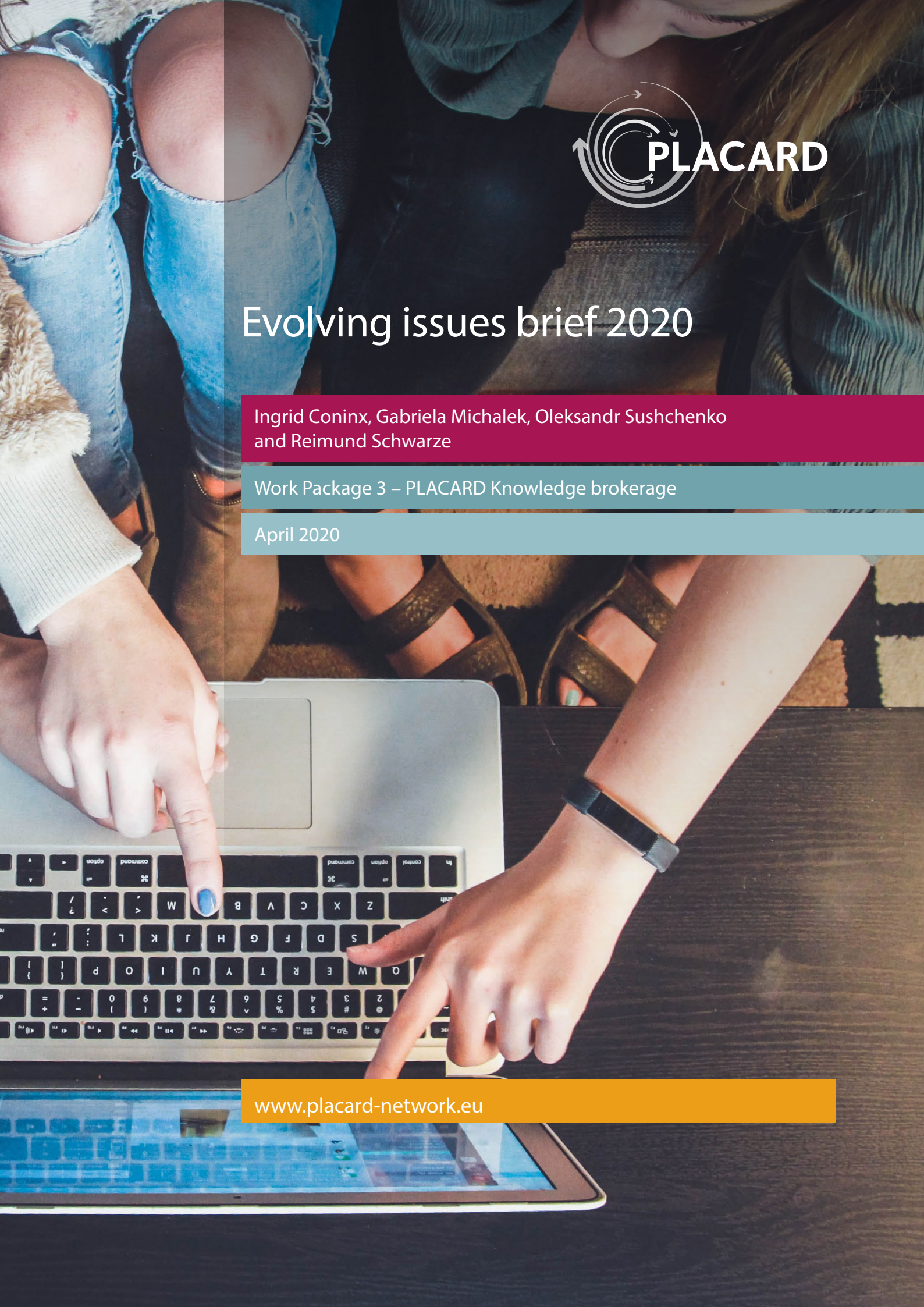

PLACARD

Evolving issues brief 2020

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Work Package 3 – PLACARD Knowledge brokerage

April 2020

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This report should be referenced as:

Coninx, I., Michalek, G., Sushchenko, O. and Schwarze, R. 2020. PLACARD evolving issues brief 2020. PLACARD project, FC.ID: Lisbon.

Contents

Evolving issues brief: what is it? 4

1. Narratives and stories for prevention and preparedness 5
2. Finance and funding for CCA and DRR 8
3. Climate services for DRR sector 11
4. Nature-based solutions 15
5. Loss and damage data and risk assessment methods 18

Evolving issues brief: what is it?

