CLIMATE RISK MANAGEMENT

STRATEGIES AND TOOLS FOR REGIONAL AND LOCAL CHALLENGES

Faculty of Sciences of the University of Lisbon

11-17 October 2023

FOREWORD

Climate Risk Management refers to activities and methods used by individuals, organizations, and institutions to facilitate climate-resilient decision-making. Managing climate-related risks, especially at the regional and local scale is therefore a key enabler of sustainable development. Identifying and managing risks associated with climate-related hazards can help to protect people, nature, livelihoods and assets, thereby promoting safer socio-ecological systems and communities, and the achievement of development goals.

No matter what sort of organisation you work in, you will be impacted in some way by the physical effects of our changing climate and/or by the wealth of regulations and targets societies will be increasingly required to meet.

Climate Risk Management approaches generally fall into five broad categories: (a) Mitigation; (b) Adaptation; (c) Climate Resilience; (d) Disaster Risk Reduction; (e) Geoengineering. These categories are not mutually exclusive, present trade-offs and are open to subjective value judgments. Managing climate risks will almost certainly include a combination of multiple responses and is highly dependent on scale.

The objective of this course is to explore why managing climate change risk is important to your work and organisation, but also how to do it. You will be asked to bring your own regional or local Climate Risk Management challenge(s) and share them with a community of other climate change practitioners. Together, you will explore a suit of strategies and tools to help you prepare for a changing future.
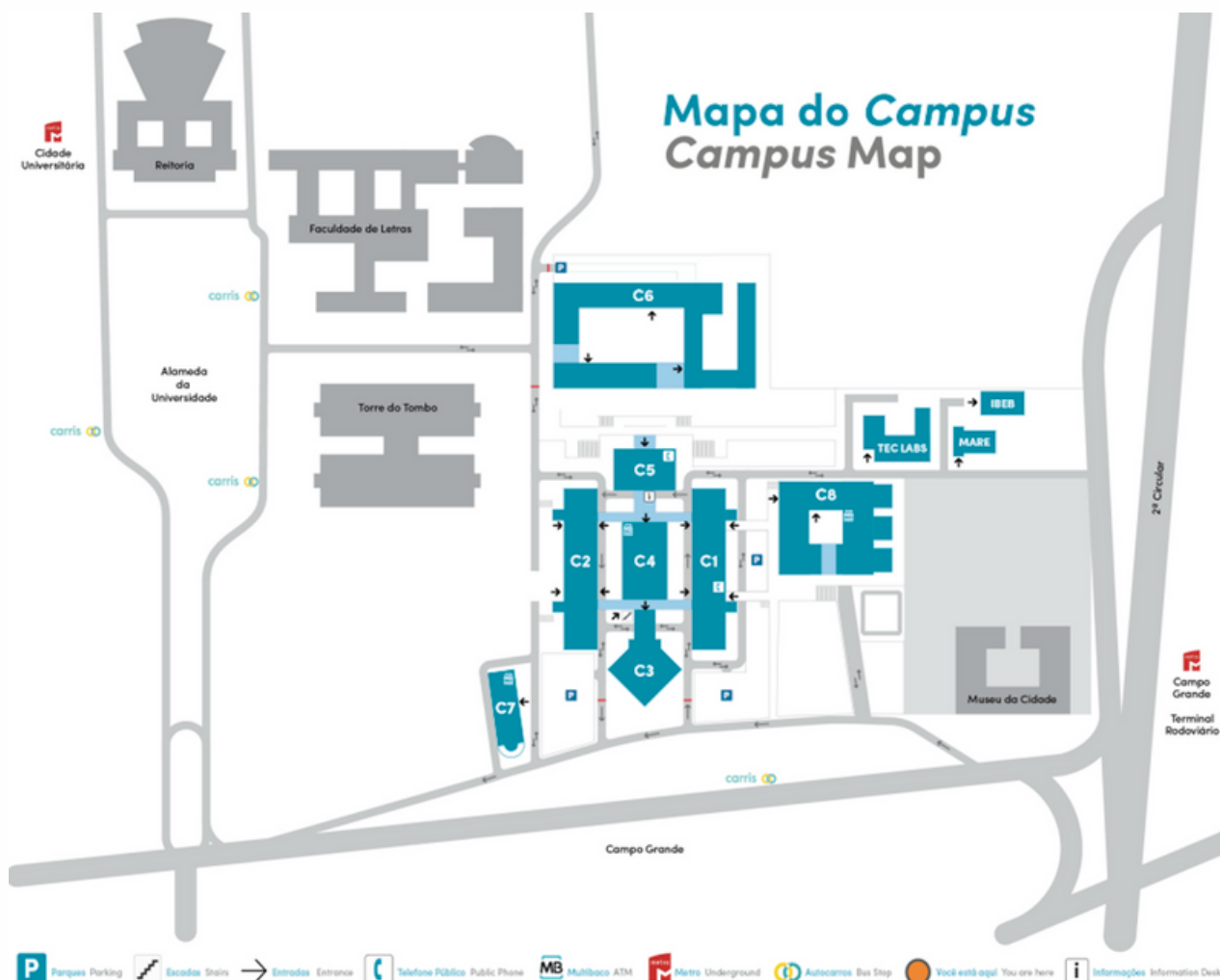
Welcome!

