



Climate change adaptation for ports and navigation infrastructure

A PIANC seminar and workshop, co-promoted by CEDA

0900-1730 hours, Monday 7th March 2016

Institution of Civil Engineers, Westminster, London

In December 2015, at COP21 (the 21st meeting of the conference of the parties to the UN Framework Convention on Climate Change, UNFCCC) 195 countries decided to adopt the so-called Paris agreement. This first-ever legally binding global climate deal initiates an international plan of action to put the world on track to avoid dangerous climate change by limiting warming to well below 2°C.

The Paris agreement is due to enter into force in 2020. However, this does not mean that no action is needed until that time. Even if the agreement succeeds in limiting warming to 2°C which in itself will require significant additional measures that go far beyond what is already pledged, we are already locked-in to a level of ongoing change. Some of the challenges associated with adapting transport infrastructure to the effects of climate change are significant. Many international institutions are already recognising the urgency of adaptation. For stakeholders, including those in the navigation community, there is no need to wait until 2020. The time to act is now.

PIANC participated in the COP21 transport-related side events, representing the 'Think Climate' coalition of eight international associations with interests in navigation infrastructure (see <http://www.pianc.org/thinkclimate.php>). Discussions in Paris highlighted that there are both challenges and opportunities if the resilience of port and navigation infrastructure is to be strengthened and/or adapted to the changing climate. And some of the countries and organisations that will be hit hardest are the least well resourced to adapt.

As an international community the navigation sector needs to work together: to share experiences, to build capacity, and to facilitate solutions. Structural and non-structural measures will be needed; adaptation needs to be institutional as well as physical. PIANC's Working Group 178 is currently preparing a technical guidance document to help the owners, operators and users of waterborne transport infrastructure adapt to climate change.

By raising awareness and providing a platform for the sharing of information, this workshop is intended not only to contribute to the work of Working Group 178 but also to help those in the sector understand the issues, so that they can prepare to help others.

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CLIMATE CHANGE ADAPTATION FOR PORTS AND NAVIGATION INFRASTRUCTURE

Programme

0900 hours Registration opens

0915 hours Welcome and introductions

0930 hours **Interpreting the climate science**

Keynote:

The application of climate projections and observations to address climate risks in ports. Iñigo Losada, Environmental Hydraulics Institute "IHCantabria", University of Cantabria, Spain

Where do I start? Navigating climate data to begin the adaptation process. Adam Hosking, Global Technology Leader with CH2M

Identifying and responding to project climate vulnerability: investment in ports projects. James Dunham, Senior Consultant and International Climate Change Adaptation Lead at Atkins

1025 hours Questions

1040 hours COFFEE

1110 hours **Communicating the climate science**

Facilitated* group discussion session 1: Translating international theory to local reality. Addressing gaps in our knowledge. Developing practical scenarios. Breaking out of the cycle of using uncertainty as a reason for inaction. Key steps and critical considerations.

1145 hours LUNCH

Whilst PIANC and CEDA will provide teas and coffees, participants are expected to make their own arrangements for lunch. The Institution of Civil Engineers has both a restaurant (Brasserie One) and a CafeBar. There are also several sandwich shops and similar within a ten minute walk of the Institution. Our lunch break is deliberately early to allow workshop participants to beat the lunchtime rush

1300 hours Key messages from Discussion session 1

1305 hours **Identifying and assessing the risks**

Keynote:

Climate risk assessments for ports: taking a value chain approach. Richenda Connell, CTO, Acclimatise

Climate risk and resilience for ports: defining the business case. David Viner, Mott MacDonald

Assessing the risks of climate change for an existing structure: Lessons learned from Howth East Pier, Ireland. Susana Lizondo, Arup

Climate change adaptation: engaging stakeholders and building capacity. Jan Brooke, Environmental Consultant and PIANC UK

1415 hours Questions

1425 hours **Climate change risk assessment: facilitating understanding and developing ownership**

Facilitated* group discussion session 2: Role of asset owners, operators and stakeholders. Key steps and critical considerations. Sensitivity, vulnerability and risk. Making risk assessment easy: if you do nothing else, do this!

