CLIMATE CHANGE ADAPTATION IN THE WATERBOURNE TRANSPORT INFRASTRUCTURE INDUSTRY

Working Group 178

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Presentation Content

- The aim of this presentation is to inform, discuss, and request participation.
- No results yet.

- Content:
  - Aim of the working group and intended product
  - WG members
  - Structure of the report
  - Time schedule
  - PIANC climate roadmap

Climate Change Litterature

- International
  - IPCC report
  - PIANC TG3 report
- Regional
  - ACIA (Arctic Climate Impact Assessment)
- Many local reports describing climate change projections
- Some regional and local reports with suggestions for adaptation strategies
- Few national strategies describing adaptation plans

- No international guideline for adaptation to climate change!

The Aims

- to develop an approach to climate change adaptation planning and delivery for maritime and inland port and navigation infrastructure;
- to refer to the PIANC TG3 report on climate impacts (which is assumed to be subject to updating as necessary) indicating key regional differences as far as practicable;
- to collate other existing information on climate projections (links) where this is required to meet the WG objectives;
- to generate a toolbox of adaptation options including non-structural (e.g. management) as well as structural measures;
- to evaluate the effectiveness of different adaptation options in typical or generic climate change scenarios;
- to understand and provide guidance on addressing challenges and identifying priorities; and
- to provide a guidance framework for decision making.

The Aims

- The good practice technical guidance document will be particularly relevant to developing countries and countries in transition as these countries often have least existing experience and can learn most from what has been done elsewhere.
- However, the publication will also be pertinent to developed countries not least because, whilst there is existing experience in some of these countries, levels of dissemination and sharing of information about climate change and adaptation options are often very low.

Intended Product

- Provide an appropriate level of background information, including definitions of adaptation concepts and processes and links to sources of detailed information.

- Help the reader understand and explore the widest possible range of options available to adapt to the consequences of climate change; and to differentiate between:
  - conventional engineering options: situations in which the right answer might be building higher, stronger, wider or deeper;
  - non-structural measures: changes in management, operation or maintenance designed to facilitate the continued function of the physical infrastructure;
  - options which capitalise on the natural resilience and flexibility of nature: situations in which infrastructure resilience might be improved by enhancing nature;
  - novel options: doing things differently because the conventional solution is no longer sustainable; and
  - win-win options: options which explicitly seek adaptation solutions to benefit a number of players, and which may thus provide opportunities to share costs between a number of organisations.

Intended Product

- Discuss some of the challenges which could be faced, including scepticism about climate change, reluctance to invest in the collection and management of data, and a lack of capacity or resources. Suggest strategies for overcoming challenges (including resourcing constraints): raising awareness, developing ownership, mainstreaming climate change into business planning.

- Ensure the reader appreciates the importance of preparedness. This will in turn enable cost-effective and timely decisions to be taken on measures needed to reduce vulnerability and improve resilience.

Intended Product

- Describe a decision making framework; a tiered approach to adaptation decision making: (strategic level including integration with other interests; options appraisal; detailed assessment)

- Support all of the above through the collation and presentation of case studies.

- Highlight technical gaps that would benefit from the preparation of additional PIANC guidance; and identify research needs, etc. relevant to the sector but to be delivered by other organisations.