Tiago Capela Lourenço,
cE3c – University of Lisbon
& course organiser

PROGRAMME OVERVIEW

	Wednesday 11 October	**Thursday 12 October**	**Friday 13 October**
	Introduction, course overview & terminology	Preparing the ground & assessing needs	Identifying risks & selecting options
Early morning	Arrival Meet and greet Ice-breaker	Arrival Meet and greet Ice-breaker	Arrival Meet and greet Ice-breaker
Morning	Welcome Keynote 1 Quentin Lejeune *Climate analytics*	Lectures Keynote 2 Susanne Lorenz, *University of Leeds*	Lectures Keynote 3 Teresa Geidel, *Fresh Thoughts Consulting*
Lunch			
Early afternoon	Sharing your challenges & superpower	Case study analysis session	Workshop: understand & prioritise risks
Afternoon			
Evening	Welcome dinner	Free time	Dinner with a speaker

	Saturday 14 October	**Monday 16 October**	**Tuesday 17 October**
	Field day	Implementing, monitoring & evaluating options	Communication & engagement
Early morning	Field trip	Arrival Meet and greet Ice-breaker	Final group presentations
Morning		Lectures Keynote 4 Markus Leitner, *Environment Agency Austria*	
Lunch			
Early afternoon		Lectures	Lectures
Afternoon	Preparation of final group presentation	Preparation of final group presentation	Reflections and closing
Evening	Free time	Free time	Celebration

CAMPUS MAP

Mapa do *Campus*
Campus Map

Legend: P Parques Parking · Escadas Stairs · → Entradas Entrance · Telefone Público Public Phone · MB Multibaco ATM · Metro Underground · Autocarros Bus Stop · Você está aqui You are here · i Informações Information Desk

BEYOND CAMPUS MEETINGS - RESTAURANTS:

LOCAL, ALVALADE

When:
Wednesday, 11 October
Evening (19.00-21.30)
Welcome dinner

Address:
R. José d'Esaguy 5A,
1700-005 Lisboa
(23min walking)

