



11th EIONET workshop on climate change impacts, vulnerability and adaptation

21-22 June 2017, EEA, Copenhagen

Final minutes

This report provides an overview of the EEA 11th *EIONET Workshop on Climate Change Impacts Vulnerability and Adaptation* (CCIVA) which took place in Copenhagen at EEA premises on 21-22 June 2017.

All the documents related to this workshop (agenda, list of participants, background documents, presentations, results of breakout groups and this report) are available at the following EIONET Forum URL: <https://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2017-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation-21-22/meeting-documentation>.

Objectives of the workshop

- Present an update on and discuss on-going and planned work by EEA, European Commission, international organisations and countries in the field of work of CCIVA
- Discuss in groups some main EEA topics, products and services for 2017/2018
- Exchange information between countries.

Participants

The workshop was, besides EEA staff, attended by 42 participants from: 21 EU Member States, 3 non EU EEA member countries and 2 EEA cooperating countries (national reference centres on climate change impacts, vulnerability and adaptation; NRCs CC IVA), European Commission (DG CLIMA, DG R&I, DG AGRI and EASME), ETC/CCA, Alpine Convention and OPCC (Pyrenees Observatory for Climate Change), EIB and UNISDR.

Summary

EEA, European Commission (DG CLIMA and DG R&I), EIB and UNISDR presented their key recently achieved, ongoing and planned activities relevant to CC IVA in Europe. Some main EEA activities were discussed more in depth in groups, namely: Development of Climate-ADAPT, Sectoral Adaptation (agriculture, energy and DRR), Urban Adaptation and Adaptation in transnational regions, informed by background documents, presentations and guiding questions.

A plenary session followed by a discussion was devoted to the National CC Impact and Vulnerability assessments and the work on Monitoring, Reporting and Evaluation. Timeline and process for the EEA 2018 and 2019 work programmes were presented.

A plenary facilitated discussion allowed countries exchanging information on their CC IVA relevant on-going and planned work, also informed by country presentations from Sweden, Belgium, Switzerland, the Netherlands and Germany.

Key follow-up actions

EEA activities in 2017:

- Eionet consultation on the 2018 report on the evaluation of Climate-ADAPT
- Include comments collected during Eionet workshop to update EEA work Programme 2018-2020 and draft work programme 2019-2021.

EEA activities planned in 2018:

- Eionet consultation on the 2018 report on National CCIV Assessments
- Provide scoping and technical papers on a range of topics as discussed in the Eionet workshop once they are in a more advanced stage, while noting these papers don't undergo a Eionet consultation.



- Keep the NRCs CCIVA updated about the scope of the work on MRE of national adaptation policies, including the plans for a possible 2019 report on this topic

EIONET

- NRCs CC IVA are advised to check if the contact names and details in the EIONET forum for their country are correct and if not to ask their NFP to make the necessary changes (see: http://www.eionet.europa.eu/ldap-roles/?role_id=eionet-nrc-climatechangeimpacts).
- Contributions to Climate-ADAPT and items for the Climate-ADAPT newsletter are welcomed (climate-adapt@eea.europa.eu), however, NRCs CC IVA are asked to provide country information by a voluntary update in ReportNet (<http://rod.eionet.europa.eu/obligations/703>), as agreed on the Eionet CC IVA workshop of 2015.
- Workshop participants are invited to answer the web-based consultation on the Evaluation of the EU Adaptation Strategy (October 2017-January 2018).
- NRCs CCIVA are invited to provide contact details of persons that can potentially be interviewed as experts on adaptation in transnational regions.
- NRCs CCIVA are invited to answer the questionnaire on National CCIV assessments.
- NFPs and NRCs SOE are the coordinators for the Eionet consultation of the Annual Indicator Report Series (AIRS). NRCs CCIVA are invited to provide comments on the indicator on National Adaptation Policies, in a coordinated manner as explained in the message on this consultation.
- NRCs CCIVA that wish to comment on the initial EEA work programme 2019-2021 are invited to do so via their NFP.

An overview of presentations, discussions and resulting key actions is provided below.



Session 1: Framing overviews

European Commission (DG CLIMA): [the Evaluation of the EU Adaptation Strategy](#) (Claus Kondrup)

An overview of the EU Adaptation Strategy was presented:

- 23 EU Member States have a National Adaptation Strategy (NAS);
- Life Climate Change funding, of which half of the budget goes to adaptation;
- Covenant of Mayors for Climate and Energy is going global;
- In this funding period, Structural Investment Funds reach EUR 115 billion, of which little more than half goes to adaptation in key vulnerable sectors;
- 500-600 major infrastructure projects are undergoing a climate change risk assessment;
- Closing workshop on insurance 30 June 2017, will be followed by policy recommendations on agriculture and households.

Workshop participants are invited to contribute to the web-based public consultation on the EU Adaptation Strategy, that will take place from October 2017-January 2018.

European Investment Bank: [EIB Mainstreaming Climate Change Adaptation](#) (Nancy Saich), remotely

- The EIB operates globally, with 10% of budget spent in developing countries (USD 7 billion/year) and over 25% of budget for projects related to climate action. There is a commitment, following from the EIB's Climate Strategy 2015, to increase the share of climate related action to USD 100 billion over the next 5 years.
- The EIB's Climate Strategy has 3 pillars: i) reinforcing the impact of climate financing (more than 25% of global lending), ii) building resilience through climate change adaptation projects, and vulnerability and risk assessments, and iii) integrating climate change into standards, methods and processes.
- Climate change adaptation finance is tracked, based on a joint Multilateral Development Banks' methodology on a yearly base.
- A Climate Risk Management System is mainstreamed in all investment types, screening all investment projects and conducting an analysis of climate risks in EIB's portfolio.
- The [European Financing Institutions Working Group on Adaptation to Climate Change \(EUFIWACC\)](#) published a note on the integration of Climate Change Adaptation into project development with experiences from practitioners.

European Commission (DG R&I): [Future Climate Science, Research & Innovation](#) (Diogo de Gusmão-Sørensen)

The presentation focussed on the scientific knowledge, including the Copernicus Climate Change Service (C3S) observations and research. The record breaking 2016 was close to the 1.5°C warming and the margin agreed in Paris (to stay well below 2°C increase) is already to a large extent consumed. The difference between impacts of 1.5 and 2°C is large on a global scale (and in Europe).