1500 hours TEA

1530 hours Key messages from Discussion session 2

1535 hours **Resilience and adaptation solutions: some insights**

Integrating climate resilience into port sector investments: experience from the European Bank for Reconstruction & Development. Craig Davies, European Bank for Reconstruction and Development

Future-proofing ports and shipping: UK, Europe and the world. Peter Hunter, Technical Director (Engineering) HR Wallingford

Finding solutions in the face of uncertainty: the role of adaptive management. Charles Haine and Christine Adnitt, Royal Haskoning DHV

Benefit of gathering site-specific evidence in developing engineering solutions to climate change events. Adeniyi Aje and Ahmad Khattab, WSP|Parsons Brinckerhoff

Climate change resilience for inland waterways: the Canal & River Trust approach. Adam Comerford, Canal & River Trust

1635 hours Questions

1645 hours **Responding to the adaptation challenge: resilience, no regrets, low regrets, low-hanging fruit and adaptive management**

Facilitated* group discussion session 3: How can those in the navigation sector in Europe contribute to resolving urgent issues elsewhere in the world? Solutions that keep our options open: what experience is transferable and where are alternative solutions needed?

1720 hours Key messages from Discussion session 3

1725 hours Summing up and workshop close

***Facilitators:** Howard Richings (ex-RNLI, PIANC UKC); Laure Herbert (Mott MacDonald, PIANC UKC); Jan Brooke (Working Group 178 mentor, PIANC UKC); Ben Hodgkin (WG 178 secretary)

Speaker biographies

Prof. Iñigo Losada is a Coastal Engineering Professor affiliated at the School of Civil Engineering of the University of Cantabria. He is also Director of Research of the Environmental Hydraulics Institute "IH Cantabria". Prof. Losada holds a PhD from the University of Cantabria and a PhD from the University of Delaware. With research interests covering wave modeling, met-ocean climate, climate change and marine renewable energy, Losada has co-authored over 160 publications. From 2010-2014 he was the Coordinating Lead Author of the IPCC 5th Assessment Report on Climate Change. In 2014 he became a member of the ASCE Coastal Engineering Research Council. He is Editor-in-Chief of Coastal Engineering.

Adam Hosking is a Global Technology Leader with CH2M, with responsibility for Water Resources, including flood and coastal risk management and climate change adaptation services. A Fellow of CIWEM and Chartered Scientist, Adam has over 20 years professional experience, including 5 years working in the USA. He has provided technical leadership for coastal climate adaptation studies in many parts of the world, including the Caribbean, USA, Middle East and Singapore.

James Dunham is a Senior Consultant and International Climate Change Adaptation Lead at Atkins. James specialises in helping decision-makers and stakeholders understand and respond to climate risks and build resilience into their investments, projects and programmes. He has diverse sector and international experience in the field of climate resilience and climate change adaptation, including the ports and maritime sector. James is also a Certified Expert in Climate and Renewable Energy Finance and a Chartered Environmentalist.

Dr Richenda Connell is Chief Technical Officer (CTO) and Co-founder of Acclimatise, an advisory firm specialised in climate change adaptation and resilience. Richenda advises businesses, governments and international finance institutions on how to make activities resilient to climate risks, and on adaptation market opportunities. She has helped formulate the adaptation strategies of some of the world's largest companies.

David Viner is Principal Advisor Climate Resilience at Mott MacDonald. An internationally recognised climate change expert and practitioner with over 24 years of experience, David pioneered methods and techniques for disseminating climate change data to a diverse community of users. He established the Climate Impacts LINK Project, co-managed the IPCC-Data Distribution Centre and with CEFAS established the Marine Climate Impacts Programme (MCCIP). David worked at the world famous Climatic Research Unit, lead Natural England's work on climate change and delivered a global programme of engagement at the British Council. He has published over 100 peer reviewed papers and reports on all aspects of climate change.