PATEO 51

When:
Friday, 13 October
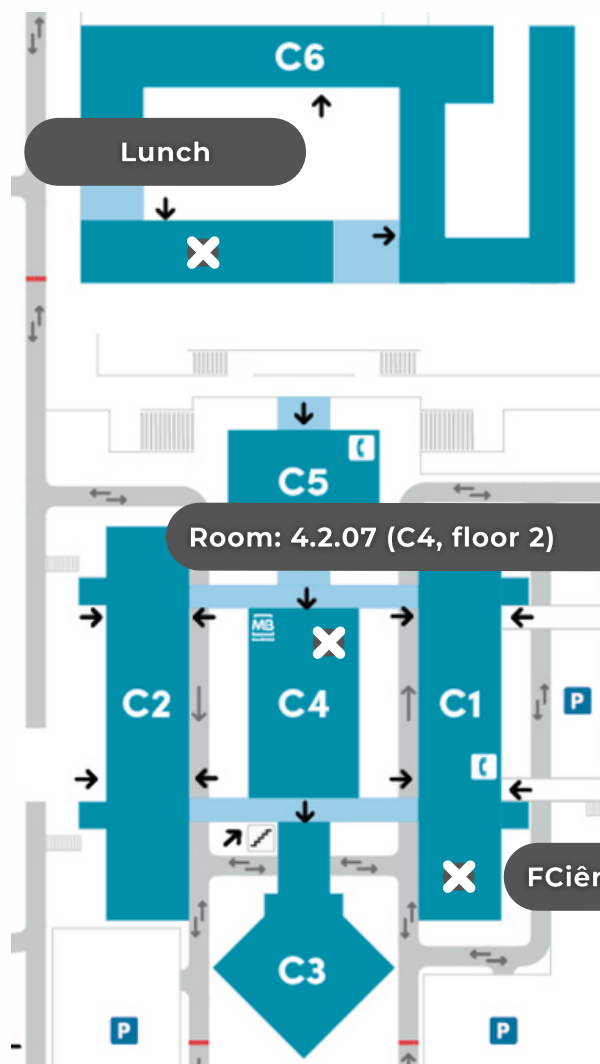Evening (19.00-21.30)
Dinner with a Speaker

Address:
R. Artilharia 1 51,
1250-190 Lisboa
(28min by metro – Yellow line,
direction: Rato, stop station: Rato)

TUTTI A TAVOLA

When:
Tuesday, 17 October
Evening (16.45-18.00)
Celebration gathering
and drinks (optional)

Address:
Jardim Mário Soares,
1700-097 Lisboa
(4min walking)

VENUE MAP

Lunch

C6

Room: 4.2.07 (C4, floor 2)

C5

C2   **C4**   **C1**

C3

Tips for getting around the faculty

The access to the C1 to C5 buildings are all via 2nd floor. C4 building hosts the faculty's main library and room 4.2.07 is on the left after the entrance. To find FCiências.ID Auditorium you'll have to go up a floor.

- **Thursday, 12 October, full day**
- **Friday, 13 October, afternoon**
- **Monday, 16 October, afternoon**

FCiências.ID Auditorium (C1, floor 3)

- **Wednesday, 11 October, full day**
- **Friday, 13 October, morning**
- **Monday, 16 October, morning**
- **Tuesday, 17 October, full day**

EMERGENCY CONTACTS

Emergency in Ciências
Ext. 20000
+351 217 500 600

In case of emergency
Act safely
Inform about the nature of the emergency
Report the exact location
(building, floor and room or reference points)
Wait for emergency personnel and follow their instructions

Use these contacts only for emergencies. For all other matters, use ext. 25205.

Ext. 25205 and Mobile +351968693307 remain as C5 Surveillance Center contacts but are not associated exclusively to emergencies.

CLIMATE RISK MANAGEMENT

STRATEGIES AND TOOLS FOR REGIONAL AND LOCAL CHALLENGES

PROGRAMME

Wednesday, 11 October   **Room: FCiências.ID Auditorium (C1, floor 3)**

Introduction, course overview and terminology

09h00–09h30 — Arrival, meet and greet, coffee/tea station

09h30–09h45 — Ice-breaker

09h45–10h30 — *Welcome and overview of Autumn Course*,
with **Tiago Capela Lourenço**, University of Lisbon

10h30–11h00 — Policy context
*Reviewing the EU policy landscape
and why does it matter for Regions and Cities*
with **Thomas Dworak**, Fresh Thoughts Consulting