- DG R&I is managing the Horizon2020 Programme, discussions on the scope of the 9th Framework Programme started. Several ongoing H2020 projects focus on adaptation (with a wide range of topics, including Urban, Water, Infrastructure, Agriculture ...) and/or include case studies on nature based solutions (in cities). EASME provides a data-hub on their website to allow search for projects and examples (<https://ec.europa.eu/easme/en/easme-data-hubs>).
- DG R&I focusses on 5 core issues in terms of climate science-policy interface: decarbonisation, climate services, IPCC and knowledge gaps, Polar, and Earth Observation.



- Climate services are closely linked to Adaptation, where the wealth of data that will become available through the Copernicus climate change service needs additional research to harvest and understand all information.
- A relatively new topic for the EC is to bring medical and climate scientists together in projects on human health.
- Research on tipping points include impact assessments under high temperature increase (above 2°C) scenarios. These are based on the actual global emission reduction contributions made so far. The impact assessment will include supply chains beyond the European border as critical infrastructures operate at a global scale.
- Polar Regions are getting more attention from the adaptation perspective.
- Support is provided to the 6th Assessment Report of the IPCC for a wide range of topics, including sea-level rise, ocean circulation, cloud processes and climate feedbacks, relationships between natural climate variability and long term climate change impact. Contributions are also made to IPCC special reports.

The EC cooperates in an international context, e.g. with the US on climate and health (Belmont Forum), with the US and Canada on the Arctic Science Ministerial, with the G20 on decarbonisation pathways and the link with the Sustainable Development Goals (SDGs), and with countries having no resources to provide Climate Services, impacts and adaptation assessments.

On the interaction between C3S and H2020, having thematic overlaps, it was confirmed that ECMWF (operating the C3S) has co-drafted the call for H2020 work programme.

On the Pan-European Climate Impact Assessments (CMIP6), it was confirmed that there's the plan to invest in a new ensemble of European climate impact models

United Nations Office for Disaster Risk Reduction: [UNISDR Activities in the European Region](#) (Luca Rossi)

UNISDR gave an overview of recent developments, showing coherence between EU and UN organizations.

- The Open Forum of the European Forum on Disaster Risk Reduction (EFDRR), in March 2017, was not only for national contact points, but also open to experts representing science and technology, private sector, NGOs and societal groups. There were sessions on the link between Climate Change Adaptation and Disaster Risk Reduction (CCA-DRR), and on disaster risk accounting and losses.
- The Open Forum was linked to 'target E' of the Sendai Framework: A substantially increase in the number of countries with national and local disaster risk reduction strategies, to be reached by 2020. The outcome includes a high-level communique, with key messages on the need for collaboration between public and private investments, inclusive approaches, national strategies aligned with local actions and capacities, and the use of science and technology in addition to local knowledge.
- The Global Platform for Disaster Risk Reduction, in May 2017, was the first global framework meeting after the Sendai agreement with a very broad participation. The high-level communique stresses the importance of indirect losses that are not quantified but are even higher than the quantified direct ones, and the water-climate nexus. Because of the number and value of assets, Europe is a vulnerable region as well. Urbanisation requires investments in disaster resilient infrastructure, including green infrastructure to achieve the SDGs by 2030 and in general to achieve economic and social development and environmental sustainability.

He also addressed the issue of 'What is a successful risk assessment?', based on the Words into Action (WIA) guidelines: National disaster risk assessment ([consultative version](#)).

- Capacity is an element to be included in risk assessments, in addition to hazard, exposure and vulnerability, to better understand the indirect losses.
- Main focus is on vulnerability (and to a certain extent also on exposure), where governance mechanisms between levels and between competencies are needed (vertical and horizontal coordination), as well as a broad set of competencies including technical, financial and administrative ones.



A last part of the presentation was on monitoring progress for the different international agreements.

- The 2030 Agenda for Sustainable Development and the Sendai Agreement are already aligned in terms of indicator work, to use resources efficiently. Working groups responsible for the development of indicators on both processes highlighted 7 common indicators. A monitoring system will be launched in January 2018, and the results will be presented during the next Global Platform meeting in 2019 in Geneva.
- This coherence at the international level needs to be made at national level as well, where countries can 'select' indicators from the list agreed on international level as well as define their own indicators as long as the principles are respected. Statistical offices in Europe play an important role in building up this coherence.

A question from the audience was on the use of the indicators and the upcoming system, to envisage that all these data together give a good picture on the state of disaster risk reduction as there will be large requests for bottom-up reporting. As expressed by the former special representative of UNISDR, Margareta Wallström, "you cannot manage what you cannot measure", a broad understanding of disaster impact is needed to make the necessary efforts to mitigate risks (which goes beyond pledging money). Many actions will be about our behaviour and it won't be possible to convince people without detailed information.

European Environment Agency: [EEA intro and activities CC IVA 2016-2017](#) (André Jol)

The members of the group at EEA on Climate Change impacts, vulnerability and adaptation (CC IVA) were introduced as well as the workshop participants from the European Topic Centre on Climate change Impacts, vulnerability and Adaptation (ETC/CCA), followed by the key relevant developments at global and EU scale for their work.

Paul McAleavey, Head of Programme Air and Climate Change at EEA, presented key developments for EEA:

- The Multiannual Work Programme (MAWP) of the EEA for 2014-2018 is formally extended to 2020, in line with the 7th Environmental Action Programme (EAP), the Multiannual Financial Framework (MFF) of the European Commission, and the multiple policy targets for 2020.
- The six ETCs help EEA to deliver its work programme and have a framework agreement for 2014-2018 that cannot be extended. The Terms of Reference (ToR) from 2013 will be revised through a light topic review in mid-2017 and a new ToR will be approved by the EEA Management Board in December 2017, followed by an open procurement procedure in 2018. A light topic review means that the ToR is updated but no fundamental changes to the scope of the ETCs are made. The only exception is the ETC on Air Pollution and Climate Change Mitigation, where a more extensive review of the topic will take place.
- EEA, and Eionet are under a periodic evaluation (5th evaluation). This time, the European Commission organises the evaluation with the 5 better regulation criteria (relevance, effectiveness, efficiency, coherence and EU added value) as a framework. A public consultation will start in mid-2017.
- Preparations for the next State and Outlook of the Environment in Europe Report (SOER2020) have started and the topic of adaptation will be included.