The PLACARD evolving issues Briefs are short and easy-to-read texts informing the PLACARD community about progress on topics that help to bring the climate change adaptation (CCA) and disaster risk reduction (DRR) communities together. They briefly discuss how current issues of importance to both communities are evolving and describe topics that are likely to grow in importance in the near future, together with initiatives and activities to bridge gaps between CCA and DRR.

This third brief brings together findings from dialogues that took place in the period April 2019 – April 2020, mainly during ECCA 2019. Evolving Issues Brief 2020 considers the following issues:

1. Narratives and stories for prevention and preparedness
2. Finance and funding for CCA and DRR
3. Climate services for DRR sector
4. Nature-based solutions
5. Loss and damage data and risk assessment methods

1. Narratives and stories for prevention and preparedness

Narratives and stories can be soft governance tools. Narratives are defined as stories with a plot and a strategic purpose. Narratives and stories are able to elicit emotions and feelings, by encouraging mental simulations that help to take other perspectives. Through this, the sense of urgency can motivate people to act together. This may significantly improve collaboration between CCA and DRR communities.

To support the evolution of this issue, in the past year we further promoted our recipe book for developing stories. This is as an instrument to raise awareness that narratives can be used strategically and that designing successful stories is a skill that can be learned. Since our discussions at ECCA 2019 and the Urban Resilience Forum 2019, we also developed a video that can be used to promote the power of stories in CCA and DRR.

We observe that the transformative power of narratives and stories as communication tools is being used more frequently. In the climate science community particularly, there is an urgent need to find other ways to bring complex scientific findings into the political debate and to engage with the general public. In the past few years, several story contests have been organised in both the CCA and DRR communities:

Examples of story contests about climate change:

- adda, the online magazine of Commonwealth Writers, 2020
- Writing For a Change Flash Fiction Competition 2020, Irish Writers Centre.
- Everything Change: Volume II. 2019. An anthology of climate fiction. Arizona State University.
- Open Future essay competition 2019, organised by The Economist.

Examples of story contests about disasters and emergency:

- The End of Our World 2.0, story contest by online magazine aftermath, 2019.
- Video contest by the Global Disaster Preparedness Centre 2015.

We have observed that many disasters are explained through the prism of climate change. However, from the perspective of the DRR community, disasters have always taken place (although some may be increasing in frequency and severity) and the increasing impacts may be explained by increasing vulnerability due to human decisions rather than by climate change alone. The climate change narrative is therefore considered inadequate and biased by people in the DRR community.

Narratives and stories were a recurring topic during ECCA 2019. Our PLACARD session on narratives shared experiences of the factors for successful narratives, based on the PLACARD recipe book. The session described verbal stories as well as the use of arts and visualisation to tell stories. The participants concluded that human values should be at the core of successful narratives and that referring to the vulnerable groups helps move emotions and engage people.

The is becoming more clear that fearful, negative stories have limited impact. Stories are needed that leave people feeling empowered and give hope, in order to encourage action. This was also confirmed during ECCA 2019 in the session on the Makah Tribe, which stated that traditional knowledge is required for efficient local adaptation.

Organisations in CCA and DRR consciously or unconsciously make use of narratives when taking (no) action. Exploring these narratives improves understanding of the motivation for their (in)action and (lack of) collaboration. At ECCA 2019, researchers in emergency management demonstrated the importance of identifying existing narratives in decision-making processes. Analysing the narratives, in this case on diversity and inclusion, through a mixed method approach reveals the volution of how organisations approach resilience-building. Researchers in Austria interviewed farmers to study their narratives of risk management approaches in dealing with droughts. In another session, researchers presented results of their narrative survey of news media and how they raised public and political concern with climate change on the Great Barrier Reef. Another two presentations, one about the UK and one about Australia, showed that studying the media is a useful proxy to understand ongoing narratives and how climate risks are communicated.

ECCA 2019 used an Art Programme to tell the adaptation story. Art-based methodologies were positioned as a way to create and tell stories, as a way to find a common language for resilience: 'Art has the capacity to not only raise awareness but also enable creative ways to address sensitive issues, support reflexivity and act as a conduit for cultural renewal'. Young artists exhibited their work in an exercise called Art for Change, a collaboration between Secondary Art School Antonio Arroio, Lisbon, and the Art for Adaptation project where students learned about climate change through transformative learning approaches. Their artwork reflected their newly gained insights and critical thinking about the subject. Music and videos were also used during the conference to shed light on the challenges of climate change. The collaborative project Climate Stories supported scientists to make use of different forms of art to show their research results.