11h00–11h30 — Break

11h30–12h30 — Keynote 1
*The science context: Why and how is
climate changing and where are we heading*
with **Quentin Lejeune,** Climate Analytics

12h30–14h00 — Lunch

14h00–16h00 — *Sharing your challenge and superpower*
with **Tiago Capela Lourenço** & **Carolina Vieira**, University of Lisbon
& **Teresa Geidel**, Fresh Thoughts Consulting

16h00–16h30 — Break

16h30–17h30 — *+ Sharing your challenge and superpower*

19h00–21h30 — Welcome dinner
(at LOCAL Alvalade, R. José d'Esaguy 5A, 1700-005 Lisboa)

TODAY'S SPEAKERS & MODERATORS

Adaptation Support Tool

PROGRAMME

Thursday, 12 October   **Room: 4.2.07 (C4, floor 2)**

Preparing the ground and assessing needs

09h00–09h30 Arrival, meet and greet, coffee/tea station

09h30–09h45 Ice-breaker

09h45–11h00 *Where to start? A tour of the European landscape of climate risk management platforms*
with **Thomas Dworak**, Fresh Thoughts Consulting

11h00–11h30 Break

11h30–12h30 Keynote 2
Collecting climate intelligence for decision-making
with **Susanne Lorenz**, University of Leeds

12h30–14h00 Lunch

14h00–16h00 Case study analysis session:
Good and not so good examples of climate risk management in practice
with **Frederico Metelo**, Lisbon Metropolitan Area;
Lucía Fraga, CETMAR; & **Susanne Lorenz**, University of Leeds

16h00–16h30 Break

16h30–17h30 *+ Case study analysis session*

Evening Free time

TODAY'S SPEAKERS & MODERATORS

Adaptation
Support Tool

CLIMATE RISK MANAGEMENT
STRATEGIES AND TOOLS FOR REGIONAL AND LOCAL CHALLENGES

PROGRAMME

Friday, 13 October

Morning room: FCiências.ID Auditorium (C1, floor 3)
Afternoon room: 4.2.07 (C4, floor 2)

Identifying risks, assessing and selection options

09h00–09h30 Arrival, meet and greet, coffee/tea station

09h30–09h45 Ice-breaker

09h45–11h00 *Frameworks and indicators for assessing climate impacts, vulnerabilities and risks*
with **Stephanie Bilgram**, Adelphi

11h00–11h30 Break

11h30–12h30 Keynote 3
Soo much on my plate!
Do I really need to think about maladaptation?
with **Teresa Geidel**, Fresh Thoughts Consulting

12h30–14h00 Lunch

14h00–16h00 *Understand, systematise and prioritise climate risk – from Impact Chains to climate resilience*
with **Ricardo Coelho** & **Bishwajit Roy**, University of Lisbon & **Stephanie Bilgram**, Adelphi

16h00–16h30 Break

16h30–17h30 *+ Understand, systematise and prioritise climate risk*

19h00–21h30 Dinner with a Speaker – **João Dinis**, Cascais Ambiente
(at PATEO 51, R. Artilharia 1 51, 1250-190 Lisboa)

TODAY'S SPEAKERS & MODERATORS

Adaptation Support Tool

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PROGRAMME

Saturday, 14 October   **Field trip**

Exploring real-life Climate Risk Management actions

09h00	Departure from the Faculty of Sciences of the University of Lisbon
09h30	Arrival at Cascais
09h45–13h00	***Field visitis to Ribeira das Vinhas, Marégrafo Cascais & Duna da Crismina*** (other places to be confirmed depending on weather)
13h15–15h00	Lunch & discussion
15h00	Departure from Cascais
15h30	Arrival at the Faculty of Sciences of the University of Lisbon
15h45	Wrap-up
Evening	Preparation of final group presentation (optional)

PROGRAMME

Morning room: FCiências.ID Auditorium (C1, floor 3)
Afternoon room: 4.2.07 (C4, floor 2)