André Jol followed with an overview of the activities since the 2016 Eionet workshop on CC IVA highlighting the publication of 2 reports on urban adaptation and the Climate Change Impacts and Vulnerability (CC IV) Report. A report on Climate Change Adaptation and Disaster Risk Reduction is upcoming in October 2017. EEA also prepared a briefing with an underlying technical report on domestic financing for mitigation and adaptation, to be published in July 2017. For 2018, so far reports on National CC IV Assessments and on the Evaluation of Climate-ADAPT are planned.

ETC/CCA prepared a paper on Monitoring, Reporting and Evaluation in 2016, and continues its work by developing a spreadsheet with metadata on national adaptation indicator sets. That will be part of a paper due end of 2017 analysing the latest developments and agreed requirements related to indicators to monitor climate change adaptation at global and European level, and the potential implications and opportunities for European countries. In addition an indicator on National Adaptation Strategies and Plans (NASs/NAPs) is



prepared within the EEA Indicator Report series, based on the information in the country pages on Climate-ADAPT which will go into Eionet consultation over summer and NRCs on CC IVA will be involved.

There was a question on how the EEA work on policy evaluation is related to the European Commission's adaptation preparedness scoreboard. The European Commission, supported by consultants, is preparing country fiches (narrative description) and scoreboards (traffic light colouring) which will be sent to countries asking for comments (from July to Sep). These country fiches contain much more information than the EEA indicator on NASs/NAPs, as they cover the development of strategies, the implementation and evaluation. The European Commission's aim of the country fiches and scoreboards is to identify where more action can be taken, not to compare Member States.

There was also a question on how much adaptation was seen as a cross-cutting issue in these Commission country fiches, and how they link to sustainable development. This type of analysis is not really done so far, although some of the questions in the scoreboard address the interlinkages (e.g. on the coherence with DRR).

Session 2: Break-out Groups

The workshop continued with 2 time slots for break-out groups. Participants chose one session each time. The first break-out group was on:

1. Developments of Climate-ADAPT
2. Sectoral Adaptation (agriculture, energy, DRR)

The second break-out group was on:

3. Urban Adaptation
4. Adaptation in transnational regions, including presentations from the Alpine Convention and OPCC

They were followed by a reporting in plenary. All the break-out groups were structured with introductory presentations by EEA followed by round table discussions based on the guiding questions and background documents provided before the workshop. All presentations given during the break-out groups and the reporting in plenary can be found at <https://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2017-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation-21-22/meeting-documentation/presentations/session-2-break-out-groups>.

Developments of Climate-ADAPT

Climate-ADAPT is evaluated by EEA within the context of the evaluation of the EU Adaptation Strategy, and the evaluation – that considers both the user and provider's perspective - focusses on the core objectives of the platform:

1. Facilitate and share up-to-date adaptation information and provide robust knowledge base;
2. Enable an effective uptake of the information;
3. Assist and contribute to a better cooperation across governance levels and sectors.

It is stressed that the needs of users and providers changed since the launch of the platform in 2012.

Part of the evaluation exercise is a survey for users and information providers, containing 6 sections:

1. Tell us about the focus of your work
2. Tell us how you use Climate-ADAPT
3. Tell us about how you contribute to Climate-ADAPT
4. Tell us about the user friendliness of Climate-ADAPT
5. Tell us how Climate-ADAPT supports cooperation
6. Share Climate-ADAPT success stories with us



The evaluation will result in a draft EEA report to be sent for Eionet consultation in autumn/end 2017 and to be published in early 2018.

During the presentation, some of the preliminary results of the survey on specific questions were highlighted. The EEA report will include all main results from the survey and in addition also an analysis of website statistics, earlier feedback received from e.g. conferences and workshops, and illustrative use cases related to different sections of Climate-ADAPT.

In the break-out group, there was a wide consensus amongst participants that Climate-ADAPT can be considered a 'one-stop-shop' and leading information source on CC IVA and/or a main guide to the right information source, for the intended users. The information from Climate-ADAPT is used in many occasions, including to inform the policy process, support decision making and for participatory processes and dissemination. The EU added value is to collect (links to) all the relevant information at one place.

The responses from "researchers" to the user survey are in some cases difficult to understand and interpret. This large group of respondents not only covers researchers in the strict sense but also consultants and technical skilled staff informing and preparing the policy preparation and implementation.

From the break-out group, it was suggested to cross-check the results of the survey with the web statistics from Google Analytics. The following proposals were made to improve Climate-ADAPT and the connection with national adaptation platforms:

- There is a language barrier, and a synthesis of the methods and results of the vulnerability assessments of all countries available in English would be an added value (note that the forthcoming EEA report on this topic is covering this request). In order to improve the limited information at sub-national level, providing a synthesis in English should be considered.
- Links to other sources of information (e.g. C3S) and summarized information across Europe for specific topics (e.g. vulnerability assessments) are an added value.
- Countries would welcome more tailor made tools in support of the adaptation cycle, including components of participatory processes, methods and approaches.
- Continued Eionet collaboration is requested on adaptation platforms, as well as continued improvement of the synergies between European, transnational and national adaptation platforms.

For countries and transnational organisations, it was suggested to consider the Climate-ADAPT evaluation when executing an evaluation of their own platform (some of which are planned or ongoing).

Sectoral adaptation

This session covered aspects on adaptation in agriculture, the energy system and Disaster Risk Reduction. After the introductory presentations by EEA, several participants had detailed questions and comments that will be provided to EEA after the meeting.

The three presented sectors are in a different stage of development: for DRR the report is in an advanced stage and will be published in October and the Eionet consultation already took place, for agriculture a scoping paper is currently being developed and for energy the terms of reference to develop a scoping paper are still being drafted. The Eionet workshop aimed to inform the participants in an early stage on EEA work on energy and agriculture and to help to further define the scope.

Agriculture is affected directly by climate change in different ways, mostly negative but in some areas also potentially positive and on a European scale regional impacts can lead to shifts in production areas and trade flows. The sector is also vulnerable to climate change impacts outside Europe. The potential outline of the scoping paper consists of 3 parts: i) physical and economic impacts of climate change on agriculture, ii) options to adapt agriculture to climate change (including the policy framework and adaptation measures), and possibly iii) presenting links to mitigation and air pollution (inclusion of these themes still needs to be decided by EEA). The draft scoping paper will be finalised by end 2017.