Working Group Members

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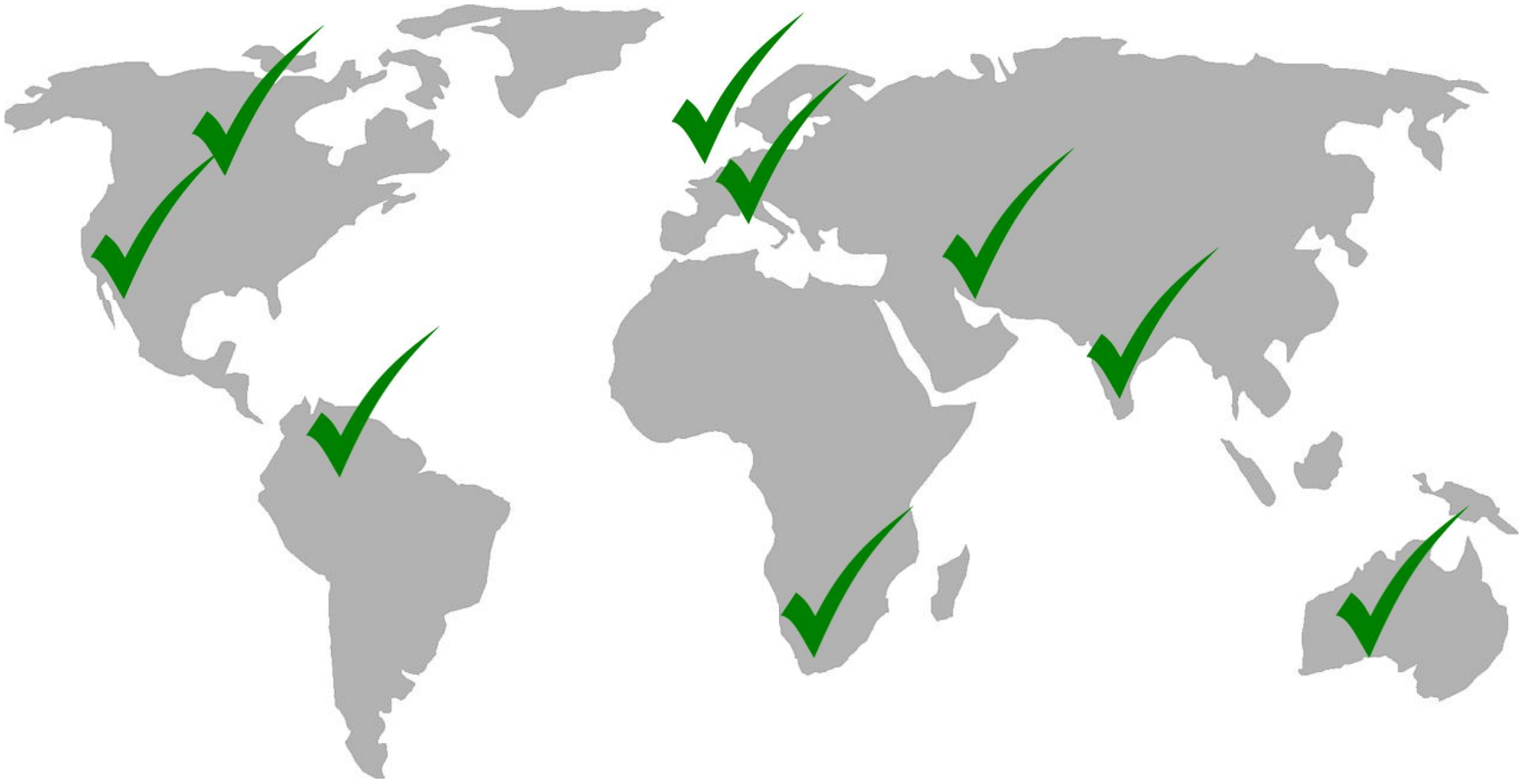
Working Group Members