Implementing, monitoring and evaluating options

09h00–09h30 — Arrival, meet and greet, coffee/tea station

09h30–09h45 — Ice-breaker

09h45–10h15 — *Identifying options and designing effective climate resilience action plans*
with **Guido Schmidt**, Fresh Thoughts Consulting

10h15–11h00 — *Funding climate resilience activities – from planning to reality*
with **Matthias Watzak**, FEDERENE

11h00–11h30 — Break

11h30–12h30 — Keynote 4
Monitoring and evaluating climate risk management
with **Markus Leitner**, Environment Agency Austria

12h30–14h00 — Lunch

14h00–15h00 — *Reporting climate risk to different audiences*
with **Indriany Lionggo**, Institute for European Energy and Climate Policy

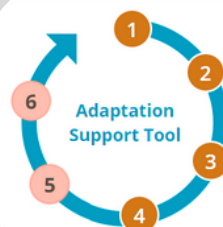**15h00–16h00** — Preparation of final group presentation & discussion with lecturers

16h00–16h30 — Break

16h30–17h30 — Preparation of final group presentation & discussion with lecturers

Evening — Free time

TODAY'S SPEAKERS & MODERATORS

Adaptation Support Tool

PROGRAMME

Tuesday, 17 October   Room: FCiências.ID Auditorium (C1, floor 3)

Communication and engagement

09h00–09h30 Arrival, meet and greet, coffee/tea station

09h30–11h00 Final group presentations

11h00–11h30 Break

11h30–12h30 Final group presentations

12h30–14h00 Lunch

14h00–15h30 *Communicating and engaging climate action
– Practical experiences from the ground*
with **Josipa Arapović**, North West Croatia Regional Energy and
Climate Agency & **Guido Schmidt**, Fresh Thoughts Consulting

15h30–16h15 *The EU Mission for Adaptation to Climate Change,
including societal transformation*
with **Sophie Berger**, European Commission - DG Research & Innovation

16h15–16h30 Reflections and closing
with **Guido Schmidt**, Fresh Thoughts Consulting,
Sophie Berger, European Commission - DG Research & Innovation
& **Tiago Capela Lourenço**, University of Lisbon

16h45–18h00 Celebration gathering and drinks - optional
(at TUTTI A TAVOLA, Jardim Mário Soares, 1700-097 Lisboa)

TODAY'S SPEAKERS & MODERATORS

Adaptation
Support Tool

WHO IS WHO

Tiago Capela Lourenço holds a PhD in Environmental Sciences (2015). He is an Invited Assistant Professor at the University of Lisbon – Faculty of Sciences, teaching Environmental Sciences, Climate Change and Sustainability courses. He specialises in working across sectors and scales and integrating multiple areas of knowledge related to climate risk management, adaptation, resilience and environmental decision-making. He has participated in multiple local, national, and European research projects and in the organization of major scientific conferences in these fields. He publishes his work and acts as reviewer for multiple peer-review journals. He lives in Lisbon, Portugal and has one amazing and beautiful son.

Thomas Dvorak is the head of Fresh Thoughts Consulting GmbH. Mr. Dworak was the project leader for the German Research project "Time to Adapt" which was followed by a major conference under the German presidency in 2007. Since then he has supported the EU Commission, the European Environmental Agency and the national government in developing this policy area further. For the European Commission he supported the development of the European Adaptation Strategy. Thomas Dworak is also one of the co-authors of guidance documents such as "River basin management in a changing climate – a Guidance document", "Sharing of Best Practices on Integrated coastal management (ICM) in a Context of Adaptation to Climate Change in Coastal Areas", "Guidelines for regional adaptation strategies" and "Climate Change Adaptation in the German tourism sector". Mr Dworak also supported the development of the Adaptation Support Tool and the Urban Adaptation support Tool available on the EU adaptation platform Climate adapt. He is a member of the European Topic Centre on Climate Change adaptation.