The work on energy will look at the current and future energy systems, including the shift to renewable energy technologies and resources and the increased interconnection of networks. It looks at the vulnerability of production, storage and transport infrastructure, however, won't include consumer behaviour



nor energy efficiency of appliances. A potential outline, based on research, governmental and energy sector information sources could include i) a summary of the specific adaptation challenges, ii) an overview of the current adaptation policies at EU and national level, and iii) examples of early adaptation actions and of potential future options and opportunities. EEA has only just started work on this topic and a draft scoping paper will be finalised by around April 2018.

Participants confirmed that in general these thematic/sectoral assessments are useful, and this usefulness increases when links between different topics (e.g. between adaptation and mitigation) are made, and when the assessments include issues that are difficult to assess by individual countries (e.g. global megatrends, transnational aspects between regions within Europe and globally). As not all countries have the resources to make detailed sectoral assessments for all sectors, it is welcomed that EEA provides a European overview that can be used by them.

Although NRCs remain committed to provide information for these EEA assessments, on recent developments at national level and case studies, it must remain clear that the sectors (agriculture, energy and DRR) are not always exactly the same 'sectors' as defined in the NAS/NAP. They are often part of larger topic clusters like 'land' or 'infrastructure'. DRR is in many countries (and also in EEA) not seen as a sector but a topic that needs to be streamlined across all sectors. Vulnerability assessments are ongoing or being revised in countries, and the number of specific sectoral adaptation strategies and plans remains limited (since these are usually embedded within the NAS/NAP).

It should be noted that EEA also develops and publishes regularly assessments on other themes and sectors that have a direct relevance for climate change adaptation. One example is forests, for which a recent 2016 report covers all main pressures and climate change being one of them. Similarly a 2015 report on ecosystems and ecosystem services covered CC IVA aspects as well. The EEA approach is to 'mainstream' CC IVA aspects into such other EEA assessments, where feasible and relevant, e.g. on marine, freshwater and domestic climate financing. However regarding energy and agriculture, the current available sectoral assessments have not yet taken into account CC IVA aspects sufficiently. Taking also into account that key EU policies are in place for these sectors EEA decided to start the work on CC IVA and agriculture and energy, as mentioned above.

It was confirmed that all draft EEA reports will undergo an Eionet consultation. However, these scoping papers on agriculture and energy are a starting point and basis for further developments of potential reports and they won't undergo an Eionet consultation. As several participants stressed the importance of being involved from an early stage onwards, EEA will distribute scoping papers to those who are interested, when they are in a stage that this is feasible and relevant.

Urban Adaptation

There are more than 900 European cities that are signatories on adaptation in the Covenant of Mayors for Climate and Energy and this number has increased significantly the past years. Climate change adaptation is also one of the priority themes in the EU Urban Agenda. The EEA reports on urban adaptation and on financing of urban adaptation published in 2016 and 2017 were briefly presented.

Ongoing EEA work in 2017 is on social vulnerability/inequities and also socially just adaptation in European cities by preparation of a background paper. The paper looks at available guidance for social vulnerability assessments, approaches to them, and examples of socially just adaptation. The paper will be used as background for an expert meeting on this topic, to be held on 12 Sep at EEA. Afterwards the paper will be further developed. EEA is also working on another activity regarding inequities related to air pollution and noise and is considering to combine the work on climate change related social vulnerability with these other themes into one report, to be published in 2018.

A second scoping paper in 2017 is on transformative urban adaptation, as there's a need to move beyond just coping with climate related impacts:

- long-term view under uncertain conditions;
- step change from business as usual;
- could mean physical changes, approaches to governance, innovative policy, involvement of citizens.



This work is building much on the 2016 EEA report on urban adaptation, aiming to add further evidence. It is expected that this work will not lead to a separate EEA report on transformative urban adaptation. Instead the scoping paper to be finalised by end 2017 will be used as an input to the SOER2020.

The recent and ongoing work is seen as useful by the participants to:

- raise awareness of the need to adapt among decision-makers; and
- explore co-benefits with other fields, including mitigation.

The question remains how the information provided in the reports can reach the local actors. In addition, the 2017 report on urban financing is known by less participants and can benefit from increased promotion.

Participants provided interesting examples on social vulnerability assessments and actions on heatwave planning, migrants as a vulnerable group, systemic approaches to vulnerability, ... Presenting the results of assessments in the appropriate way is crucial, and the EEA work ideally helps to raise awareness in other fields (e.g. health). Some examples of interesting transformative work were also collected, like green infrastructures and permeable pavements.

Suggestions from the participants on future work on urban adaptation cover:

- Synergies and contradictions between mitigation and adaptation in urban areas
- Avoiding maladaptation –developing criteria for good adaptation
- Adaptation and spatial planning

EEA will keep NRCs updated on the outcomes of the work on urban adaptation in autumn/end 2017.

Adaptation in transnational regions

Macro regional co-operation on climate change adaptation (CCA) is complementary to the national strategies developed by countries. Governance varies due to differing historic, cultural, political and geographic conditions. European Structural and Investment funds, Horizon2020 and LIFE programme provide significant support to transnational adaptation programmes and projects. EU strategies exist for four macro-national regions: Baltic Sea Region, Danube Region, Alpine Region and the Adriatic and Ionian Region some of which cover climate change adaptation.

EEA is preparing an overview of the state of play of CCA policies in transnational regions in Europe by developing fact sheets for each of the 12 macro-regions for transnational cooperation in Europe, plus one for the EU overseas entities. These factsheets will be used to improve the relevant transnational sections on Climate-ADAPT. In addition a working paper on transnational adaptation, also taking into account other actions in particular by regional conventions (e.g. Alpine, Carpathians, Mediterranean) is being developed. The paper and the fact sheets are planned to be finalised by end 2017.