Susana Lizondo is Senior Maritime Engineer in the Arup's Dublin office, specialising in the hydraulic modelling and assessment of coastal processes. She has been responsible for developing a wide range of coastal projects related to potential effects and mitigation measures on harbours and coastal areas due to Climate Change in various locations in the world. Susana is also member of the PIANC-PTGCC Working Group WG178 on climate change adaptation for maritime and inland port and navigation infrastructure.

Jan Brooke is the UK representative on PIANC's Permanent Task Group on Climate Change. As Focal Point for PIANC's international Think Climate coalition, Jan is responsible for developing the Navigating a Changing Climate Action Plan. In her day job, Jan's work with the port and navigation sector has included assisting several major UK ports with their climate change adaptation reports to Government (as required under the Climate Change Act 2008). She also wrote the commissioned paper on Climate Change implications for UK ports and navigation infrastructure for the Living with Environmental Change initiative.

As Head of Climate Change Adaptation at the EBRD, **Dr Craig Davies** leads EBRD's work to promote climate resilience through investment operations in Central and Eastern Europe, Central Asia, the Caucasus, Turkey and the Southern & Eastern Mediterranean. He has a particular interest in climate change impacts on emerging economies and in the integration of climate resilience into investment planning across a range of sectors (e.g. infrastructure, water, energy, financial services). Craig is also actively involved in a number of international climate finance mechanisms such as the Climate Investment Funds, the Green Climate Fund and the Global Environment Facility. His PhD in Environmental technology is from Imperial College London.

Peter Hunter has over forty years' experience as a civil engineer responsible for port and maritime projects in the United Kingdom and throughout the world. He was leader of the design team for the Cardiff Bay Barrage, and since 2004 has been Lender's Supervisor for a group of European banks for the \$3 billion St Petersburg Flood Protection Barrier. He has also worked on the expansion of the Panama Canal. Peter is a Technical Director of HR Wallingford, and is the UK representative on the PIANC Maritime Commission (MarCom) and a member of the PIANC Working Group on Port Master Planning.

Charles Haine advises port companies, operators, authorities and investors on sustainability, climate change and environmental risks. He joined Royal HaskoningDHV in London after 4 years as Global Environmental Manager at port operator DP World. He has a particular interest in the impact of capital works and construction activities which have a significantly bigger effect than operations. He has lived in Bahrain, Rotterdam and Sakhalin in Russia and is now based in Westminster, London.

Adeniyi Aje is a Regional Associate at WSP | Parsons Brinckerhoff's Bridges & Ground Engineering division with a keen interest in complex and/or large scale engineering infrastructure developments. He has wide experience in the design, analysis and construction supervision of maritime projects with experience in marine structures exposed to damage following major storm events. He has worked on the design and construction of major port developments including London Gateway, UK and Tangier Mediterranean, Morocco. He is also a member of WSP | Parsons Brinckerhoff's Technical Leadership Team for the Ports & Marine Structures discipline.

Ahmad Khattab is Assistant Engineer at WSP | Parsons Brinckerhoff's Bridges & Ground Engineering. He has worked on numerous major infrastructure projects in London including Crossrail and was involved in the design and assessment of several bridges as part of TfL's Structures and Tunnels Investment Portfolio. Ahmad was the designer of the scour protection scheme for Dunball New Bridge following the 2013/14 floods. He was recently shortlisted by the Institution of Civil Engineers (ICE) as one of the six most promising all-round civil engineering graduates of 2015.

Dr Adam Comerford is the National Hydrology Manager for the Canal & River Trust, the charity responsible for caring for 2000 miles of inland waterways in England and Wales. His role covers all aspects of water management, from operational support and advice on day to day water resources deployment and flood risk management, through to strategic planning for long term security of water supply for the network through to the 2050s. Adam has worked for British Waterways (predecessor body to the Canal & River Trust) since 2001 and is a Chartered Member CIWEM, with a role on the CIWEM Water Resources Panel.