During ECCA 2019, the benefit of involving artists during strategy development was presented, as they can introduce different ways of thinking and inspire people to take action.

The Cultural Adaptations project shared related experiences and concluded that "a good strategy presents hope and is one that the public, communities, individuals and companies buy into as agents of change… the job of an artist, embedded or otherwise, to foster solidarity, contribute to and communicate visions of alternatives and the empowered steps we need to take to realise them, is more pressing and important than ever".

A few ECCA 2019 sessions illustrated tools to develop narratives, such as system dynamic modelling . Through visualisation of an urban system's dynamics, the complex reality of a city was understood by jointly developing a story of that city. The story illustrated the view of city planners and how they perceive the underlying city dynamics. Others tools are shared socioeconomic pathways that help to explore alternative futures and contexts to support decision-making, and valuation tools for Blue Green Infrastructure to build narratives for specific audiences to gain support.

Skilful modification of narratives can help to generate the kind of change that is desired. Chris Jordon stated: "If we can shift the story, we can change the world". At ECCA 2019, the Adaptation Scotland programme illustrated their ability to initiate high-profile place-based adaptation in major cities and regions through a narrative shift from focusing on risk and impacts towards one of adaptation as an enabling mechanism that delivers benefits across society. The development of sustainable finance was also covered at the conference, in a session describing how expanding the narrative of climate adaptation in economic terms can lead to innovation, increased competitiveness and climate resilience to unlock private investment.

PLACARD actions

- Develop a webpage that gather all materials on stories and narratives
- Develop a video to promote the power of stories
- Write a blog linking to videos that can support capacity-building for stories and narratives

2. Finance and funding for CCA and DRR

Finance and funding are organised differently in CCA and DRR, but each community would benefit from more coherence. PLACARD organised presentations about finance at ECCA 2019 and Urban Resilience Forum 2019. We also organised a webinar to scope the topic of finance and funding on 18 June 2019, some of which are related to resilient infrastructure. This led to PLACARD co-organising a high-level risk forum with the OECD Public Governance Directorate to discuss, with over 20 experts and national representatives, investment in resilient infrastructure as well as methodologies and practices for decision support on these investments. PLACARD also contributed to finance and funding discussions organised by others in our community, such as the Joint DG ECHO and UNDRR Roundtable in October 2019 in Brussels on boosting public–private sector cooperation in DRR finance.

PLACARD collected pending questions about finance and funding. Some of these were discussed during ECCA 2019, and others are discussed elsewhere as linked:

- **How can the amounts of CCA and DRR finance be estimated and tracked properly? What is the most appropriate methodology to estimate and monitor mitigation and adaptation finance?**

  The DRR community expressed willingness to monitor finance in September 2013 during the Geneva roundtable to increase effectiveness of DRR development assistance. The Sendai Framework also requires monitoring indicators. The CCA community expressed the finance monitoring need in the Paris Agreement and an Enhanced Transparency Framework (ETF) is in development. Several other frameworks to monitor adaptation are developed and are listed in the ODI report (2012). The OECD has developed a DRR marker and Rio-markers/DAC Adaptation marker to monitor DRR and CCA funds. The data can be accessed via the creditor reporting system of the OECD.

  Studies have found that DRR funds are invested in a fragmented way and in relatively small projects. Also, more DRR finance is coming from climate adaptation thanks to global funds like the Adaptation Fund, the Least Developed Countries Fund and the Pilot Program for Climate Resilience.

- **How can financial instruments be coordinated for investment in CCA and DRR?**

  During the webinar in June 2019, the participants concluded that finance mechanisms between CCA and DRR are being aligned and that best practice should be shared to foster more coherence. This resulted in a suggestion that the diverse financial instruments being used in CCA and DRR be showcased.

International organisations such as World Bank and OECD are exploring ways to reduce excessive annual disaster-related losses by fostering the mindset of "building back better" when investing in rebuilding, in order to overcome increased costs.

Mobilisation of finance for CCA and DRR is affected by high transaction costs, lack of reliable and frequently updated data and time lags in financial transactions. Modern IT solutions such as distributed ledger technology, the internet of things and artificial intelligence are opportunities to enable self-financing, crisis financing, climate insurance and risk transfer. PLACARD team has promoted these solutions at various forums.

- **How can national budgets be leveraged with private finance to achieve higher levels of complementarity in funding CCA and DRR measures? How can private finance be mobilised for CCA and DRR?**

  It is the role of the public sector to co-finance investments made by the private sector, as was stated during ECCA 2019 . The private sector requires direct economic benefit as an incentive, but it can contribute innovation, capacity and institutional leadership. During a joint DG ECHO and UNDRR roundtable, mechanisms to mobilise private funds for CCA and DRR were discussed such as operationalisation of sustainable finance; and instruments to transfer climate risks to the financial market, like drought-index savings, climate insurance/reinsurance tools and contingent and crisis financing. Other relevant instruments to increase climate-proof investments are standards.