The session also included presentations from the Alpine Convention and OPCC. The presentation of the Alpine Convention started with its mandate and structure and showed that the area covered by the convention is different from the EU defined Alpine Space. Climate change is not subject of the Framework Convention, neither of a specific Protocol but tackled by a declaration by the Alpine Conference and is taken up in the recent activities of the Convention:

- “Taking action on Climate Change” is priority 2 in the multiannual programme 2017-2022;
- An Alpine Climate Board is established in 2016 and is undertaking a stock-taking of all climate related activities, followed by a gap identification, priority setting and definition of objections;
- PLANALP Platform works on natural hazards and risk governance;
- Platform “Water” works on adaptation to droughts;
- Permanent Secretariat supports the Alpine Climate Board, works on awareness raising and dissemination, and maintains the WebGIS platform of the Convention.

The OPCC presentation showed the governance structure, where the information platform is its most important tool. The map viewer includes layers with climate change information and indicators and the WMS catalogue contains information from projects (including related projects from 3rd parties), good practices (also from outside of the region when transferable), publications, datasets, ... More than 80 organisations work in



a network, called OPCC-2 on different initiatives. Relevant to climate change adaptation are, for example, CANOPEE (on forest vulnerability maps), CLIMPY (a database on climate variables including climate projections) or PIRAGUA (water cycle climate change indicators).

The discussion in the group showed that the work on adaptation in transnational regions by EEA is appreciated, as there is a lack of this information at national level. The information about projects ongoing in transnational regions is not readily available in many countries. There is also a need to consolidate the information individual projects into institutionalized settings to benefit more from its outcomes.

There's a need to strengthen adaptation at transnational level, which needs to be consistent with the national priorities and international (e.g. UNISDR) activities. Improved pages on transnational regions on Climate-ADAPT are seen as a key output of this EEA activity.

Several countries provided examples and are willing to deliver specific contributions, including the study "Adaptation Action for a Changing Arctic" (AACCA) and related work for the Arctic region. EEA asked for contact details of experts to be interviewed to verify the information in the fact sheets and scoping paper. EEA will come back to NRCs by end 2017 or early 2018 on a potential 2018 report or briefing that will build on the 2017 work.

Session 3: CC Impact and Vulnerability assessments and Monitoring, reporting and evaluation

National Climate Change Impact and Vulnerability assessments

The EEA presentation gave an overview of the 2016 EEA report on climate change, impacts and vulnerability (CCIV), highlighting that the key findings from the 2012 CC IV report are still valid. Over the last years, several long-term climate records have been broken and the attribution of the observed changes in extreme weather events and observed impacts to climate change has improved. The evidence of future increases of climatic hazards in European regions has strengthened. The 2016 CCIV report has an expanded policy context (from global over European and transnational to national), multi-sectoral climate change assessments have been included as well as an increased attention for Europe's vulnerability to climate events outside Europe.

The 2017 work focuses on preparing an overview and analysis of national CCIV assessments in Europe, which will result in a draft report for Eionet consultation end of 2017 and a publication by EEA in early 2018. The ongoing country survey is an important element which will give insight in how these assessments are used for policy development and provide detailed methodological aspects. To help countries the survey was pre-filled and also tested with a few countries. The aim of the survey and the EEA 2018 report is to support mutual learning across countries.

The comments from participants were mainly to support the statement that the 2016 CCIV report is a key piece of information on this topic and an important reference document for the evaluation of the EU Adaptation Strategy. A question was raised to what extent data and information from Copernicus and other climate change services is used by member countries, while taking into account that the Copernicus service only recently started to deliver results. The picture was somewhat mixed and the complexity of the different services was mentioned as a barrier, while other countries mentioned they do use data from national climate change services, for their national vulnerability assessments. Good practice is that some countries organise annual meetings on Copernicus and national climate change services to make potential users aware of the available information.

EU Adaptation Strategy: Update on the Country Fiches / Scoreboard (Claus Kondrup, DG CLIMA)

The country fiches (narrative) and the scoreboard (table with colours) being prepared by the European Commission are assessing the level of adaptation preparedness in each Member State. The presentation went through the different changes since the pilot scoreboards of 2015. Draft country fiches will be sent by the Commission in July for comments from Member States. The final drafts will be made publicly available by the European Commission in October, at the same time the public consultation of the EU Adaptation Strategy Evaluation starts.

Questions from the audience after the presentation were on the future of the EU Adaptation Strategy and the Monitoring Mechanism Regulation (MMR) in the light of the Energy Union. The Commission proposal for



reporting on adaptation under the Energy Union contained only few changes compared to the current MMR reporting on adaptation, but the frequency would be increased from every 4 years to every 2 years. There is a dialogue ongoing between European Council and Parliament on the Commission proposal for the Energy Union Governance.

The future of the scoreboard can only be discussed after the evaluation of the EU Adaptation Strategy is finished in mid-2018 and the Energy Union Governance has been clarified (expected by the end of 2017). No other specific new tools, instruments or legislation on adaptation are currently foreseen by the European Commission.

The European Commission proposes that the scoreboards and country fiches will be made accessible also through Climate-ADAPT, after being published by the European Commission in October 2017. More details will be available at the Stakeholder workshop and the Working Group 6 on Adaptation in October.

Monitoring, reporting and evaluation (MRE)

The EEA presentation explained that information reported by countries (both MMR art. 15 in March 2015 and consecutive voluntary updates) are by now all included on the country pages of Climate-ADAPT and are one of the key sources of information for the Commission country fiches and scoreboards (see presentation by DG CLIMA above). EEA also maintains a yearly updated indicator on National adaptation policy processes in Europe. There will be an Eionet consultation of the 2017 version over summer (coordinated by NRCs SOE and NFPs) and EEA will also involve NRCs on CC IVA.

ETC/CCA finalised in 2016 a technical paper on transferable lessons from biodiversity, adaptation & international development and sustainability as the similar challenges are long timescales, high degrees of uncertainty and shifting baselines.

Since the 2015 Sendai Framework on DRR, the SDGs and the Paris climate change agreement, work on indicators to measure the progress and implementation are ongoing on the international and European level. The EEA is in 2017 preparing a technical paper to give an overview of the agreed international and European indicators specifically relevant for CC adaptation and how these are interlinked. This will be complemented by examples of national adaptation indicators sets from 6 countries (Austria, Finland, France, Germany, the Netherlands and the United Kingdom), indicating similarities and differences between the national approaches. The paper will also explore the potential development of (a European set of) quantitative CCA indicators.