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Structure

- 3 Sub-sections

1. Understanding the climate science
2. Identifying and assessing the risks and options
3. Case study/ Workshop

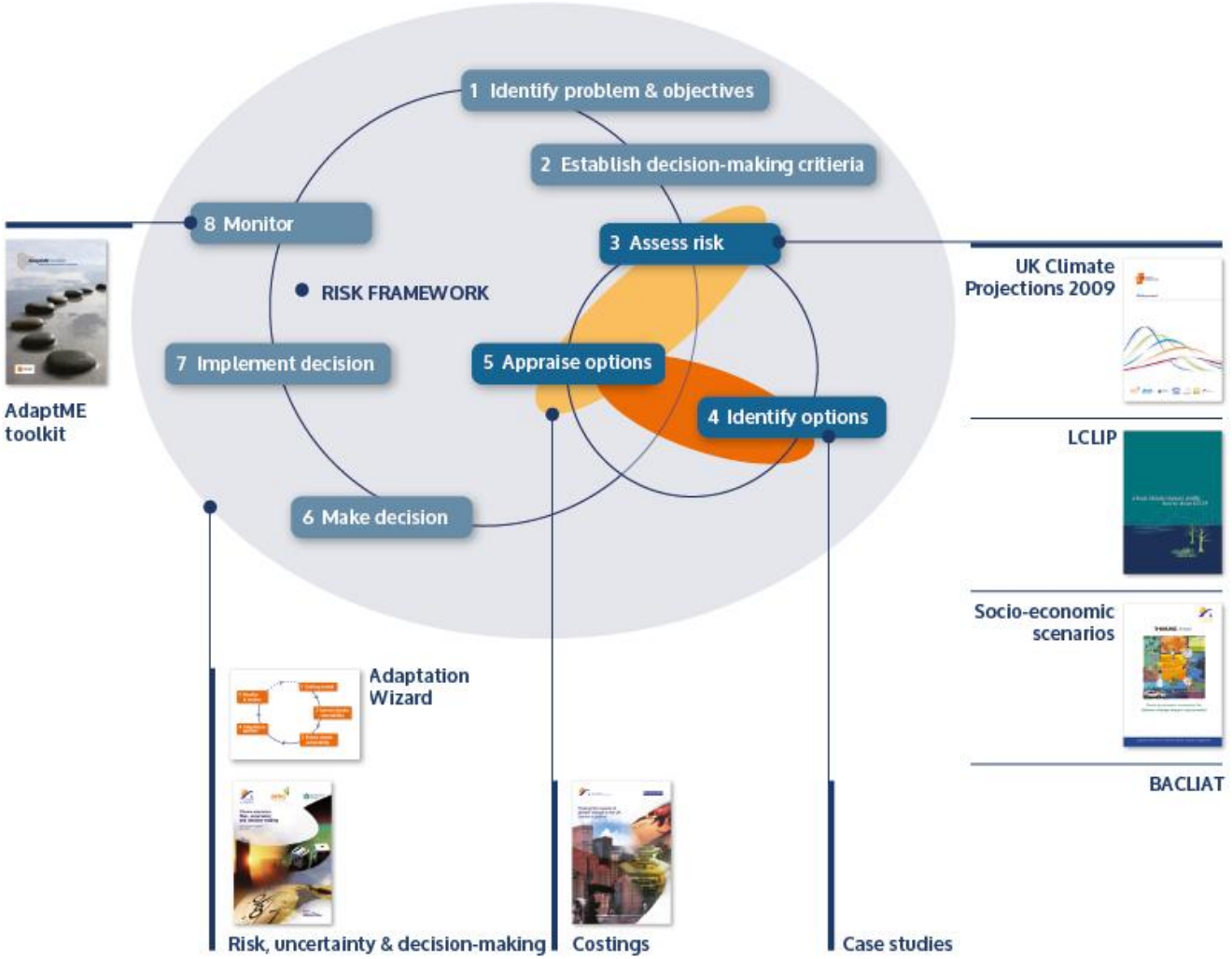
Understanding the Science

- TG3 – Climate change
- Identification and description of Drivers

Table 2.1: Climate-related Drivers and the Potential Impacts on Maritime and Inland Port and Navigation Infrastructure

Primary Drivers	Secondary Drivers	Potential Impacts on Maritime and Inland Port and Navigation Infrastructure
Water level (sea level, lake level, etc.)	• Waves • Currents	Submergence, flood damage, erosion, littoral transport, change in navigation depth, saltwater intrusion, rising water tables/impeded drainage, wetland loss and change.
Storms (cyclones, hurricanes, etc.)	• Surge • Waves • Winds • Cloud cover	Flooding, erosion, littoral transport, saltwater intrusion, rising water tables/impeded drainage, wetland loss and change, infrastructure damage, flood defense failure, and navigation downtime.
Waves	• Currents	Erosion, littoral transport, flooding, overtopping, infrastructure damage, and navigation downtime.
Winds	• Waves • Surge • Currents	Submergence, flood damage, erosion, saltwater intrusion, infrastructure damage, and navigation downtime.
Air Temperature	• Fog • Ice	Changes to stratification and circulation, change to navigation, and navigation downtime.
Precipitation	• Freshwater inflow • Currents	Flooding, erosion, and infrastructure damage.
Sea Surface Temperature	• Ice	Changes to stratification and circulation, and change to navigation. Change to ecology (algal blooms, species migration, etc.).
Biological/Chemical Changes	• Ocean acidity/pH • Water quality • Vegetation growth rate • Species migration	Change to ecology.

Identifying and Assessing the Risks and Options



(Source: http://www.ukcip.org.uk/wizard/tools-portfolio/)

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Schedule

- 1st draft – 10th October 2015

- Final report – December 2016

PIANC Climate Roadmap

NAVIGATING A CHANGING CLIMATE: ROAD MAP

2015	Themes	Actions	Underway by	2020 and beyond
Some exceptions, but **typically low levels of awareness; uncertainty** leading to **inaction**				
	1. Expand network; identify new coalition partners and supporters; raise awareness	1a. Progressively increase the numbers of individuals with access to coalition's products 1b. Improve coordination; provide a platform to collate and share existing experiences 1c. Facilitate conferences, workshops 1d. Gap analysis to define needs of wider sector	2015 2015 2015 2016	
	2. Reduce greenhouse gas emissions; promote shift to low carbon infrastructure	2a. Understand needs; facilitate informed choices 2b. Improve coordination; collate and share existing experiences of GHG reduction measures 2c. Promote benefits of waterborne transport 2d. Promote the uptake of relevant low carbon technology	2016 2016 2017 2017	
	3. Improve preparedness; strengthen resilience	3a. Improve preparedness through good practice guidance, workshops, etc. 3b. Facilitate the delivery of training courses, workshops, toolbox talks, secondments, networks 3c. Prepare sector-specific technical guidance on priority topics	2015 2016 2016	
	4. Working with Nature; seek integrated and sustainable solutions	4a. Promote take up of PIANC's *Working with Nature* philosophy; prepare technical guidance 4b. Seek and facilitate sustainable, integrated solutions, within and beyond the navigation sector	2016 2017	
				An **informed waterborne transport infrastructure sector, aware** of the issues; with **access to relevant resources**; making informed **mitigation** and **adaptation decisions**; **collaborating** with others; **Working with Nature**; delivering **integrated** and **sustainable solutions**

