Deutsche Anpassungsstrategie an den Klimawandel
Interministerielle Arbeitsgruppe Anpassungsstrategie

BMUB WR I 1, UBA I 1.6 14.03.2016

Ergebnisprotokoll IMA-XXIII
23. Sitzung der Interministeriellen Arbeitsgruppe „Anpassungsstrategie“
24. Februar 2016; BMUB Berlin

Anwesend: Frau Winkler, Herr Schreiner (beide BMG), Frau Schleif (BMF), Herr Gottfried von Gemmingen (BMZ), Herr Köthe, Frau Fiebig, Frau Möllenkamp (alle BMVI) , Herr Rösner (DWD), Frau Horn (BMWi), Frau Heidecke (TI Braunschweig für BMEL) [redacted] (PT-DLR für BMBF), Frau Krings (BBK für BMI), Herr Daschkeit (UBA), Frau Siegel (BMUB), Frau Hempen (BMUB).

Anmerkung: Die Sitzung fand auf Referatsebene statt.

TOP 1: Begrüßung
Frau Hempen (WR I 1) begrüßt die anwesenden Teilnehmer und dankt den Ressorts, den Behörden des Netzwerks Vulnerabilität sowie UBA / KomPass für die gemeinsame Arbeit am Fortschrittsbericht zur DAS. BMUB freut sich auf die weitere Zusammenarbeit und bittet die Ressort um aktive Begleitung der Aktivitäten zur der Umsetzung des APA II und der Fortschreibung der DAS.

TOP 2: Genehmigung der Tagungsordnung und des Protokolls der vorherigen Sitzung
Die Tagesordnung (Tausch der TOPs 6 und 7) sowie das Protokoll der vorherigen Sitzungen werden angenommen.

TOP 3: Rückblick Kabinettsbeschluss Fortschrittsbericht zur DAS, BMUB
Diskussion: Vorgehen Erstellung Broschüre zur DAS
Vorstellung des Fortschrittberichts zur DAS; Pressearbeit
Nach Einschätzung der Ressorts wird die Operationalisierung von Anpassungsbelangen maßgeblich für den für den Erfolg des künftigen DAS-Prozess auf nationaler Ebene sein. Auch wird die Verzahnung mit internationalen Prozessen / Maßnahmen aus Sicht des Ressorts zunehmend wichtiger.

BMUB / WR I 1 berichtet, dass die Erstellung einer Broschüre zum Fortschrittsbericht als Auftrag vergeben wurde. Der Umfang soll ca. 30-40 Seiten betragen, Zielgruppen sind Multiplikatoren sowie Bürger/innen. Die Broschüre soll nach Möglichkeit Mitte / Ende April 2016 fertiggestellt werden. Es ist vorgesehen, eine englische Übersetzung vorzunehmen. Der Broschürentext inkl. der Auswahl der inhaltlichen Schwerpunkte wird mit der IMA abgestimmt.

> ***Beschluss:*** *WR I 1 versendet im Nachgang zur IMA Sitzung eine erste Struktur der Broschüre an die IMA, verbunden mit der Einladung zu einem Treffen (Teilnahme offen). Die Auswahl der inhaltlichen Schwerpunkte sowie die Abstimmung des Broschürentextes erfolgt per Umlauf.*

BMUB plant, den Fortschrittsbericht zur DAS prominent im Rahmen einer Pressekonferenz oder eines Pressegesprächs mit Beteiligung 2-3 hochrangigen Vertretern anderer Ressorts vorzustellen. Die Res-

sortvertreter sind eingeladen, Ihre Vorschläge zu möglichem Termin und Format der Veranstaltung einzubringen.

TOP 4: Rückblick COP 21
a) Bericht Herr von Gemmingen, BMZ (Präsentation in der Anlage) sowie weitere Ressortvertreter
b) Side Events, UBA
Diskussion: Auswirkungen für DAS

a) BMZ fasst die wichtigsten Beschlüsse der COP21 zusammen und betrachtet schwerpunktmäßig die Folgen für Deutschland bzw. den DAS-Prozess in Bezug auf Berichterstattung („Anpassungskommunikation"). Das noch auszugestaltende Berichtssystem weist noch Unklarheiten auf und ist rechtlich derzeit nicht bindend. Auch die Frequenz der Berichterstattung ist noch unklar. Anpassungskommunikation soll andere Berichterstattungen (z. B. NAP) beinhalten oder in Verbindung damit stehen. Es ist noch offen, ob es nationale Berichte zur Anpassung im Turnus von 2 Jahre geben wird. In den COP21-Ergebnissen zu Anpassung gibt es starke Querbezüge zum Sendai-Framework zur Reduzierung von Katastrophenrisiken (Betonung des Risikomanagements). BMVI berichtet über den Aktionsplan des Verbandes der Seehäfen (global) zu freiwilligen Maßnahmen zu Minderung und Anpassung (http://www.pianc.org/thinkclimate.php). Eine Pressinformation sowie der Aktionsplan finden sich in der Anlage).
b) UBA berichtet über das von KomPass organisierte erfolgreiche side event zu „Good Practice of Adaptation in Germany – Transfer of Experiences". Im Nachgang hierzu gab es Nachfolgeaktivitäten (Kanada, Japan).

BMUB weist darauf hin, dass KOM erwägt, eine EU-Berichtserstattung für Anpassung in die Diskussion zur Berichterstattung einzubringen (siehe auch TOP 10)

TOP 5: Fortführung Arbeiten zur DAS
Monitoringbericht - Ansprechpartner in den Ressorts, UBA
UBA erläutert die vorab verschickte Tischvorlage zu den Ansprechpartnern in den Ressorts und den Oberbehörden in den jeweiligen Geschäftsbereichen. Die zentralen Ansprechpartner in den Ressorts sollen lediglich bei der Weiterentwicklung der Indikatoren des Monitorings einbezogen werden.

> ***Beschluss:*** *Die in der IMA vertretenden Ressorts melden bis zum* ***24. März 2016*** *ihre zentralen Ansprechpartner an BMUB WR I 1.*
> *Begründung: Für die Institutionalisierung des Fortschreibungskonzepts des Monitoringberichts zur DAS ist die Benennung von Zentralen Ansprechpartnern in den Bundesressorts erforderlich (siehe konkretisiertes Verstetigungskonzept zum Monitoringbericht, Anforderungen an die Institutionalisierung und Aufgaben der Akteure, Kap. 4. Zentrale Ansprechpartner; IMA-Beschluss vom 09.03.2015, TOP 3).*

UBA erläutert die Aktivität einer online-basierten Publikation des Monitoringberichts. Die Publikation soll in zwei Schritten erfolgen:

- Schritt 1: Verwendung bereits abgestimmter Inhalte für die online-Publikation.
- Schritt 2: Publikation zusätzlicher (neuer) Fachinhalte sowie Verlinkung mit aktuellen Inhalten aus den Ressorts / Oberbehörden nach Abstimmung in der IMA. UBA wird hierzu auf der nächsten IMA ein Konzept vorstellen, aus dem die Struktur der online-Publikation hervorgehen soll.

BMUB erläutert, dass die On-line Publikation des Monitoringberichtes bei KlimAdapt eingestellt werden wird.