- **Sustainable finance** is a global movement in which the European Commission is heavily involved through its development of guidelines on corporate climate-related information reporting as part of its Sustainable Finance Action Plan. The guidelines give companies practical recommendations on how to report on climate change impacts of their business. Several reports were published in 2018–2019 by the Technical Expert Group on Sustainable Finance, including a EU Taxonomy, EU Green Bond Standard, benchmark methodologies and guidance to improve corporate disclosure of climate-related information. OECD has also published a report on corporate reporting systems used in climate change disclosure. During ECCA 2019, the landscape of sustainable finance was mapped and the topic of robust disclosure to drive institutional change discussed. The implementation of sustainable finance will require capacity-building and tools to help portfolio managers understand how to incorporate climate-related data on risks. The session also touched on the issue of trust and reliability of non-financial information and data and the role of auditing, which is expected to change in the near future as users of financial report rely more on non-financial information.

- **Risk transfer mechanisms** examples are insurances such as micro-insurance, index-based insurance and regional pools. Index-based insurance is a useful climate risk transfer mechanism for the most vulnerable because it reduces moral hazard and administration costs and therefore attracts private investors even to the most risky sectors. This type of insurance is new and has to be scaled up. Examples are African Risk Capacity, Global Index Insurance Facility and InsuResilience, which are currently being tested in Africa. The forecast-based financing scheme developed by Red Cross (and discussed during the DG ECHO and UNDRR roundtable) is also an index-based insurance. This scheme seeks to anticipate extreme weather events so that humanitarian funds can be released for early action, as was shared at ECCA 2019.

- **Innovative finance tools** were presented at ECCA 2019 by a group of researchers to address loss and damage. However, to meet the Warsaw International Mechanisms for Loss & Damage, market-based insurance has to be re-designed to be feasible and guarantee equitable compensation. In particular, vulnerable nations will have to use financial tools that go beyond insurance. One promising instrument is bonds. There are four types of bonds that are suitable for resilience financing: green bonds, catastrophe bonds, resilience bonds and impact bonds.

- Standards such as ISO 14090, ISO 14091 and ISO 14097 are a way to climate-proof investments, particularly investments in new infrastructure. These standards are not yet common practice and there is a need to share best practices on climate resilience and reduce transaction costs of integrating climate resilience in investment decisions. At ECCA 2019, the European Financing Institutions Working Group on Adaptation to Climate Change shared experiences in this area.

- Financial organisations are also required to assess their exposure to transition and physical risks and opportunities and how they affect their financial stability. More consistency in methods to assess exposure to these risks is a pending issue. ClimINVEST is a project that mainly aims to provide improved indicators and metrics to help investors manage risks. The project has assessed the needs and data requirements of investors and has explored information gaps on the physical risks.

- The larger banks like the European Investment Bank and the African Development Bank are using climate screening systems to assess climate risks of projects. Their challenges are making sure that data requirements and assessment methods fit with the client, that the new systems fit with existing assessment processes, that internal champions promote the climate screening systems, that staff are extensively engaged in the design of the system and are supported to appraise and manage risks.

- Adaptation and risk managers are looking for private investment but are hampered due to their limited capacity to build bankable projects. Another bottleneck is the lack of common language. A group of researchers at ECCA 2019 promoted a way to overcome this investment gap by shifting:

    * from efficiency to unlocking economic potential
    * from single projects to packages of projects with long-term strategy and short-term impacts
    * from understanding prevented damage to identifying trade offs

PLACARD action

- Sharing good practices on more coherence between CCA and DRR funding

3. Climate services for DRR sector

Climate services are popular in the CCA community. Developing climate services for the DRR sector could result in better access to data on changes in frequency and intensity of extreme weather events due to climate change. PLACARD has fostered dialogues on climate services for the DRR sector in the past, and this topic was discussed again during ECCA 2019. Several programmes are financing the development of climate services:

- Copernicus, managed by ECMWF, has a consortium working on climate services for civil protection organisations with regard to heavy precipitation. The results are expected by the end of 2020. Copernicus has also finalised a workstream on climate services for the insurance sector, which is mainly a Wind Information Service. The services that will be provided for European health may also be relevant for the DRR sector.