According to participants, coordination at national level between experts responsible for Sendai Framework, SDGs and Paris Agreement takes place in some countries but also examples of weak coordination were mentioned. In several countries a move from a qualitative assessment to indicator based MRE has started or is planned. While some countries develop sets of adaptation indicators (up to more than 100), other countries selected one or some composite indicators.

Participants were aware of the complexity of CCA indicators sets and welcomed recommendations on key indicators that might be used across Europe. However several participants said that a mandatory set is not the right way forward as it might lead to maladaptation because of lack of attention for those aspects not covered by a potential common indicator set. EEA mentioned that the aim of the technical paper is not to develop a mandatory set of common quantitative indicators. Instead the aim is to allow learning from countries' experiences and to present examples of national indicators that are being used to inform policymakers. EEA noted that the Commission's work on the scoreboard is focusing only on process indicators. There is however also a need for indicators on the effectiveness of adaptation measures in reducing vulnerability. Participants agreed that there is a need for such effectiveness indicators, although they are much more difficult to define. One country mentioned that the work of EEA should be complementary but that the responsibilities on adaptation to climate change lay within the member countries. It was noted that this discussion on indicators will probably have a follow up once the Evaluation of the EU Strategy has been finalised.

EEA plans to finalise the technical paper on adaptation indicators by end 2017. EEA considers to elaborate this paper during 2018 and 2019 further, potentially resulting in an EEA product in 2019, making use of the MMR Art. 15 reporting. The focus of such a 2019 report would be on national adaptation policies and could be regarded as a follow-up of the earlier EEA report published in 2014, although the scope and content of the 2019 report still needs to be discussed and defined. One country mentioned that the MMR reporting of 2019 will be based on the 7th National Communication to UNFCCC, due Jan 2018. Thus EEA work on such a



2019 report can potentially start already in 2018. EEA will take into account the comments and will come back to NRCs in 2018 on the potential 2019 report.

Session 4: [EEA Annual Work Programme 2018 and beyond](#)

In the programming document 2018-2020, the EEA work on Climate change impacts, vulnerability and adaptation is highlighted as “Assessments on climate change impact, vulnerability, and adaptation and links to disaster risk reduction and improving the Climate-ADAPT platform, as relevant for the 2017/2018 evaluation of the EU climate change adaptation strategy and its mainstreaming into other EU policies”.

The presentation included the description, key partners and justification for each of the planned activities on CC IVA as listed in the current version of the AWP2018. EEA will revise this document directly after summer, addressing comments from European Commission, Parliament and EEA Scientific Committee that are still to come. The AWP2018 will be adopted by the EEA Management Board on 6 December 2017.

At the same time, a draft for the programming document 2019-2021 is being prepared, with a consultation of the initial draft (including Scientific Committee, Management Board and NFPs) foreseen in October 2017. Comments on the initial draft and consecutive drafts are within each country coordinated by NFPs.

Session 5: Facilitated discussion between countries

Sweden: [Adaptation Action Plans](#) (Åsa Sjöström)

Money earmarked for adaptation from the Ministry of Environment (EUR 0.5 million in 2016, EUR 0.35 million in 2017) was managed by SMHI to develop tools and action plans within different agencies and authorities to mainstream adaptation. As regional agencies already have these action plans, only national agencies were beneficiaries. Administratively, the procedure was very short with very tight deadlines for rules, tendering, applications, project implementation and administrative/financial closure.

The adaptation plans were a plan for what the beneficiaries would do, not a tool to indicate what others should do, resulting in 1 plan per organisation. The plans must include a vulnerability assessment, targets for adaptation, measures, and a communication plan and indicate how the impact will be evaluated. In 2016, 7 agencies developed a plan, 5 additional ones were developed in 2017.

Lessons learned include that the process has to be explained very well. In the actual set-up, there's a lack of a budget to steer the process and to include a quality check (not foreseen right now). The process helped to push climate change adaptation on the agenda of a range of governmental agencies. It was good value for money with quick results.

Belgium: [National Adaptation Plan & adaptation tools for municipalities](#) (Julien Hoyaux)

In addition to a National Adaptation Strategy, regional impact assessments and regional and federal adaptation plans, Belgium has developed and finalised in 2017 a National Adaptation Plan which is complementary to the already existing documents. [NAS](#) and [NAP](#) are available in English. The NAP 2017-2020, developed in a coordinated approach, includes 11 national actions that are valuable for all regions. It includes measures as the development of high resolution climate scenarios, a national online platform, strengthening sectoral coordination, education and awareness raising, promotion of transnational cooperation etc.

At the local level, an adaptation tool for cities already included a diagnostic tool to assess vulnerability. It is complemented by guidance on how to go to a local action plan. A Flemish tool includes types of measures, examples and an overview of funding options, while the Walloon one provides all the necessary information and instruments to prepare the information necessary for signatories to the adaptation commitment of the Covenant of Mayors for Climate and Energy.

Switzerland: [Monitoring, reporting and evaluation of adaptation strategy and actions, Assessment of climate related risks and opportunities](#) (Martina Zoller)

The revised CO₂ Act provides the legal basis for adaptation in Switzerland. According to Article 8, the Swiss federation shall coordinate and provide the basis for adaptation measures. For the implementation of the legal mandate, the FOEN as coordination body developed an adaptation strategy together with federal offices from other ministries.



With the adoption of the action plan in 2014, the FOEN was mandated to report the progress made and the effectiveness achieved in adaptation to the Federal Council.

An impact model or intervention logic was developed and includes among others an evaluation of the process of adaptation. The effectiveness evaluation not only looks at the coordination duty, but also at the effectiveness of adaptation strategy. For the 2017 effectiveness evaluation, a descriptive approach was followed, complemented by a few indicators.

In general, the link between measures and the final impact (in terms of reduced vulnerability and risk) is still poorly understood. Evaluation of the outcome (in terms of specific actions being implemented (output) and the target groups reached (outcome)) is easier than the impact. For the time being, in case of a positive outcome, a positive impact is assumed. The risk assessment, that ran over several years and will be finished in 2017, is a basis for future evaluations and for a revised NAS.