> ***Beschluss:*** *Die IMA stimmt der Erstellung einer Online-Publikation des Monitoringberichts mit einer Verlinkung auf die Hintergrunddokumente zu (Indikatorenfactsheets, Hintergrundpapiere, Organisationskonzept der Fortschreibung). Ein Vorschlag über die Verlinkung mit erweiterten Fachinhalten wird der IMA vorgelegt.*

TOP 6 (ursprünglich TOP 7): Fortführung Arbeiten zur DAS
Evaluation des DAS Prozesses, UBA

UBA erläutert Funktionen und mögliche Zielsetzungen von Evaluationen sowie exemplarisch eine mögliche Konkretisierung in Bezug auf den DAS-Prozess (siehe dazu Fortschrittsbericht Kapitel G). Das UBA führt im Auftrag des BMUB ein begleitendes UFOPLAN-Vorhaben durch, das die Evaluation fachlich vorbereitet.

BMG weist darauf hin, dass die Festlegung der Zielsetzung der Evaluation durch die IMA erfolgt. Es ist bei der weiteren Planung der Evaluation bereits jetzt die Struktur des nächsten FB zu berücksichtigen. Eine Diskussion der Evaluationsmethoden sollte für die IMA nicht im Vordergrund stehen.

BMZ, BMUB und UBA verdeutlichen den Mehrwert der Evaluation: er liegt in der Weiterentwicklung des gesamten DAS-Prozesses, der systematischen und konsistenten (sowie ggfs. neutralen) Evaluation des Fortschritts des DAS-Prozesses auf strategischer und operativer Ebene.

Die IMA weist darauf hin, dass der Aufwand sowohl für die Evaluierten als auch für die Evaluierenden verhältnismäßig sein soll.

BMUB (Frau Siegel) weist darauf hin, dass eine Evaluation langfristig Prozesse, Ergebnisse und Wirkungen betrachten sollte. Vor dem Hintergrund eigener Erfahrungen im Kontext Evaluation „Stadtumbau“ sollte zudem der Anspruch der Evaluation genau bestimmt werden.

> ***Beschluss:*** *Die IMA stimmt dem vorgestellten Vorgehen zu und befasst sich voraussichtlich im Oktober 2016 und im März 2017 im Rahmen von ganztägigen Workshops zur Evaluation der DAS. Auf Grundlage der abgestimmten Zielsetzung soll die Evaluation der DAS ab dem 4. Quartal 2017 beauftragt werden. Die IMA erhält eine schriftliche Kurzinformation zum Projekt (1-2 Seiten), die die wesentlichen Ziele und Arbeitsschritte des Vorhabens zusammenfasst.*

TOP 7 (ursprünglich TOP 6): Fortführung Arbeiten zur DAS
Fortführung des Behördennetzwerks, UBA (Infoblatt zum Projekt siehe Anlage)

UBA erläutert die Behördenzusammenarbeit im Sinne der Fortsetzung des Netzwerks Vulnerabilität und die Möglichkeiten zur Unterstützung der Zusammenarbeit durch ein UFOPLAN-Vorhaben. BMUB und UBA erläutern, dass das Vorhaben thematisch an ausgewählten Defiziten der Vulnerabilitätsanalyse des Bundes von 2015 ansetzt, aber nicht den Anspruch hat, alle Defizite bzw. alle Forschungserfordernisse des Netzwerks bzw. der Vulnerabilitätsanalyse aufgreifen zu können. Demgegenüber soll im Vorhaben auch die Möglichkeit bestehen, Themen aus den Ressorts bzw. den Oberbehörden aufzugreifen. BMUB sieht das Vorhaben als Unterstützung des Netzwerks von Seiten des Umweltressorts an und als Weg zu einer Mandatierung der Oberbehörden für die weitere Zusammenarbeit im Rahmen der DAS-Umsetzung.

BMVI wünscht, Ziele und Arbeitsprogramm des Vorhabens sowie den damit verbundenen Aufwand für die Behörden detaillierter darzustellen. Auf dieser Basis könne entschieden werden, in welchem

Umfang die Behörden im Geschäftsbereich des BMVI eine Zusammenarbeit realisieren können. BMVI berichtet über das Expertennetzwerk des Ressorts, das für 4 Jahre aus Eigenmitteln finanziert wird und als Beitrag des BMVI zu Klimaanpassung aufgebaut wird: Inhaltlich hat das Netzwerk drei Themenschwerpunkte: Klimaanpassung im Verkehrssektor, Bauen / Infrastrukturen, sowie Umwelt/Nachhaltigkeit (siehe https://www.expertennetzwerk-bmvi.de/). Die IMA ist zur Vorstellung des Expertennetzwerks am 19.04.2016 in Berlin eingeladen. BMZ sieht AP 3 des UFOPLAN-Vorhabens (zu Anpassungszielen) als gute Möglichkeit an, um das Mandat für die Mitarbeit der Behörden zu entwickeln.

UBA wird zu einem ersten Netzwerktreffen für das 2. Quartal 2016 einladen. Die Einladung soll eine konkretisierte Agenda für die Behördenzusammenarbeit im Rahmen des Vorhabens aufzeigen und darstellen, in welcher Form und in welchem sich die beteiligten Behörden / Ressorts in das Vorhaben einbringen können.

> ***Beschluss**: Die IMA erhält eine schriftliche Kurzinformation zum Projekt (1-2 Seiten), die die wesentlichen Ziele und Arbeitsschritte des Vorhabens zusammenfasst. Die beteiligten Ressorts geben WR I 1 eine Rückkopplung bzgl. der Mitwirkungsmöglichkeiten der Behörden im jeweiligen Geschäftsbereich.*

TOP 8: Leitfaden Vulnerabilität, UBA

UBA erläutert die Idee des Leitfadens Vulnerabilität, die aus den methodischen Empfehlungen des Netzwerks Vulnerabilität für sektorale und sektorenübergreifende Klimawirkungs- und Vulnerabilitätsanalysen entstanden ist. Die Empfehlungen werden gemeinsam mit den Bundesländern als Harmonisierungsrahmen für regionalspezifische Analysen weiterentwickelt, um die Vergleichbarkeit der Ergebnisse von Klimawirkungs- und Vulnerabilitätsanalysen zu erhöhen. Es ist vorgesehenen den Leitfaden auf europäischer und internationaler Ebene vorzustellen. Ein erster Workshop mit den Bundesländern am 28.01.2016 stieß auf große Resonanz.

> ***Beschluss:***
>
> *UBA entwickelt gemeinsam mit dem Auftragnehmer bis voraussichtlich Anfang April 2016 eine erste Version des Leitfadens* Vulnerabilität. *Dieser wird mit dem Bund-Länder-Fachgespräch Klimafolgen sowie dem Netzwerk Vulnerabilität abgestimmt. Die fachlich konsolidierte Fassung des Leitfadens wird der IMA und dem AFK voraussichtlich nach der Sommerpause 2016 vorgestellt.*

TOP 9: Normungsarbeit, UBA

UBA erläutert den Zusammenhang der Normungsaktivitäten auf internationaler (ISO), europäischer (CEN) und nationaler Ebene (NAGUS, KU) und berichtet über die konstituierende Sitzung des DIN Arbeitsausschuss NA 172-00-13 AA „Anpassung an die Folgen des Klimawandels“ (Überblick siehe Anlage).

BMVI hebt hervor, dass Normungsaktivitäten im Bereich Klimaanpassung wesentlich auf verlässlichen klimatischen Eingangsdaten bzw. Daten zu sich verändernden klimatischen Randbedingungen beruhen.