Soon after graduating with a PhD in Climate Science from ETH Zurich in September 2016, **Quentin Lejeune** began working in the Science Team at Climate Analytics, where he currently serves as a Senior Scientist leading the Group on Land-use and Climate Services. Quentin possess' a comprehensive scientific background related to climate change issues, particularly in areas concerning climate impacts, interactions between land-use and climate, and climate services. He has extensive experience in conducting, coordinating, and overseeing academic research. Moreover, he acted as a knowledge broker on climate-related topics, collaborating with various stakeholders such as central banks, environmental agencies, and government authorities across diverse countries. He also provided support to delegates from Least Developed Countries during IPCC and UNFCCC negotiations. More recently, he has taken charge of co-producing online tools with stakeholders, aiming to render climate impact information more accessible and actionable for them.

Teresa Geidel works in the field of water and environmental governance and is particularly interested in socio-economic behaviours and incentives that support or hinder the protection of natural ecosystems. She holds an MA in Public Policy with a focus on Governance from Central European University, Budapest and a Bachelors degree in Integrated Environmental Science (Renewable Energy Technology and Policy) from Jacobs University Bremen.

Carolina Vieira graduated in Biology and did a Master in Conservation Biology in the Faculty of Sciences of University of Lisbon. Currently working in cE3c as a researcher within the projects MAGICA – MAximising the synergy of European research Governance and Innovation for Climate Action and REGILIENCE – Resilience Strategies for Regions.

Susanne Lorenz is currently a lecturer in Climate Change Adaptation at the Sustainability Research Institute (School of Earth and Environment) at the University of Leeds, UK. She has almost 15 years of experience on working in the field of climate change adaptation, both in research and in practice and has worked on this topic both in municipalities and in consultancy.

Frederico Metelo is a consultant in the Lisbon Metropolitan Area. Graduated in 2004 in Geography and Regional Development from the Lusófona University of Humanities and Technologies. Postgraduate in 'Sustainable Cities' from the Faculty of Science and Technology of Universidade Nova de Lisboa. Specialist in geography, regional and urban planning, adaptation to climate change and geographic information systems. He has 19 years of professional experience in developing strategic planning projects, spatial planning, rural and urban development, urban and environmental regeneration and requalification, nationally and internationally. In the field of climate change, since 2016, he has collaborated in several national, intermunicipal and municipal projects to adapt to climate change and since 2020, he has been a consultant for the Lisbon Metropolitan Area, being responsible for the management, monitoring and monitoring of the Metropolitan Plan for Adaptation to Climate Change for the Lisbon Metropolitan Area.

Lucía Fraga Lago graduated in Sciences of the Sea. Since 2002, Lucía coordinates the Training department of the Technology Centre of the Sea, CETMAR, developing projects to promote the blue skills, and ocean literacy. Since 2021, she coordinates the Galician demonstrator of the TransformAr project, addressed at testing transformative adaptations to the climate change for the mussel and clam's aquaculture sector.

Matthias Watzak-Helmer is leading the climate adaptation work within the FEDARENE team and has more than ten years of professional experience in the energy, climate, and environment sectors, backed by a Master of Science degree in energy engineering. He gained a deep understanding of implementing and funding regional energy and climate actions ranging from long-term strategy development to the implementation of concrete pilot measures. He conceived expert knowledge among others in renewable heating and cooling solutions, energy efficiency measures and emission reduction and climate adaption strategies. He has overseen national and international projects with a focus on climate adaptation, spatial planning as well as environmentally friendly and energy-efficient solutions for cities and regions including MIP4Adapt, REGILIENCE, ePLANET, ConnectHeat, Urban Learning, klimaaktiv renewable heat, etc.

Stephanie Bilgram works as a Consultant at adelphi and works on urban climate resilience, adaptation to the impacts of climate change and vulnerability. In order to promote climate resilience and successfully design and implement adaptation measures, Stephanie attaches particular importance to intersectoral cooperation as well as cross-departmental and cross-hierarchical cooperation. She has relevant experience in the development of studies, the organisation of workshops and the implementation of training.

