moderate, high, extreme</i>) (work in small groups)</p> <p>Optional (maybe to be done in Work Package 3 if time during workshop is insufficient): Determination of vulnerability by assessing risk and adaptive capacity (possibly change of vulnerability under different scenarios) (all participants).</p>	
Deliverable	<p>D1.1 rev: Revised list of attributes to OUV of Wadden Sea World Heritage property (TG-WH)</p> <p>D1.3 rev: Updated list of CVI climate stressors and selection of most relevant ones (TG-C, Mr Day)</p> <p>D2.1: (short) workshop report, describing result of expert discussions a.o. on the main climate stressors, potential impact of those on the OUV and assessment of risk (<i>low, moderate, high, extreme</i>) and adaptive capacity (TG-C, commissioned post processing)</p> <p>D2.3: Insights / lessons learned on CVI method (Mr Day)</p>	
Milestone	M1 Successful trial of CVI for Wadden Sea	
Effort	<p>Person months: 5.83</p> <p>External: 5.13 PM (25 persons, 4 days)</p> <p>CWSS: 0.5 PM (incl. preparatory work)</p>	<p>Costs: 10,000 EUR</p> <p>Workshop facilitation incl. reporting: 6,000 EUR</p> <p>Travel Jon Day/Scott Heron: 4,000 EUR</p>

Work package title	3. Assessment of CVI Wadden Sea World Heritage Property	Duration: until February 2020 <small>Fehler! Textmarke nicht definiert.</small>
Participants	TG-C (lead), TG-WH, external experts	
Objective	CVI assessment on Wadden Sea OUV	
Description of work	<p>If M1 has been successfully completed and the CVI method development allows, an assessment of the CVI will be conducted. Complexity of this task depends on outcome of WP2.</p> <p>Task 3.1: Finalise the CVI assessment on basis of results from the workshop</p> <p>Task 3.2: Advise for further application of CVI in the Wadden Sea and further development of the method in general.</p>	
Deliverable	D3.3: Overall report with results of pilot “CVI for the Wadden Sea World Heritage”	
Effort	<p>Person months: 0.38</p> <p>Person months: 3.13</p> <p>External: analysis and reporting 5 days)</p> <p>CWSS: 0.5 PM (reviewing)</p>	<p>Costs: 5,000 EUR</p> <p>Reporting / Post processing: 5,000 EUR</p>

WP	Activity (year)	Estimated cost	Covered	Open
WP1	Assessment of attributes of OUV (2019)	5.000,00 €	5.000,00 €	- €
WP1	Literature review climate/vulnerability/impact studies (2019)	5.000,00 €	- €	5.000,00 €
WP2	Workshop (2019)	10.000,00 €	- €	10.000,00 €
WP3	Assessment of CVI / reporting	5.000,00 €	- €	5.000,00 €
		25.000,00 €	5.000,00 €	20.000,00 €

Financing of 20,000 EUR needed for 2019