> ***Beschluss**: Die IMA beschließt, sich künftig beim Thema Normung zu engagieren. BMZ wird auf UNFCCC Ebene die aktuellen Entwicklungen beobachten und der IMA berichten. DWD prüft, inwieweit er an CEN-Aktivitäten beteiligt ist und informiert die IMA.*

TOP 10: EU-Arbeitsgruppe 6 Anpassung, BMUB

BMUB WR I 1 berichtet über die EU-WG 6 (Anpassung) Sitzung am 02.02.2016 und die anschließende Diskussionsrunde mit Vertretern der Versicherungswirtschaft (siehe Präsentationen im Extranet). Die KOM zieht eine Überarbeitung der EU-Anpassungsstrategie in Erwägung. In diesem Kontext wird auch die Möglichkeit eine EU-Berichterstattung für die aus dem Pariser Übereinkommen resultierenden Berichtspflichten der Vertragsstaaten in Erwägung gezogen.

Beschluss:

Die IMA hält für das noch auszugestaltende Berichtssystem im Rahmen des Pariser Übereinkommens nationale Berichte zur Klimaanpassung für sinnvoll. Eine EU-Berichterstattung für die Mitgliedsstaaten wird nicht befürwortet.

TOP 11: Berichte aus den Ressorts

BMVI weist mit Bezug auf UBA-Vorhaben „screening tool" darauf hin, dass es wichtig ist, valide Klimainformation / belastbare Klimaprojektionsdaten für die Maßnahmenumsetzung bereitzustellen. BMVI hat 4 seiner Oberbehörden unter FF des DWD gebeten, ein Konzept für einen Klimaprojektionsdienst als ressortübergreifendes Angebot zu erstellen, inkl. Darstellung der dafür notwendigen Ressourcen (siehe APA II-Maßnahme 7.20). BMVI wird das Konzept in der nächsten IMA vorstellen und betont die Bedeutung des Angebotes für die Verknüpfung von DKD und KlimAdapt.

BMUB berichtete über die Begleitforschung zur Evaluierung der Städtebauförderung. Nach dem Koalitionsvertrag werden die Programme Stadtumbau Ost und Stadtumbau West perspektivisch zu einem einheitlichen, inhaltlich aufgewerteten und integrierten Stadtumbauprogramm zusammengeführt. Dies soll auf der Grundlage einer gemeinsamen Evaluierung der beiden Programme geschehen, die bereits gestartet wurde. Mit der Evaluierung sollen Antworten darauf gefunden werden, welche Problemlagen künftig in allen Regionen Deutschlands die größten Herausforderungen darstellen und welche Instrumente dafür notwendig sind. Dabei sollen auch Belange des Klimaschutzes – und der Anpassung Berücksichtigung finden und werden im Rahmen einer Studie untersucht.

DLR berichtet, dass die Förderbekanntmachung „Klimahandeln in Stadt und Region – mit transdisziplinärer Forschung zu Klimaresilienz" in einigen Wochen veröffentlicht wird (siehe Anlage). BMVI, BMUB und UBA betonen, dass im Rahmen der Fördermaßnahme Möglichkeiten der Unterstützung der Ressortforschung ausgelotet werden sollten. Die Teilnahme an der Begutachtung bzw. am Begleitkreis der Fördermaßnahme mit Vertretern der IMA / des UBA ist wünschenswert und wird von der DLR an das BMBF herangetragen. In Vorbereitung ist eine Ausschreibung zum Thema Klimawandel auf lokaler Ebene, hier steht der Informationsbedarf seitens der kommunalen Ebene im Vordergrund. Ein zweiter Workshop zur weiteren Vorbereitung der Fördermaßnahme ist für Juni / Juli 2016 vorgesehen.

BMG berichtet, dass das Allergieportal wieder aktiviert werden soll, hierzu startet 2016 ein Vorhaben.

UBA weist auf das laufende Vorhaben zur Regionalisierung von Klimaszenarien für Deutschland (ReKliEs-De) hin, insb. auf eines der Vorhabensziele: Vergleich SRES- sowie RCP-Szenarien (weitere Informationen unter: http://reklies.hlnug.de/startseite.html).

TOP 12: Sonstiges

Die nächste IMA Sitzung wird vor der Sommerpause, voraussichtlich im Juni 2016 stattfinden.

Unter anderem sollen auf der Sitzung die Themen

- Konzept für einen Klimaprojektionsdienst als ressortübergreifendes Angebot (BMVI)
- GCOS-Steuerungsgruppe (Vorstellung DWD)

BMZ Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Der Weltklimagipfel in Paris (COP21)

Ergebnisse und Konsequenzen für die Anpassung an den Klimawandel

Bundesministerium für
wirtschaftliche Zusammenarbeit
und Entwicklung

Impressionen

12. Dezember 2015, 19.30 Uhr

Das Pariser Klima-Abkommen ist angenommen!

Bundesministerium für
wirtschaftliche Zusammenarbeit
und Entwicklung

Gliederung

- Ergebnisse des Pariser Klimagipfels
- Anpassung und Schäden und Verluste
- Adaptation Communications
- Nächste Schritte

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Die wichtigsten Ergebnisse

Minderung

- Globaler **Temperaturanstieg „deutlich unter 2°C“** gegenüber vorindustriellem Niveau
- **Referenz auf 1,5°C**: Zeichen für mehr Klimagerechtigkeit
- **Treibhausgasneutralität**: Netto-Ausstoß von Null in der zweiten Hälfte des Jahrhunderts
- **Ambitionssteigerungsmechanismus** ab 2020: Fortschreibung und Steigerung nationaler Klimaschutzbeiträge alle fünf Jahre

Anpassung

- **Globales, qualitatives Anpassungsziel** mit Verpflichtungen für alle Staaten, Berichterstattung und globaler Überprüfung sowie Unterstützung besonders gefährdeter Entwicklungsländer
- **Klimabedingte Schäden und Verluste** (Loss and Damage) im Abkommen verankert mit Fokus auf umfassendem Klimarisikomanagement

Finanzierung

- **Fortführung der Klimafinanzierung** (100 Mrd. USD jährlich ab 2020)
- **Mittelfristiger Anstieg**: Bis 2025 Festlegung eines neuen Finanzierungsziels
- **Freiwillige Beiträge von Schwellen- und Entwicklungsländern**

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Die wichtigsten Ergebnisse

Einschätzung:

- **Historischer Vertrag**: erstmals universell verbindliches Abkommen zur Begrenzung der Erderwärmung
- Abkommen steht **im Zeichen der Agenda 2030**: Verbindung von Klimapolitik mit Armutsbekämpfung, Ernährungssicherung, Geschlechtergerechtigkeit und Menschenrechten
- **Aufbruch** der starren **Zweiteilung in Industrie- und Entwicklungsländer**
- **Klimaschutzbeiträge (INDCs) von 188 Industrie- und Entwicklungsländern → 2,7°C**
- **Anpassung bekommt den selben Stellenwert wie Minderung**
- Globaler **Überprüfungs- und Ambitionssteigerungsprozess** ab 2018
- Einigung auf ein einheitliches, robustes **Transparenz-System zur Berichterstattung** von Emissionen für alle Staaten