Ricardo Coelho has been working with climate change climate risk analysis and climate policies for the last eight years. He has worked both in European H2020 and Portuguese Municipalities projects with stakeholder engagement. Ricardo dealt with different European regions but has been working on the Azores archipelago in different projects. His expertise is focused on the energy sector, but he also has knowledge about land use issues that relate to Agriculture, Forestry and Water Resources. He is currently working on the RethinkAction project which focuses on Land use-based Adaptation and Mitigation Solutions (LAMS). He is responsible for the work package and tasks that relate to the six case studies of the project. The case studies have been developing Impact Chains based on their climate risk analysis and will be reviewed by stakeholders. He is also a PhD student in the Sustainability Science program at the University of Lisbon. His thesis concerns the use of Anaerobic Digestion solutions as a circular economy solution for energy (biogas) and the food system in the context of European Islands."

Bishwajit Roy is a PhD student of the Doctoral Program of Climate Change and Sustainable Development Policies Programme in University of Lisbon and has recently submitted his Ph.D. thesis. His PhD was about 'Sea level rise impacts and associated adaptation strategies in Coastal areas of Bangladesh. He has completed his master's degree in Forest Science awarded by University of Padova, under Erasmus Mundus scholarship program of European Union. Currently. Roy has been working in H2020 project namely "Rethink Action - Cross-sectoral planning decision-making platform to foster climate action". He has expertise on climate adaptation science and resilience, impact assessment, stakeholder engagement and little bit on application of Remote Sensing and GIS tools on spatial analysis.

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João Dinis, technician at Cascais Ambiente, has a degree in Geography and Urban Planning with a postgraduate degree in Geographic Information Systems and Sustainable Development Strategies. He is currently responsible for the Cascais action strategy for climate change and sustainable development strategies through innovative approaches in spatial planning, technology, green and circular economy and governance models. This resulted in a pioneering experience that led to the implementation of more than 60 climate change adaptation and mitigation actions in the last five years. This integrated approach has also been leveraged by extensive experience in leading pilot cases in EU-funded projects (Horizon 2020, HEuropa, EEA Grants and FP7) as well as Portuguese funding (Environmental Fund, POSEUR program) with more than 18 projects financed in the last decade.

Guido Schimdt works as a senior expert at Fresh Thoughts Consulting GmbH. He is a German PhD with more than 30 years of experience as a key expert, team leader and evaluator in water, climate adaptation and environmental policy, planning and implementation. He leads the Horizon 2020 REGILIENCE project and is member of the Climate Adaptation Mission Implementation Platform MIP4Adapt. He has work experience with the European Commission, international organisations, national administrations, civil society organisations and the private sector in the European Union, South-Eastern Europe, South America, Africa and Asia.

Markus Leitner is a senior expert for climate change adaptation since 2005 and leads the adaptation team of the Environment Agency Austria (EAA) since 2019. His main fields of expertise range from adaptation indicators, monitoring, and evaluation to adaptation assessments and sectoral experience. He was and is involved in various European projects (H2020 project PLACARD) and supports the European Environment Agency (ETC/CCA) and many European countries with his expertise. He leads the ETC/CCA MRE Task, and contributes to CCIV Assessments, Adaptation Indicators, Key Type Measures, Country updates. Markus is also a representative in the EU working group on adaptation as the Austrian representative as well as a member of the OECD Task Force on Climate change adaptation. He has delivered training on capacity building and knowledge sharing in various countries in the Western Balkans, Israel, South Korea and Turkey. Mr. Leitner also leads the Adaptation Working Group within the Tratolow Project (IPA II). Markus has been reporting under the MMR and the EU Governance Regulation for Austria since 2012 and supports the task on adaptation reporting via the ETC/CCA since 2019.

Josipa Arapović has experience as project manager on numerous EU projects in the fields of climate, environmental protection, sustainable development and agriculture, with successful results in implementing projects and representing the interests of various stakeholders at the national and EU level. In REGEA, she works on projects in the field of climate change adaptation and sustainable energy use.