  Several Horizon 2020 projects are developing climate services for DRR:

  * Clara project
  * Climate-fit.city
  * Clarity
  * BRIGAID

- JPI Climate launched research calls on climate services in 2016 (ERA4CS call) and in 2018 (AXIS call). These projects are summarised online. Many of the projects serve the DRR sector.

Relevant networks to accelerate the development and use of climate services are:

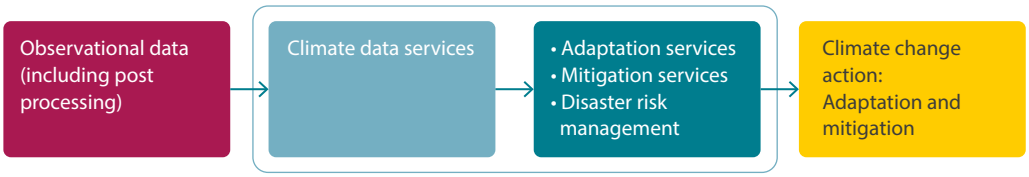
- The Global Framework for Climate Services is a UN-wide initiative in which World Meteorological Organization members and inter- and non-governmental, regional, national and local stakeholders work in partnership to develop targeted climate services. This initiative focuses on the DRR sector.

- Climate Services Partnership is a platform for knowledge sharing and collaboration aimed at promoting resilience and advancing climate service capabilities worldwide. It is an informal, interdisciplinary network of climate information users, providers, donors and researchers who share an interest in climate services and are actively involved in the climate services community.

- ClimateEurope is a network to link science to society, funded by the European Commission. One of their topics is climate services.

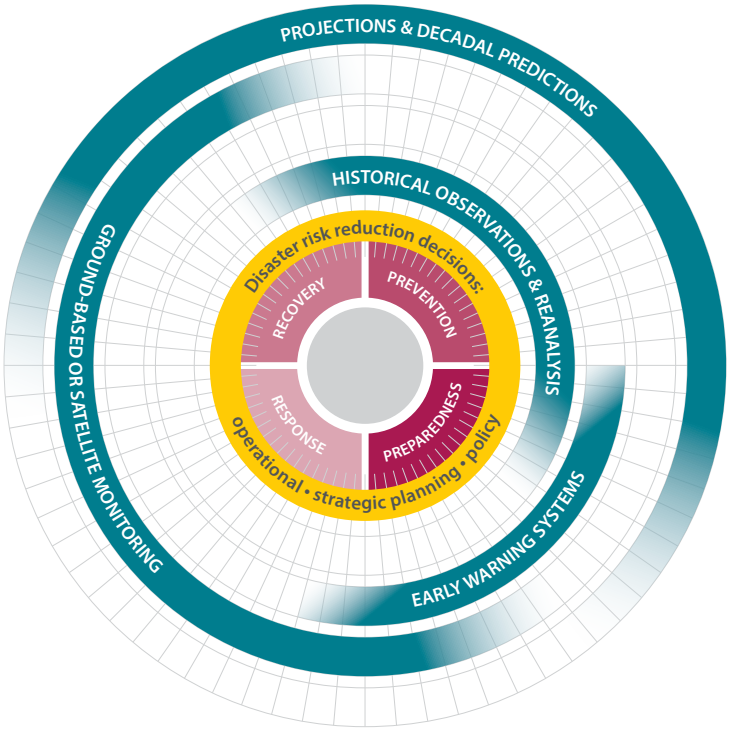
In the past year, we have observed initiatives that categorise climate services (Raaphorst et al. 2020; Bessembinder et al. 2019) or map the landscape of climate services (Larosa & Mysiak, 2019). In the typology by Raaphorst et al. (2020), climate services are divided into "climate data services" and "adaptation services, mitigation services and disaster risk management".

Climate services



Source: Raaphorst et al. 2020

Larosa et al. 2019 have indicated that DRR topics like weather forecasting, seasonal variability, precipitation meteorology, vulnerability, risk analysis and assessment, risk modelling and information management (see figure 3 in Larosa et al. 2019) are recurring topics in publications on climate services. However, PLACARD has observed that these climate services are not yet well known in the DRR sector. Therefore, PLACARD has developed a guiding tool to illustrate what type of climate services could be helpful in the four different stages of disaster risk management (see figure below).



Source: Street et al. 2019

In other words, climate services that are ready to be used in the DRR sector already exist, but potential users do not yet know of them. During ECCA 2019, presentations were made about many climate services, some of which may be useful for the DRR sector.