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

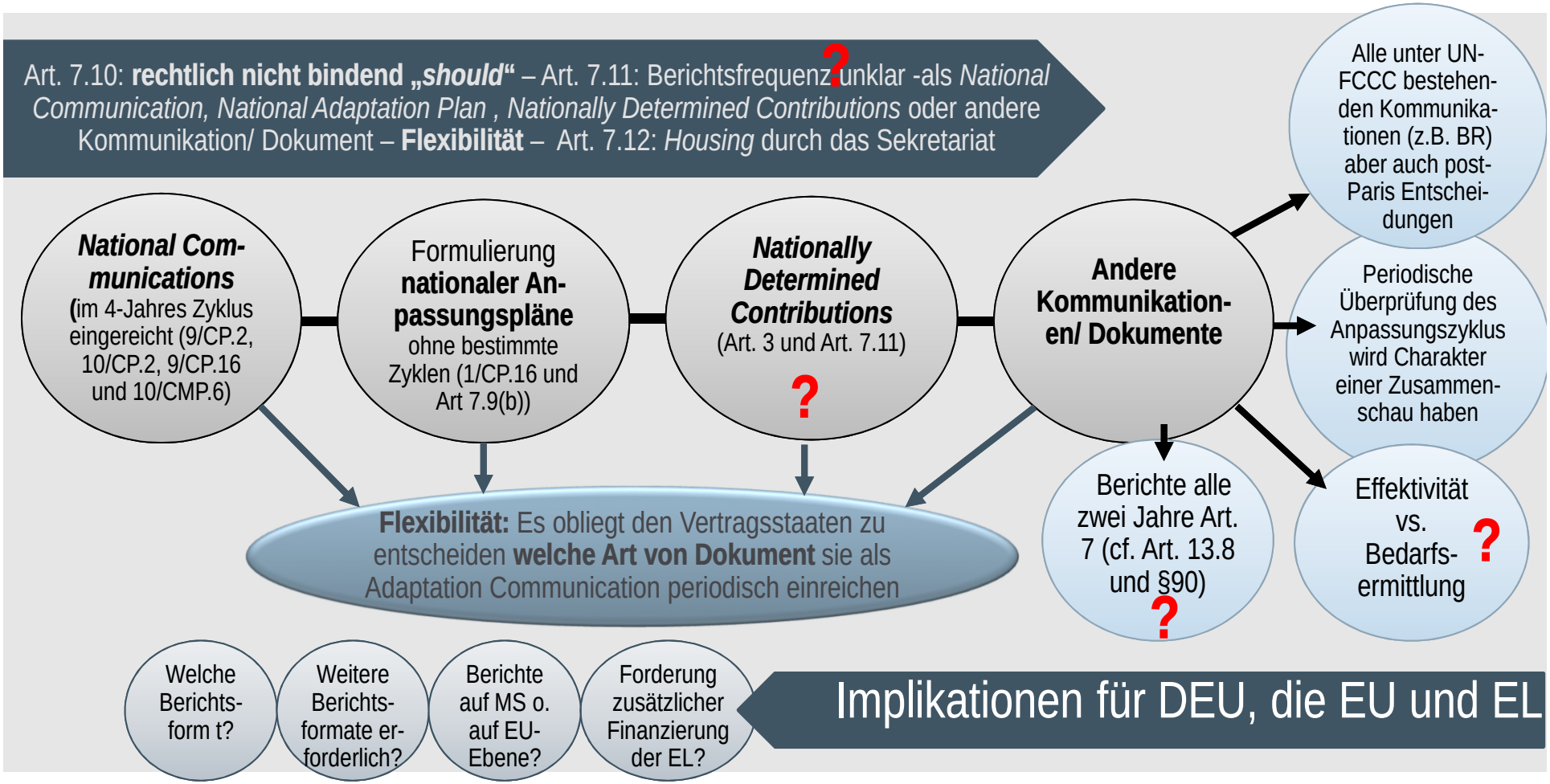
Anpassung

Verstärkte Maßnahmen

- Globales **langfristiges qualitatives Anpassungsziel** (Art. 7.1), Anpassung ist Herausforderung für alle Staaten, insbesondere für gefährdete Entwicklungsländer (EL)
- Anerkennung, dass **verstärkte Minderungsanstrengungen zu weniger Anpassungsbedarf** führen (Art. 7.4)
- **Gemeinsame Verpflichtungen:** u.a. Info-Austausch, Forschung, Unterstützung der EL, Wirksamkeit verbessern (Art. 7.7)
- **Verpflichtungen der Vertragsstaaten** zur Umsetzung von Maßnahmen, NAP, Vulnerabilitätsanalysen, M+E, Resilienzaufbau *(„as appropriate“)* (Art. 7.9)
- **Anpassungskommunikation:** Prioritäten, Unterstützungsbedarf, Pläne, Maßnahmen und Umsetzung („should“) (Art. 7.10)
- **Globale Überprüfung:** alle 5 Jahre zu Minderung, Anpassung und den Unterstützungsleistungen soll auch die **Wirksamkeit der Anpassungsmaßnahmen** prüfen → Ziel: Fortschritt zur Erreichung des Anpassungsziel überprüfen (Art. 7.14)

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Adaptation Communication



Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Verluste und Schäden

Zusammenarbeit beim Umgang mit Klimawandelrisiken

- **Anerkennung der Bedeutung**, Verluste und Schäden abzuwehren, zu verringern und anzugehen.
- **Verankerung des „Internationalen Warschau-Mechanismus** für Verluste und Schäden“ im Abkommen -> dauerhafte Behandlung des Themas
- **Fokus auf umfassendes Risikomanagement** (Frühwarnsysteme, Notfallvorsorge, Versicherungsansätze, Fokus auch auf allmähliche Veränderungen, irreversible Schäden und nicht-ökonomische Verluste)
- **Verstärkte Forschung, Zusammenarbeit und Unterstützung**
- **Auschluss von Haftung und Schadensersatz**
- **Aufbau einer Informationsplattform („clearinghouse“) für Klimarisikoversicherungen**
- **Einrichtung einer Arbeitsgruppe zu klimawandelbedingter Migration**

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Nächste Schritte

2016 - 2020

- **Bis 2020**: Aufforderung, **Anpassungsfinanzierung signifikant zu erhöhen** (§114)
- Überprüfung der der UNFCCC-Anpassungsinstitutionen 2017,
- Mainstreaming von Anpassung außerhalb der Institutionen der Konvention
- Verstärkung der Nationalen Anpassungsplanung (NAP), Einbettung in NDC
- Mehr als die Hälfte der INDCs beziehen sich auf nationale Anpassungspläne- oder Strategien. Aus den 141 INDCs mit Anpassungskomponenten lässt sich ableiten, dass **NAP** das Medium ist, um auf **Anpassung und Schäden und Verluste ausgerichtete Maßnahmen zu planen**, **koordinieren** und dem Bedarf eines jeden Landes entsprechend, **effektiv und wirkungsvoll umzusetzen**
- *Lima-Paris Action Agenda/ Technical Examination Process* für Anpassung
- Integration von Anpassung in das Transparenz-Framework
- Stärkung von MRV *of support* und *effectiviness* für Anpassung

Meilensteine für 2016

- *Technical Expert Meetings (TEMs)* während der Zwischenverhandlungen (SB44)
- *Standing Committee on Finance Forum on Loss and Damage*
- Einrichtung des ***Clearinghouse*** und der ***Displacement Task Force*** durch ExCom
- COP22: Review des Anpassungsausschusses (AC) und des Warschau-Mechanismus für Schäden und Verluste