Indriany Lionggo works with research and EU-funded projects at IEECP namely REGILIENCE, IN-PLAN, OPTFOR-EU, and CoolLIFE among others, her main focus is climate adaptation and mitigation, action planning, and resilience. She has theoretical knowledge in the fields of urban design, place-based action planning, and economic and environmental resilience. In her previous work, Indri was involved in the management and implementation of the master programmes where she taught quantitative research skills, governance, urban complexity, sustainability resilience, and several tailored-made-trainings (TMTs) funded by Nuffic. Additionally, her work experience in C40 Cities gained her interest in climate adaptation and has complemented her strong interpersonal skills to engage professionally with member cities in different seniority levels of urban professionals.

Sophie Berger is a policy officer for the European Commission, at the Directorate General for Research and Innovation. With 6 other colleagues from DG Research and Innovation and Climate Action, Sophie works for the secretariat of the mission on adaptation to climate change. Sophie also holds a PhD in climate science and worked for the first working group of the Intergovernmental Panel on Climate Change.

GLOSSARY

WHAT DO WE MEAN WHEN WE SAY...

Definitions (IPCC, 2022) [1]

Space to note own thoughts, draw or apply the definitions

Adaptation

In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.

Adaptive capacity

The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities or to respond to consequences.

Exposure

The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.

Hazard

The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.

Incremental adaptation

Adaptation that maintains the essence and integrity of a system or process at a given scale. In some cases, incremental adaptation can accrue to result in transformational adaptation.

[1] All definitions given from IPCC Report, 2022, some are slightly shortened.

For some terms, there are various valid definitions, formulated from different perspectives and interpretations. Google around if you are curious and you are encouraged to write your own definition or write down any associations you may have, to make sense of the terms for yourself!

Incremental adaptation (cont.)

Incremental adaptations to change in climate are understood as extensions of actions and behaviours that already reduce the losses or enhance the benefits of natural variations in extreme weather/climate events.

Maladaptation

Actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas (GHG) emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence.

Mitigation (of climate change)

A human intervention to reduce emissions or enhance the sinks of greenhouse gases.

Sensitivity

The degree to which a system or species is affected, either adversely or beneficially, by climate variability or change. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea level rise).

Resilience

The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation (see **Adaptive Capacity**), learning and transformation.

Risk

The potential for adverse consequences where something of value is at stake and where the occurrence and degree of an outcome is uncertain.

Do you have a doubt?
Need additional clarification or can't find the word you need?
Ask us!

Risk (cont.)

In the context of the assessment of climate impacts, the term risk is often used to refer to the potential for adverse consequences of a climate-related hazard (see **Hazard**), or of adaptation or mitigation responses to such a hazard, on lives, livelihoods, health and well-being, ecosystems and species, economic, social and cultural assets, services (including ecosystem services), and infrastructure. Risk results from the interaction of vulnerability (of the affected system), its exposure over time (to the hazard), as well as the (climate-related) hazard and the likelihood of its occurrence.

Risk management

Plans, actions, strategies or policies to reduce the likelihood and/or magnitude of adverse potential consequences, based on assessed or perceived risks.

Transformational adaptation

Adaptation that changes the fundamental attributes of a social-ecological system in anticipation of climate change and its impacts.

Uncertainty

A state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from imprecision in the data to ambiguously defined concepts or terminology, incomplete understanding of critical processes or uncertain projections of human behaviour. Uncertainty can therefore be represented by quantitative measures (e.g., a probability density function) or by qualitative statements (e.g., reflecting the judgement of a team of experts).

Vulnerability

The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (see **Adaptive Capacity**).

IDEAS WORTH NOTING

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MORE IDEAS WORTH NOTING

CLIMATE RISK MANAGEMENT

EVEN MORE IDEAS WORTH NOTING!

NOW YOU'RE JUST ENJOYING WRITING ;)