Climate services for urban disasters

- Clarity project: Climate services for large infrastructure projects, including urban heat and extreme precipitation. This project has visualised the effects of heatwaves on Stockholm.
- Citizen Sensing project: Use of physical sensors and smartphone applications in the form of participatory risk management system to collect site-specific data on extreme temperatures and precipitation, flooding events and environmental pollution during hazards. This information will be helpful to implement risk management strategies.
- Climate-fit.city: This project has tested climate services to support urban flood managers and emergency managers to anticipate projected climate changes.
- RESCCUE RAF app: This is an IT solution for digital interactive urban resilience assessment.
- CLIME service: This service is based on an interactive multi-user platform targeted to different user typologies, mainly in the field of CCA. At ECCA 2019, experiences of the city of Prato, Italy, were presented. The purpose of this pilot application was to support heat wave impact studies, based on a specific climate index that considers temperature and humidity variables.

Climate services for risks to energy and transport infrastructure

- Clim2power web application: This is a EU-wide web-based climate service addressing the impact of climate on hydro, wind and solar power operation; electricity demand; and the whole power system, addressing both seasonal and long-term timescales. This application will reveal the current and future vulnerability of the power system and may therefore play an important role in preventing disasters.
- Blueprint for climate service in the transport sector in UK: Using the case study region of the Midlands, in the UK, this project is developing the next generation of climate services for the transport sector, which can be used to make targeted multimodal adaptation decisions.

Climate services for climate and weather issues in the water sector

- At ECCA 2019, a session described tailoring user needs of climate services for the European water sector.

Climate services for hazards in the agriculture sector

- AgriAdapt: This web-based service aims to evaluate and reduce the vulnerability of European farms to climate change.

Climate services for financial and insurance sector

- ClimINVEST: This project is assessing the needs of the financial sector with regards to physical climate risks.

Several national climate services portals were presented at ECCA 2019, such as those from Norway, Switzerland and Germany.

The main lessons learned about climate services for the DRR sector are:

- The DRR sector includes widely diverse actors with different information needs and decision contexts, from early warning, to emergency management through to insurance agencies.
- Vulnerability is the result of socioeconomic and physical processes and changes over time. It is difficult to estimate vulnerability in the longer term.
- Past events could be used to validate risk assessments results, but there is a lack of historical data. Disaster risk assessments should build on a systematically collected, re-assessed and possibly open-access database of past disaster events.
- Not all the data that is required is public, due to privacy issues.

JPI Climate organised a pre-conference workshop at ECCA 2019 with climate service developers to share views on current challenges and prospects for the way forward:

There are difficulties matching user requirements with available data. Scale and the time requirements may be particularly difficult to match with existing data.

- Ways forward: During ECCA 2019, the need for transdisciplinary development of climate services was highlighted. This refers to a strong collaboration between users and information providers as well as among different scientific disciplines. The role of social scientists is expected to increase to tailor climate services to the histories, contexts and risk profiles of users, as well as their decision-making contexts. Stronger collaboration with the science community from DRR is also needed. There is also a need for co-production of climate services that follow certain protocols and should be grounded in participatory research literature. Two ECCA sessions shared experiences in Tanzania and guidelines for co-designing climate services.

There is a lack of transparency about the quality of climate services and the data they rely on. There is a need for certifications or standards that indicate this quality to users.

There is also a need for climate services users to be able to access education about how to use these services.

- Way forward: Training programmes are set up to support the use of climate services, such as the Copernicus User Learning Services.

Once project funding ends, it is difficult for many climate services to reach out to potential users. It is often difficult to build the business case for the climate service.

- Way forward: BRIGAID is a platform that supports climate service developers to build business cases.

PLACARD actions

- Collect climate services that meet user needs in the DRR sector.

4. Nature-based solutions

Nature has the potential to buffer the impacts of climate change, and nature-based solutions (NBS) are intensively promoted in the CCA community. NBS approaches are used in both CCA and DRR as ways to deal with impacts of extreme events, although they are labelled differently: ecosystem-based adaptation in CCA and eco-DRR in DRR. Promoting collaboration between the two communities can avoid suboptimal, independent responses to climate hazards.

Over the past year, PLACARD has contributed to the evolution of the issue by participating in the expert team of the European Topic Centre to write a report on the use of NBS for CCA and DRR. PLACARD also co-organised an event with UNDP Ukraine Innovations by Nature. about the necessity of combining CCA and DRR, while financing NBS projects at the local level. In January 2020, PLACARD co-organised with OECD a session on the way forward in wildfire management.