Bundesministerium für
wirtschaftliche Zusammenarbeit
und Entwicklung

Vielen Dank für Ihre Aufmerksamkeit

THINK PIANC CLIMATE

NAVIGATING A CHANGING CLIMATE

Action Plan of the PIANC Think Climate Coalition

NAVIGATING A CHANGING CLIMATE

Action Plan of the PIANC Think Climate Coalition

November 2015

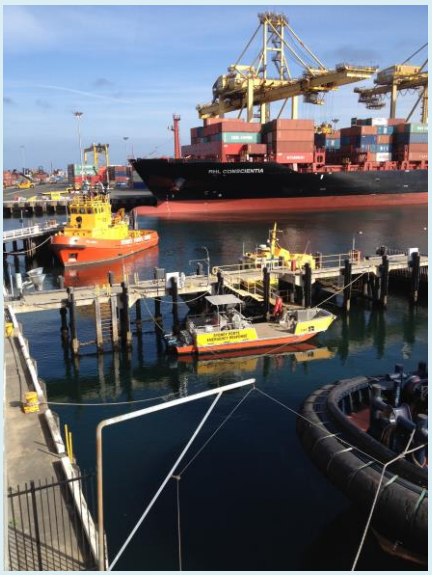
Summary

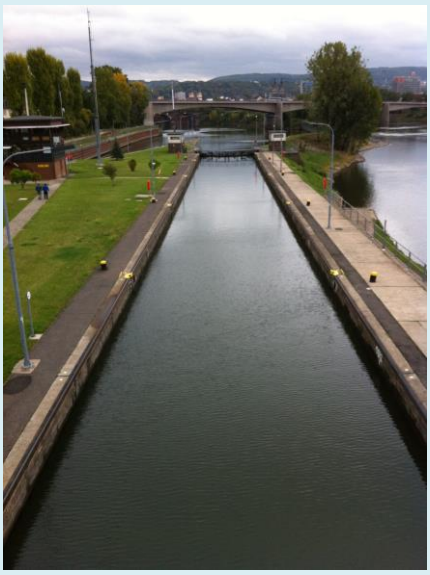
Through an unprecedented collaboration, the partners in PIANC's Think Climate coalition have committed to work together to help the inland and maritime navigation infrastructure sector respond to climate change. By furthering understanding, providing targeted technical support, and building capacity, the coalition's 'Navigating a Changing Climate' initiative will encourage the owners, operators and users of waterborne transport infrastructure:

- to reduce greenhouse gas emissions and shift to low carbon maritime and inland navigation infrastructure, and
- to act urgently to strengthen resilience and improve preparedness to adapt to the changing climate.

Waterborne transport, both maritime and inland, is an essential enabler to human society. It is also one of the most energy-efficient and environmentally sound means of meeting global transport needs although more can be done to reduce greenhouse gas emissions. Whereas recent years have seen considerable efforts by the International Maritime Organization (IMO) under the United Nations Framework Convention on Climate Change to reach agreement on a global approach to reduce greenhouse gas emissions from international shipping, much less attention has been paid to the infrastructure that supports waterborne transport. **Our initiative is designed to address this gap**.

Waterborne transport needs ports, harbours and marinas, along with locks, docks, quays, wharves, jetties, embankments, pontoons, marinas, dredged channels, breakwaters and many other types of navigation infrastructure





Photos courtesy of Jan Brooke

Added Value

Individually, each partner in PIANC's Think Climate coalition has a mandate that includes raising awareness, building capacity and providing technical support to its membership. By bringing together the key global and regional associations with interests in inland and maritime waterborne transport infrastructure, PIANC's Think Climate coalition specifically aims to add value: by broadening effort, scaling-up activity, and reaching out to an extended audience around the world. Working on a 'stronger together' basis, the coalition will provide a one-stop-shop for information and technical support, enabling participants to understand each other's needs and encouraging them to act – urgently and together – to reduce infrastructure-related emissions, to improve resilience, and to adapt inland and maritime navigation infrastructure to the effects of a changing climate.

Partners

The following international and regional associations have already joined as partners in PIANC's Think Climate coalition. Together, these associations reach more than 250,000 individuals from a variety of state and non-state organisations. Other international associations have expressed an interest in becoming involved, so we are confident the coalition will grow. Further information about each of the existing partner associations is provided in Annex 1.

- The World Association for Waterborne Transport Infrastructure (PIANC)
- International Association of Ports and Harbors (IAPH)
- International Harbour Masters' Association (IHMA)
- International Maritime Pilots' Association (IMPA)
- International Bulk Terminals Association (IBTA), a coalition of the International Dry Bulk Terminals Group and the Coal Export Terminal Operators Association
- Smart Freight Centre (SFC)
- European Dredging Association (EuDA)

In preparation for the 21st session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP21) the Think Climate coalition partners are collaborating on an initiative entitled 'Navigating a Changing Climate: Towards Sustainable Waterborne Transport Infrastructure'. The coalition will provide a focal point, building on existing activities such as PIANC's *Working with Nature*[1] initiative, the IAPH World Ports Climate Initiative[2] and the Smart Freight Centre's Global Logistics Emissions Council[3] along with other initiatives noted in Annex 2; highlighting new opportunities; providing a platform for discussion; and driving implementation and action across the inland and maritime navigation infrastructure sector.

[1] See http://www.pianc.org/workingwithnature.php
[2] See http://wpci.iaphworldports.org/
[3] See http://www.smartfreightcentre.org/glec/what-is-glec

Our Vision

The multi-stakeholder partners in PIANC's Think Climate coalition share a single vision. We want to see a responsible, well-informed and innovative sector where the owners, operators and users of inland and maritime waterborne transport infrastructure in all countries:

- are aware of the issues associated with navigating a changing climate, and of the need to act now
- have access to existing and new, sector-specific technical and institutional resources aimed at facilitating climate change mitigation and adaptation
- have developed the capacity to make timely and effective decisions on mitigation and adaptation options, and
- collaborate with others within and beyond the sector to identify and deliver integrated, resilient and sustainable solutions, with an emphasis on *Working with Nature*.

Our Mission

In support of this vision, the partners in PIANC's Think Climate coalition will cooperate:

- to improve sector-wide awareness of climate change; of the challenges waterborne transport infrastructure will face; and of potential solutions or opportunities
- to create and facilitate knowledge networks, promoting the sharing of experience and good practice between state and non-state stakeholders at international, regional and national levels
- to develop or facilitate the preparation of technical good practice guidance, training opportunities and web-based resources
- to provide a coordinated, global focal point: a 'centre of excellence' intended to support the owners, operators and users of inland and maritime navigation infrastructure in building the capacity needed to navigate a changing climate.

Coalition Supporters

The value of the coalition's work, and the effectiveness of its products, both increase as visibility of the Navigating a Changing Climate initiative increases. Other organisations in the waterborne transport infrastructure sector are therefore being encouraged to sign up as supporters of the Think Climate coalition[4]. The coalition simply asks that supporters commit to our objectives. In return, they will receive regular updates on the activities of the coalition including notice of relevant events (conferences, workshops, webinars and training) and of new technical publications.

Supporter associations and organisations will play an important role in dissemination and will therefore make an essential contribution to the achievement of the Think Climate coalition's vision.