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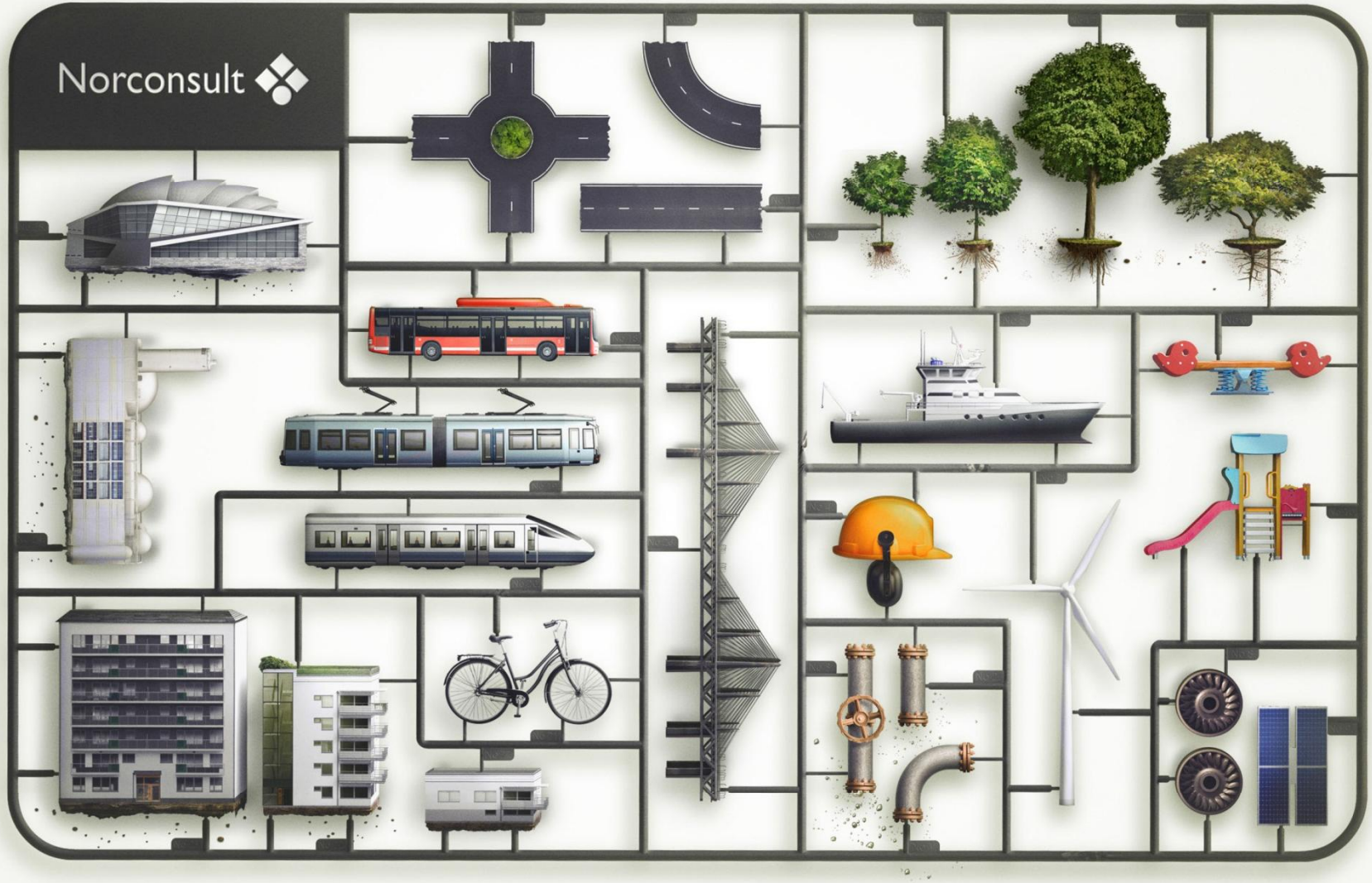
Input

- Suggestions (what would you like to see / need?)
- Case Studies
  - https://www.surveymonkey.com/r/navigating_climate_change



Thank you