The Netherlands: *Climate Adaptation: The year 2016* (Jelle van Minnen)

Adaptation in the Netherlands works on 2 tracks: the Delta Programme & Delta Act and the National Adaptation Strategy. The new NAS finalised and published end of 2016 takes up these issues not covered by the Delta programme. An adaptation implementation plan is expected by the end of 2017. Risks are shown in pictograms to simplify the communication, but the NAS also shows the integrated way of dealing with them. Impacts are prioritized in groups based on their probability and effects. Sectors facing similar problems and effects are grouped in the visualisations.

A recent 2017 example of local flooding of a hospital increased the demand for urgent action. What if this was on a larger scale? Lessons can be learned from this incident and a stress test and related dialogue has to make clear what the cumulative effects can be.

Ongoing work is on urban adaptation and adaptation indicators. On a global scale, PBL prepares an assessment of water related hotspots in the world; across sectors and including conflicts.

PBL is one of the NL contributors to a new Global Centre of Excellence on Climate Change Adaptation, which is an initiative of NL and Japan, supported by UNEP. It will be launched during COP23 in Bonn (November 2017). It will be a network organisation with a working budget of EUR 1 million for the first year.

Germany: *Vulnerability and evaluation of adaptation: methods, current processes and international links* (Petra Mahrenholz)

A national vulnerability assessment was executed in 2016 as part of the NAS. This is a quantitative assessment based on indicators complemented by qualitative elements. Guidelines for climate impact and vulnerability assessments were derived from the standard agreed for the next national vulnerability assessment due in 2021.

The latest national assessment lacks an analysis of international impacts. This type of analysis is currently being done in a separate study, ImpactChain, including conducting stakeholder dialogues and using an approach similar to the one for the national vulnerability assessment.

An evaluation of the NAS/NAP is requested by the Paris Climate Change Agreement (Art. 7.9) and at national level by the German government. A stepwise approach until the next climate change adaptation action progress report in 2020 is defined with a conceptual framework on the strategic and operational level. A balance had to be found between involvement of all actors, all topics and showing complexity versus an approach that is easy to apply, understand and repeat. A detailed timeline and intervention logic, as well as methods are defined.

Germany works also on an ISO Standard for Vulnerability Assessments as part of broader range of activities on adaptation within ISO. As there was a large interest from the workshop participants in this process, Germany agreed to provide additional information after the workshop (see Box below).

**Information on ISO activities on adaptation, provided by Germany after the workshop**

A presentation explaining the context and the state of play can be found at <https://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2017-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation-21-22/meeting-documentation/presentations/additional-information/iso-activities-regarding-climate-change-adaptation/update-iso-activities-adaptation>, and a pre-draft on ISO14091 guidance to Vulnerability Assessment at <https://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2017-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation-21-22/meeting-documentation/presentations/additional-information/iso-activities-regarding-climate-change-adaptation/pre-draft-iso14091-vulnerability-assessment>.

Besides this work on Vulnerability Assessment, ISO work on adaptation currently involves a “Framework and Principles for methodologies on climate actions” (ISO 14080), and “Adaptation Framework Standard” (ISO 14090) and “Climate Finance (ISO 14097). Planned future work includes “Adaptation planning” and “Monitoring and Evaluation” both, together with the “Vulnerability Assessment” and potential other standards to be developed, under the umbrella of ISO 14090.

Engagement of adaptation experts is welcome, they need to coordinate with national standard bodies in charge. National standards bodies set up national groups of experts to comment on drafts and send delegates to ISO working groups.

Information on standards in relation to adaptation, provided by the UK after the workshop

UK work on standards in relation to climate change adaptation is coordinated through the BSI committee SES/001/07 ‘Greenhouse Gas Management and Related Activities’, which organises UK expertise to feed into international activities.

Currently, the UK is involved in:

- CEN Adapting to Climate Change project. This is a six-year project responding to a mandate from the European Commission to explore the role of standards in delivering the EU Strategy on Adapting to Climate Change. Focussing on three sectors: energy infrastructure, transport infrastructure and buildings/ construction, the project will first identify a list of priority standards for revising or developing and then carry out the work to do this within CEN technical committees. This might include a new standard on climate information/ projections. Supporting documents can be found at <https://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2017-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation-21-22/meeting-documentation/presentations/additional-information/international-and-uk-standards-work-support-adaptation> ⁽¹⁾
- ISO are developing a new international framework standard on climate change adaptation, ISO14090, which will offer a coherent foundation for all future standardisation initiatives in this area. This is being led by the UK. It is understood to be published around the end of 2018.
- The BSI committee of experts have identified the need for UK standards in the area of climate adaptation. Ideas for a publicly available specification (PAS) on infrastructure adaptation and/ or adaptation pathways approach were suggested. These are a step down from a standard in terms of the consensus and experience that is required and are therefore ideal for novel approaches. However, it was decided that we would organise a workshop to ask UK experts what good practice guidance would be most useful for them. BSI are working with IEMA and Defra on this and the workshop will take place end of October 2017.

⁽¹⁾ please contact EEA for more details, including contact details of UK contact points for the different projects.



Information on standards in relation to adaptation, provided by the UK after the workshop (continued)

Other previous activity to note are:

- Development of CEN/ CENELEC Guide 32 on Addressing Climate Change Adaptation Issues in standards. This is aimed at helping European standards writers take account of the impacts of climate change when developing and revising standards. It will be used to support the CEN Adapting to Climate Change project detailed above
<http://www.cencenelec.eu/standards/Guides/Pages/default.aspx>
- Under the Climate Ready Support Service that Environment Agency (England) previously provided, BSI produced a Smart Guide on Adapting to Climate Change Using your Business Continuity Management System, which uses the terminology and processes familiar to business continuity professionals to provide guidance on embedding climate change adaptation across a business.
<https://www.bsigroup.com/en-GB/forms/Adapting-to-Climate-Change-using-your-Business-Continuity-Management-System/>
- The ISO standard on Organizational Resilience ISO 22136 (<https://www.iso.org/standard/50053.html>), which was based on BS65000 and published last year. Similarly, standards on city resilience/ community resilience, are possibly in development
- The 2015 revisions ISO14001 mean that the impacts of climate change on environmental objectives should be taken into account within the management system.
- BSI have looked at updating drainage standards to take account of climate change. A case study on this can be found in the back of CEN Guide 32 (see link above).

[European Conference for Applied Meteorology and Climatology \(Tanja Cegnar\)](#)

The European Meteorological Society organises with partners (including the EEA) the yearly European Conference for Applied Meteorology and Climatology.