Registered supporters to date include:

- Society of International Gas Tanker and Terminal Operators (SIGTTO)
- SedNet (the European Sediment Network)
- North Queensland Bulk Ports Corporation (NQBP)
- PIANC UK
- Institut français des sciences et technologies des transports, de l'aménagement et des réseaux (IFSTTAR)
- Compagnie Nationale du Rhône (CNR)
- Bremenports GmbH & Co. KG
- Port of Antwerp
- Cerema
- Ports Australia

[4] http://www.pianc.org/thinkclimate.php

Why Act?

"We can't see CO_2. It is an invisible threat, but a very real one. It means hotter global temperatures, more extreme weather events like heatwaves and floods, melting ice, rising sea levels and increased acidity of the oceans. This is happening now and we are moving into uncharted territory at a frightening speed".

Michel Jarraud, Secretary-General World Meteorological Organisation, 9th November 2015[5]

Navigating a Changing Climate: Mitigation

All sectors must play their part in climate change mitigation. The waterborne transport infrastructure sector is no exception. Port and waterway infrastructure and operations typically account for only a very small proportion[6] of the total greenhouse gas emissions associated with the shipment of a particular consignment. The most significant proportion by far is associated with the sea voyage, and a varying amount with connecting transport. It is nonetheless important that the owners, operators and users of waterborne transport infrastructure take steps to minimise the emissions associated with their activities if they are to contribute to the 'less-than-2-degrees' pathway. The associations represented on the coalition recognise the importance – and the urgency – of implementing effective mitigation measures and of moving towards low carbon infrastructure. Coalition members further acknowledge the need for innovation alongside conventional emissions-reduction measures: for example initiatives aimed at improving integration to increase energy efficiency[7] or at creating carbon sinks in coastal areas[8] by *Working with Nature*. As with other sectors, such innovation has the potential to bring associated social, employment and economic opportunities.

Navigating a Changing Climate: Adaptation

Even if the COP21 meetings in Paris in December 2015 reach agreement on limiting warming to less than two degrees, climate scientists are in general agreement that we are already locked in to further change. If we fail to achieve the two-degrees goal, things will get worse still. The Think Climate coalition partners believe that it is time to stop using uncertainty as an excuse for inaction. Even if there is disagreement on what is causing the change, change is happening. Adaptation of inland and maritime navigation infrastructure is vital, and the time to act is now.

In addition to contributing to mitigation, it is therefore essential that the sector acts to strengthen resilience, to coordinate globally and act locally to adapt waterborne transport infrastructure and the operations that depend on it to the changing climate; and to reduce vulnerabilities to more frequent extreme events. The principles of *Working with Nature* are equally if not more relevant when options to improve resilience and to adapt to climate change are being considered.

---

[5] https://www.wmo.int/media/content/greenhouse-gas-concentrations-hit-yet-another-record

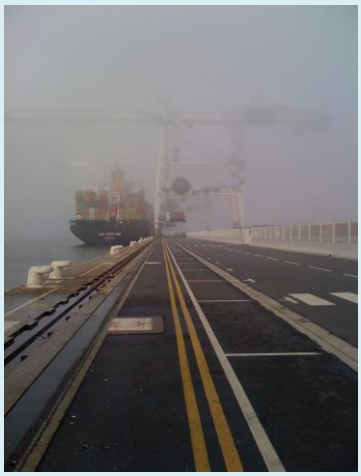
[6] See, for example, the following presentation indicating that <1% of the total CO_2 emissions associated with the movement of a single container from China to Scotland derive from port-related activities: http://www.fta.co.uk/export/sites/fta/_galleries/downloads/international_supply_chain/presentation_decarbonising_the_maritime_supply_chain.pdf

[7] For example, the World Ports Climate Initiative 'intermodal transport' project http://wpci.iaphworldports.org/project-in-progress/index.html

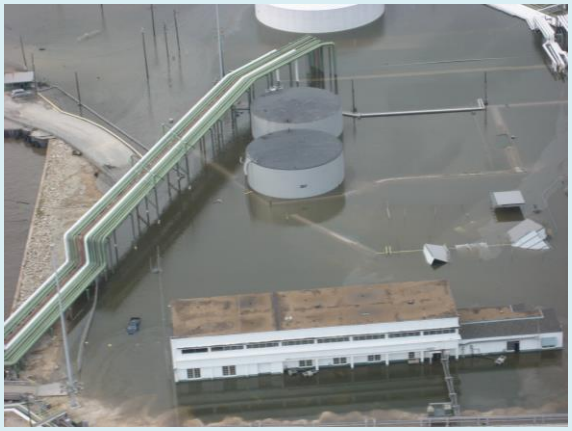
[8] For example, Carbon Offsetting? Blue Carbon Provides Opportunities for the Dredging Industry in WODCON XX - The Art of Dredging - June 2013, Belgium. Van der Klis P, Sansoglou P, Mink F.

Waterborne transport infrastructure management and use can be vulnerable to sea level rise, storms, wind damage, flooding and other effects. The frequency and magnitude of many extreme weather events is expected to increase as climate changes.

Photo courtesy of Aidan Fleming, Port of Cork, Ireland



Photos courtesy ofJan Brooke



Photos courtesy of U.S. Army Corps of Engineers Galveston District

Efficient adaptation will often involve modifying existing physical infrastructure. New infrastructure design will have to accommodate the changing climate whilst also taking steps to avoid becoming locked-in to high carbon futures. Many operational activities, maintenance regimes and management practices will need to be adapted to cope with changes in ambient (mean or seasonal) conditions or more frequent extreme events or both. Other practices will need to be fundamentally changed. In some situations conventional designs or operational solutions may no longer be sustainable. Climate change is therefore a key driver for innovation across the maritime and inland navigation infrastructure sector.

Climate change effects will vary regionally and often locally; change will not be equally distributed and the most profound effects may be felt in countries that are least well-resourced to adapt. The following table highlights some of the main areas in which measures to improve resilience or other adaptation action may be needed according to current projections.

Maritime navigation infrastructure may need to adapt to:	**Inland navigation infrastructure may need to adapt to:**
Increases in the frequency or severity of flooding due to sea level rise and/or changes in precipitation	Increases in the frequency or severity of flooding or low flows/drought due to changes in precipitation characteristics
Increased frequency of extreme wind, wave or storm conditions potentially exacerbated by sea level rise, affecting the frequency and duration of periods of disruption of operations and requiring improved infrastructure resilience	Variations in estuarial or river current strengths, affecting the frequency and duration of periods of navigation disruption and requiring improved infrastructure resilience
Changes in sediment transport, erosion and accretion affecting navigable depth, or beach, foreshore or built infrastructure integrity	Changes in sediment transport, erosion and accretion affecting navigable depth or built infrastructure integrity
Potential for changes in fog characteristics or other visibility issues	Changes in seasonal precipitation with potential consequences for water supply or storage affecting lock operations
Increases in air and water temperature or changes in ocean chemistry, inter alia leading to changes in characteristic species with consequences for infrastructure integrity or for operations and maintenance (e.g. the spread of non-indigenous or invasive species, or the distribution of target species for commercial fishing, angling or wildlife watching)	Increasing air and water temperature inter alia leading to changes in characteristic species with consequences for river bank integrity; algae or water weed growth; and the spread of non-indigenous or invasive species
Changes in ice cover with potential consequences for navigation infrastructure provision or demand	Changes in icing and snowmelt characteristics affecting both flow and infrastructure integrity




Damage to waterborne transport infrastructure after Hurricane Ike.
Photos courtesy of U.S. Army Corps of Engineers Galveston District

Storm damage, Port of Taranaki, New Zealand. Photo courtesy of Peter Atkinson

Key Principles Guiding Action

The new Sustainable Development Goals adopted by the UN General Assembly in September 2015 include a goal to 'take urgent action to combat climate change and its impacts' *inter alia* through strengthening resilience and adaptive capacity, and improving education, awareness and institutional capacity. The December 2015 COP21 discussions will similarly focus on adaptation to a greater extent than has previously been the case at these Conferences.