We observe that the discussions on this issue are mainly pushed forward by international agreements and European Commission ambitions to operationalise NBS, oriented to five specific targets:

1. Enhance the framework conditions for NBS at EU policy level
2. Develop a European community of innovators
3. Provide the evidence and knowledge base for NBS
4. Advance the development, uptake and upscale of innovative NBS
5. Mainstream NBS within the international research and innovation agenda.

Several projects have been funded by the European Commission, including the ThinkNature platform that was launched in 2018 to share knowledge about NBS.

Several sessions at ECCA 2019 fostered dialogue on NBS, touching on issues such as governance of NBS and the business models and financial mechanisms for NBS. There was also a session on the insurance value of NBS. These sessions have facilitated a dialogue about the findings between the different EU research projects that explore NBS.

The governance of developing NBS is evolving towards co-production. At ECCA 2019, co-production was presented as an approach that aims to target knowledge-based procedural and output characteristics.

Such a process should include six design principles: inclusivity, legitimacy, openness, actionable knowledge, usable knowledge and institutional extending.

Although on paper the design of NBS is often participatory, a poster presented at ECCA highlighted that participation in spatial interventions is often non-interactive and limited to informing and consulting citizens, and not necessarily in an inclusive manner. Reflexive governance was promoted in which citizen participation is considered fair by the affected local residents, still relevant in terms of climate adaptation, while also bringing other benefits. It furthermore offers a practical implementation guide based on two place-based approaches (Environmental Justice and Placemaking) that can support practitioners in the development of a participatory and socially inclusive planning process of NBS interventions.

Another session presented a landscape planning instrument mapped with an ecological-based approach and criteria. This instrument is defined in Portugal as the National Ecological Reserve (REN), and a European Union expert group considered it an example of a green infrastructure.

One of the sessions at ECCA 2019 was about a framework assessment tool for benefits of NBS, developed by the PHUSICOS – 'According to Nature' project. To assess if NBS can reduce risk due to climate change impact and related environmental threats, a tailored framework is implemented on demonstrator sites. The tool aims to estimate performance indicators and implement a multidisciplinary methodology for aggregation and weighting procedures.

Discussions about financing NBS includes looking at business models and returns from investing in ecosystem services. The Naturvation Urban Nature Atlas developed eight sustainable business models – risk reduction, green densification, local stewardship, green health, urban offsetting, vacant space, education, and green heritage – with detailed descriptions of value proposition, delivery and capture as well as enabling conditions and risks.

The ThinkNature platform has examined ways to finance NBS from CCA and DRR perspectives, describing them in a handbook that helps people implementing green infrastructure with the common financing challenges, such as articulating the multiple benefits of NBS in financial terms due to restricted data, difficulties in quantifying it or lack of knowledge transfer. Platform ThinkNature has also collected many case studies on business models, such as public–private partnerships and engineering procurement and construction and is sharing information on financial mechanisms such as supply-chain finance, forms of governance financing and the establishment of special ecological industrial and city development funds.

The finance topic also includes the question of how to estimate the costs and benefits of green infrastructure and NBS in order to make investment decisions. During the OECD/PLACARD high level risk forum in September 2019, the methodological challenges were explored, with the main challenges relating to comparing costs and benefits of CCA and DRR projects and selecting efficiency decision criteria. This could be overcome by improving current methods, assessing non-economic values of intangibles and including future changes in the assessment. More specifically:

- The challenge with CCA and DRR defensive and preparedness infrastructure is that the costs are borne now, while the benefits will be experienced in the future. This affects comparisons of costs and benefits. The recommendation was to reduce existing discounting rates.
- CCA and DRR infrastructure save human lives and avoid social disruption and health impacts. These impacts are intangible and difficult to express in economic value but should be included in investment decisions. Blended values can be created with the help of revealed preferences methods or stated preferences methods.
- Green infrastructure (e.g. NBS) can create co-benefits, which are often intangible (e.g. social or governance improvements); hence, there is need for a unified framework for monetisation of such benefits while conducting cost–benefit analysis.
- Data on socioeconomic impacts of disasters is useful to estimate costs and benefits. However, these impacts are disproportionate for some social groups, and social vulnerability should be considered in investment decisions.
- Risk indices can guide the location to invest in.
- Climate risk management tools are useful to assess the benefits of community-based measures. The tools include current and future climate-related risks and layering of measures at local and national levels.

During ECCA 2019, the issue of how to include the management of natural assets in the financial planning and asset management of local authorities was explored via the Canadian Municipal Natural Assets Initiative. It was also recommended not to use standard cost–benefit analysis in DRR and CCA but to consider risk from the financial perspective and treat it like an insurance issue.