- 2017 Dublin (4-8 September), no dedicated session to adaptation to climate change, relevant sessions includes those on urban climate, agrometeorology, ...
- 2018 Budapest (3-7 September)
- 2019 Lyngby (September)

All workshop participants are invited to participate. The 2017 programme is final. EEA is not attending the 2017 conference but intends to support the 2018 and 2019 conferences by co-organising sessions on CC IVA.

Session 6: Wrap up and closing session (André Jol)

The session on setting the scene included a lot of information and although the packed programme limits the possibilities for questions and interaction this session is still regarded as important. In the break-out groups, the opportunity to participate and exchange was much larger, as well as in the session presenting country experiences. EEA will look at all comments carefully and assess how these can be reflected in the 2018 and 2019 EEA annual work programmes. Scoping and technical papers on the various topics that were discussed will be further developed during 2017 and communicated with NRCs and others interested when appropriate.

All participants were thanked for their contributions to this Eionet workshop and EEA looks forward to the collaborative activities with Eionet and others in the coming year and to the next Eionet workshop.



11th EIONET workshop on Climate Change Impacts, Vulnerability and Adaptation

21-22 June 2017

**EEA premises
(Kongens Nytorv 6, 1050 Copenhagen, Denmark)**

Conference Room

Final Agenda

The key objective of the workshop is to provide an update and a discussion of on-going and planned work by EEA, European Commission, international organisations and member countries in the field of work of 'Climate Change Impacts, Vulnerability and Adaptation'.

21 June 2017

13.00–13.30: Registration

13.30–13.45: Welcome and objectives of the meeting

13.45–15.30: Framing overviews

- European Commission (DG CLIMA), Evaluation of the EU adaptation strategy
- European Investment Bank (EIB), mainstreaming adaptation through EIB's Climate Strategy
- European Commission (DG RTD), Future relevant research and innovation actions by the Commission
- UNISDR activities in the European region
- EEA and ETC/CCA activities

15.45–16.00: Coffee break

16.00–18.00: Break-out group discussions (part 1)

Participants will be asked to join one of the following break-out groups:

- 1. Developments of Climate-ADAPT
- 2. Sectoral Adaptation (agriculture, energy, DRR)

Background documents for both topics are available at <https://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2017-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation-21-22/meeting-documentation/background-documents>

19.30Dinner (self-paid)



22 June 2017

09.00–09.15: Reporting in plenary from break-out groups day 1

09.15–10.45: Break-out group discussions (part 2)

Participants will be asked to join one of the following break-out groups:

- 3. Urban Adaptation
- 4. Adaptation in transnational regions including presentations from transnational organisations (Alpine Convention and OPCC)

Background documents for both topics are available (see previous page for link).

10.45–11.00: Coffee break

11.00–11.15: Reporting in plenary from break-out groups day 2

11.15–12.45: Facilitated discussion on CC Impact and Vulnerability assessments and Monitoring, reporting and evaluation

- National Climate Change Impact and Vulnerability assessments
- Adaptation scoreboard of the European Commission
- Indicators to monitor adaptation to climate change
- All topics followed by a discussion in plenary

A background document for this session is available (see previous page for link to background documents)

12.45–13.00: EEA 2018 work programme

13.00–14.00: Lunch and coffee

14.00–15.15: Facilitated discussion between countries

- Presentations by Member States on vulnerability and risk assessments and monitoring, reporting and evaluation of adaptation strategies and actions (presentations by Sweden, Belgium, Switzerland, the Netherlands and Germany)

15.15–16.00: Wrap up and closing session

- Filling-in the EIONET workshop evaluation form
- Review of discussions
- Wrap-up, next steps and closing



List of participants

11th EIONET Workshop on Climate Change Impacts, Vulnerability and Adaptation, 21-22 June 2017	Country/Organisation
ALVES Bruno	Luxembourg
BRUNENIECE Ieva	Latvia
CEGNAR Tanja	Slovenia
DALAN Fabio	European Commission (Executive Agency for Small and Medium-sized Enterprises)
DE GUSMÃO-SØRENSEN Diogo	European Commission (DG Research & Innovation)
DJORDJEVIC Milica	Bosnia-Herzegovina
Downing Clare	ETC/CCA
DUVERNOY Jérôme	France
ELMI Marianne	Alpine Convention
EMESE JUDIT Nyitrai	Hungary
GAUSTAD Alice	Norway
GIANNINI Valentina	ETC/CCA
GIORDANO Francesca	Italy
GRADZKI Marcin	Poland
HAVRÁNEK Miroslav	Czech Republic
HERAS HERNÁNDEZ Francisco Jorge	Spain
HOYAUX Julien	Belgium
HUTT Lorraine	United Kingdom
KONDRUP Claus	European Commission (DG Climate Action)
KONYA Edit	European Commission (DG Agriculture)
MAHRENHOLZ Petra	Germany
MEDRI Silvia	ETC/CCA
NTEMIRI Spyridoula	Greece
PAULINO Jose	Portugal
PERCHEVA Latina	European Investment Bank
PILLI-SIHVOLA Anna	Finland
POČUČA Žana	Croatia
PRUSTCH Andrea	Austria
RESTELICA Sabit	Kosovo under UNSCR 1244/99
ROSSI Luca	UNISDR
SAICH Nancy	European Investment Bank (remote presentation)
SIMONIČ Barbara	Slovenia
SJÖSTRÖM Åsa	Sweden
ŠTASTNÝ Pavel	Slovakia
TAMÁSOVÁ Angelika	Slovakia
TERRÁDEZ MAS Juan	Pyrenees Observatory for Climate Change (OPCC)
TODOROVA Maria	Bulgaria
TSALAKANIDOU Ioanna	Greece
TUĞAN ŞAHİN Kader	Turkey



VAN MINNEN Jelle	The Netherlands
YILDIRIM COSGUN Ayşe	Turkey
ZOLLER Martina	Switzerland
André Jol	EEA
Hans-Martin Füssel	EEA
Blaz Kurnik	EEA
Aleksandra Kazmierczak	EEA
Kati Mattern	EEA
Sergio Castellari	EEA
José Ramón Picatoste Ruggeroni	EEA
Wouter Vanneuville	EEA
Corine Guma	EEA
Paul McAleavey	EEA