Reflecting on how the waterborne transport infrastructure sector can navigate the changing climate in an efficient and effective way, our coalition believes that delivery of the UN goal should incorporate four key principles within climate change mitigation and adaptation decision-making: sustainability, resilience, integration and *Working with Nature*.

Sustainability (S): a sustainable system is one where functions are adaptively managed in a way that meets contemporary needs while ensuring those functions are protected so as to be able to meet future needs. Many sustainability initiatives have been undertaken by PIANC concerning *inter alia* life cycle management and environmental issues for both maritime and inland navigation infrastructure. Dredging sustainability issues have similarly been addressed within PIANC, often working together with other associations and stakeholders, and PIANC and IAPH have been actively and jointly involved in promoting the Green Ports initiative.

Resilience (R): the concept of resilience has several meanings. In the waterborne transport infrastructure sector, attention to date has mainly been focused on how structures respond to forces associated with major risks or hazards. In a wider climate change context, resilience should also include designing infrastructure systems that can be adapted to sustain function following disturbance events, and to recover quickly and effectively from such events. Depending upon the local effects of climate change, attention may need to be paid to the effects of storms, floods, low flow conditions and drought amongst others. In this regard, PIANC's ongoing Working Group 178, in which many of the coalition partners are participating, will provide some initial good practice guidance for the wider waterborne transport infrastructure sector and it is intended that more detailed PIANC guidance on strengthening infrastructure resilience will follow.

Integration (I): an integrated system considers the relevant interconnectivities between biophysical, engineered, economic and societal systems and functions. Integrated transport networks and intermodality are already a key consideration for seaports and inland ports, IAPH's intermodal transport project being just one example. However climate change projections mean that a broader interpretation - including integration across sectors - will be beneficial. For example, some measures to improve the resilience of waterborne transport infrastructure might also meet flood protection needs and deliver natural environment or fisheries objectives. Integrated approaches not only achieve sustainable multiple purposes but also realise economies of scale, and will therefore be important in all countries irrespective of their level of development and resource availability.

Working with Nature (W): Thinking about and applying the foregoing principles of sustainability, resilience and integration in fact means adhering to the PIANC *Working with Nature* philosophy. This philosophy has been developed by PIANC in order to ensure that the natural environment is taken into account in the earliest stages of an initiative or project, considering ecosystem services and the role of physical processes alongside logistical and economic issues. The approach allows win-win solutions to be identified, often through collaboration with stakeholders. Technical guidance on implementing the *Working with Nature* philosophy is currently being elaborated by PIANC for publication in late 2016.

An innovative approach to the beneficial re-use of navigation dredged material at Horseshoe Bend[9] on the Atchafalaya River in the state of Louisiana, USA, relied on natural processes transporting and depositing the sediment to create an island of significant wildlife value. As this island has evolved, multiple other benefits have been realised. The newly established vegetation promotes carbon sequestration, in turn offsetting some of the emissions associated with dredging. In addition, the island has formed a natural 'training wall', facilitating self-scour in the navigation channel and thus significantly reducing local dredging requirements and hence related emissions.

> *"During the early stages of the project, everyone's attention was focused on engineering uncertainties. This preoccupation made initial surveying of the island's rich floral and faunal communities that much more amazing. But greater benefits were hidden in and around the island. Soil horizons expressed biogeochemical signatures atypical of traditional dredge-and-fill sites, and the physical presence of the island allowed for development of a stable channel. Thus, it became apparent that obvious macro-benefits were outweighed by the island's complementary roles in sequestering carbon in its soils and reducing dredging requirements and emissions."*
>
> *Jeff Corbino, Project Manager, U.S. Army Corps of Engineers,*
> *New Orleans District, New Orleans, Louisiana, USA*

The Horseshoe Bend project provides an excellent example of how applying the Working with Nature philosophy within the USACE 'Engineering with Nature'[10] Program can help promote a sustainable solution, improving natural resilience at the same time as delivering significant net carbon savings. Photography by Wings of Anglers, courtesy of Great Lakes Dredge and Dock.

Towards a Plan for Action: to Paris and Beyond

The provision of expert guidance, recommendations and technical advice, together with actions to keep the international community connected, are PIANC's two primary objectives. Other organisations represented on the coalition similarly have a mandate to prepare and promote guidance and/or to facilitate effective communication and dissemination. By working together, the members of PIANC's Think Climate coalition are therefore well placed:

[9] Suedel,B. et al (2015). Creating Horseshoe Bend Island, Atchafalaya, Louisiana. Terra and Aqua. Number 140. September 2015.
[10] http://el.erdc.usace.army.mil/ewn/

- to raise awareness of the implications of the changing climate
- to contribute to building mitigation and adaptation capacity throughout the sector, taking particular account of the technical cooperation needs of developing countries, and
- to provide and promote guidance on strengthening both physical and institutional resilience and on climate change adaptation.

Whilst an interest in or dependence on inland or maritime waterborne transport infrastructure is a common thread, individual members of the coalition partner associations have different interests, different responsibilities, different ways of working and different levels of awareness when it comes to climate change mitigation and adaptation. Our Road Map and Action Plan recognise and accommodate these differences, ensuring not only that existing initiatives can be consolidated, disseminated or scaled-up as appropriate, but that the future needs of the wider sector will be identified, new actions promoted to address gaps, and progress in delivering and disseminating new resources monitored.

The 'Navigating a Changing Climate' Road Map (overleaf) summarises the objectives and agreed actions that will be promoted by the Think Climate coalition partners to support the owners, operators and users of waterborne transport infrastructure in the period to 2020. These actions are elaborated in the following Action Plan.