A session was delivered at ECCA 2019 on the insurance value of ecosystems: since healthy ecosystems reduce disaster risks, damages and losses, their services are becoming insurable assets. Therefore, insurance can be used to invest in protecting and restoring ecosystem services. However, the challenge is that keeping the ecosystem in a good ecological state requires management and intervention at landscape scale. The insurance value includes the costs of prevented damage and compares it with conventional risk reduction measures. Several speakers presented ways to assess insurance value and promoted tools on how to raise finance to secure the management of ecosystems.

5. Loss and damage data and risk assessment methods

The CCA and DRR communities already collaborate on the topics of loss and damage data as well as risk assessment. Sharing data and coming to an agreed set of shared assessment methods would strengthen the collaboration between the two communities.

PLACARD has mainly contributed to ongoing dialogues via its experts. The issues were also extensively discussed during ECCA 2019.

The Warsaw International Mechanism was established in 2013 to "promote approaches to address loss and damage associated with the adverse effects of climate change … in a comprehensive, integrated and coherent manner".

The mechanism aims to:

- contribute to new ways of viewing the climate change challenge (new paradigms unlock new ways of dealing with challenges)
- mobilise resources and capacity to help these countries
- find ways to prevent disruptive climate shocks from driving vulnerable areas even further from their development goals.

This WIM is the result of many decades of dialogue on loss and damage in the context of the UNFCCC. At ECCA 2019, a loss and damage session:

- introduced key concepts, challenges and insights relevant to the loss and damage debate
- discussed critical issues shaping the policy debate
- outlined policy options and other response mechanisms for loss and damage, apart from insurance.

The session described how loss and damage discussions are stuck under the UNFCCC due to the demands for climate justice and the reluctance to consider loss and damage as separate from adaptation and offer anything apart from support via climate insurance. The discussions are also difficult because of the vagueness of problem formulation, the existence of different levels of discussion (political vs. technical) and the connection to other disputes within and beyond the UNFCCC. A solution to overcome the tensions was presented: a framework that involves a short- to medium-term, needs-based perspective support for

climate risk management beyond countries' abilities to absorb risk. In the medium to longer term, liabilities attributable to anthropogenic climate change and associated impacts could be considered. Risk financing emerges as an entry point for further policy action, as it holds potential for both risk management and compensation functions.

Insurance is the most common response to loss and damage. The session fostered a dialogue on the implementation of micro-insurance and regional pools to reduce risks and compensate for loss and damage. The message from the session was that market-based insurance mechanisms will likely fall short of fully meeting aspirations of loss reduction and equitable compensation, if they are not adjusted to the context.

Other financial instruments could be bonds, such as green bonds, catastrophe bonds, resilience bonds and impact bonds.

Several sessions at ECCA 2019 contributed to the dialogue to improve risk assessment methods. The importance of including socio-economic development in risk modelling was emphasised. However, this increases complexity due to varying local conditions across European regions. A way forward could be the engagement of local stakeholders and joint definition of narratives to support decision-making on adaptation and risk reduction measures. One session at ECCA 2019 was dedicated to sharing experiences of participatory methods for early warning systems. The public and decision-makers are often not aware of risk information, resulting in poor adaptation capacity. Methods to improve preparedness are improved institutional and decision-maker empowerment, enhancement of established knowledge, design and implementation of co-creation techniques for planning; public participation by means of community-based monitoring and filling of data gaps, and risk-management solutions or monitoring techniques.

Risk management is a well-established discipline, and many people work with risk-based methodologies to deal with uncertainty and defining measures. CCA uses these risk-based methodologies, mainly in the areas of the probability and magnitude of risk impacts. Determining measures to deal with risks depends on the risk preferences of the people involved, which differ depending on social, cultural and economic contexts. Risk preferences should therefore also be included in CCA. One way to include risk preferences is by identifying socioeconomic tipping points (SETPs) such as drought-induced migration towards Europe, financial collapse of low-lying ski resorts, alterations in flood insurance systems, and reconfigurations of agricultural systems. Stakeholders' risk preferences indicate their tolerance with regard to these SETPs. Using social preference elicitation methods can help in determining stakeholders' risk preferences, which helps in planning for climate change uncertainty. Another ECCA 2019 session promoted impact chains as a climate risk assessment method to better understand, systemise and prioritise factors that drive climate impact related risks.

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April 2020

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PLACARD interchange – PLAtform for Climate Adaptation and Risk reDuction – is a hub for dialogue, knowledge exchange and collaboration between the climate change adaptation (CCA) and disaster risk reduction (DRR) communities. Funded by the European Union's Horizon 2020 Research & Innovation Framework programme. Grant agreement No. 653255

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