Navigating a Changing Climate: Road Map

2015	Objectives	Actions	Underway by	2020 and beyond
Some exceptions, but **typically low levels of awareness; uncertainty** leading to **inaction**				
	1. Expand network; identify new coalition partners and supporters; raise awareness	Work together to: 1a. Increase the number of Think Climate partner associations and supporter organisations 1b. Promote the work of the Think Climate coalition 1c. Create a new website to connect the sector and facilitate sharing of experiences 1d. Organise two new international conferences on the theme 'Navigating a Changing Climate' 1e. Organise or facilitate at least 25 climate change workshops 1f. Prepare and promote webinars and web-based tools 1g. Undertake a gap analysis to understand the wider needs of the waterborne transport infrastructure sector	 2015 2015 2015 2016 2015 2016 2016	
	2. Reduce greenhouse gas emissions; promote shift to low carbon infrastructure	Work together to: 2a. Promote awareness of and scale up relevant IAPH World Ports Climate Initiative activities 2b. Promote uptake of the GLEC framework for emissions calculations 2c. Raise awareness of and promote Blue Carbon pilot studies 2d. Raise awareness of relevant partner initiatives to reduce emissions from vessels 2e. Prepare and disseminate technical guidance on carbon management for port and navigation infrastructure projects 2f. Establish an effective means of documenting and monitoring emissions from dredging and infrastructure construction projects 2g. Facilitate the preparation of new technical guidance on mitigation and offsetting measures and low carbon alternatives 2h. Facilitate the development and delivery of training and capacity building in relation to emissions reduction options	 2016 2016 2016 2016 2015 2017 2016 2017	
	3. Improve preparedness; strengthen resilience; adapt	Work together to: 3a. Prepare and disseminate technical guidance on climate change adaptation for inland and maritime navigation infrastructure 3b. Update PIANC's Task Group 3 report Climate Change and Navigation 3c. Improve awareness of the implications of climate change for operational practices and supporting infrastructure 3d. Raise awareness of existing technical guidance on risk assessment and on climate proofing waterborne transport infrastructure 3e. Facilitate the preparation of new technical guidance on navigation infrastructure adaptation and strengthening resilience 3f. Facilitate the development and delivery of training and capacity building on adaptation options for navigation infrastructure	 2015 2016 2016 2016 2016 2016	
	4. Work with Nature; seek integrated and sustainable solutions	Work together to: 4a. Promote awareness of and scale up relevant *Working with Nature* activities 4b. Continue to build knowledge and practical experience of Building with Nature and Engineering with Nature solutions 4c. Promote the adoption of sustainable, integrated solutions for shippers and supply chains such as those advocated by SFC 4d. Promote the adoption of intermodal transport principles such as those promoted by the WPCI Intermodal Transport Initiative 4e. Disseminate information about integrated initiatives such as Early Contractor Involvement	 2015 2016 2015 2015 2015	
				An **informed waterborne transport infrastructure sector, aware** of the issues; with **access to relevant knowledge resources;** making informed **mitigation** and **adaptation decisions; collaborating** with others**; Working with Nature;** delivering **integrated** and **sustainable solutions**

NAVIGATING A CHANGING CLIMATE:
ACTION PLAN

1. Expand the network of Think Climate partners and supporters; raise awareness of climate-related issues throughout the waterborne transport infrastructure sector

1a.-1b. A vital step in raising sector-wide awareness of climate change, of the challenges inland and maritime waterborne transport infrastructure will face, and of potential solutions or opportunities, is to ensure that as many individuals as possible have access to relevant resources including the outputs of the Navigating a Changing Climate initiative. By increasing the number of international and regional partner associations in the Think Climate coalition, and by encouraging national-level associations, corporate bodies and other organisations to sign up as 'supporters' of the initiative, it is our intention to:

- double the number of individuals who will have access to the coalition's products to 500,000 by end 2016
- increase this to more than 1,000,000 individuals with interests in waterborne transport infrastructure by end 2020.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					1a. Increase the number of Think Climate partner associations and supporter organisations	
PIANC is leading the Navigating a Changing Climate initiative and establishing the initial membership of the Think Climate coalition	✓	✓	✓	✓	1a.(i) Increase the number of international associations signed up as partners in the Think Climate coalition to 8 1a.(ii) Increase the number of regional associations signed up as partners in or supporters of the Think Climate coalition to 10 1a.(iii) Aim to have a minimum of 40 organisations signed up as supporters 1a.(iv) Aim to have a minimum of 100 organisations signed up as supporters	End 2016 End 2016 End 2016 End 2020
					1b. Promote the work of the Think Climate coalition	
PIANC will take relevant opportunities to hold Press Conferences at events around the world between September 2015 and the COP21 meetings. PIANC will also publicise the Think Climate coalition through articles in its newsletter and via social media (Twitter, LinkedIn, Facebook). Coalition partners will take similar steps to raise awareness of the initiative and to help attract new partners and supporters.	✓		✓		1b.(i) Partners to prepare and issue Press Releases; hold Press Conferences and organise similar publicity in the run-up to COP21 1b.(ii) Seek opportunities to publicise the work of the Think Climate coalition throughout the waterborne transport infrastructure sector, and to attract new partners and supporters: publicise the Navigating a Changing Climate initiative via articles in technical publications, magazines, newsletters, etc. 1b.(iii) Post-COP21, develop and agree a media strategy to maintain momentum and ensure longevity of the work of the Think Climate coalition through to 2020	2015 2016 2016

1c. Several members of the Think Climate coalition are already undertaking activities of relevance to the wider waterborne transport infrastructure community but awareness of these initiatives is often limited to the membership of the lead association. It is therefore our intention to facilitate the sharing of experiences relevant to the Navigating a Changing Climate initiative, wherever practicable providing access to existing and new resources throughout the sector.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					1c. Create a new website to connect the sector and facilitate sharing of experiences	
Annex 2 highlights various climate-related initiatives and activities already completed, underway or planned by partners of the Think Climate coalition	✓	✓	✓	✓	1c.(i) Create and maintain a 'master list' of all climate relevant existing initiatives undertaken by members and supporters of the coalition; add new initiatives as they are commenced/completed 1c.(ii) Develop a network for the exchange of knowledge and experience operating via a common Think Climate webpage, also providing members of all partner associations and supporter organisations with a single point of access to relevant resources 1c.(iii) Prepare 'overview' brochures and similar summary documents for distribution to association members at conferences and workshops, etc. *inter alia* describing the Navigating a Changing Climate initiative and directing readers to the Think Climate webpage	2016 2015 Mid 2016

1d.-1f. Conferences, seminars and workshops provide an important opportunity to raise awareness of climate-related challenges and opportunities whilst at the same time disseminating good practice. In this regard the coalition partners will collaborate to organise and publicise a range of climate-specific events, taking care to ensure that events make provision for and accommodate the needs of owners, operators and users of waterborne transport infrastructure in less developed and less well-resourced nations.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					1d. Organise two new international conferences on the theme 'Navigating a Changing Climate'	
Most partners in the Think Climate coalition currently organise conferences or seminars dedicated to the interests of their membership. In some cases these include sessions on climate change issues, for example at the 33rd PIANC World Congress in San Francisco, USA in 2014; the forthcoming 10th IHMA	✓	✓	✓	✓	1d.(i) Collaborate to organise a joint international, waterborne transport infrastructure conference in 2017 entitled 'Navigating a Changing Climate' with the following three themes:	2016

Congress in Vancouver, Canada, in 2016; and the PIANC-COPEDEC developing countries congress also in 2016. However, exchange of information and experiences *between* the partner associations is currently somewhat ad hoc and often relatively limited. There are therefore many opportunities associated with improved, well-planned cooperation.					• reducing greenhouse gas emissions and moving towards low carbon infrastructure and operations • improving preparedness, strengthening the resilience of infrastructure assets and institutions, and acting to adapt • *Working with Nature* to adapt navigation infrastructure, and identifying integrated and sustainable solutions 1d.(ii) Organise a second, similar international conference four years later, *inter alia* to disseminate the outcomes of the Navigating a Changing Climate initiative 1d.(iii) Ensure major conferences and congresses organised by partner associations include at least one session dedicated to climate change issues. Ensure other coalition partners are invited to participate wherever practical 1d.(iv) Offer technical case study or preparedness 'process' presentations, or submit abstracts thereon, to conferences organised by other organisations or in related sectors, disseminating relevant findings from the Navigating a Changing Climate initiative and in turn drawing attention to the work of the Think Climate coalition	2020 2016; ongoing 2016; ongoing
					1e. Organise or facilitate at least 25 climate change workshops	
Most of the associations in the coalition run technical events such as workshops to facilitate the continuing professional development of their members. For example, EuDA together with CEDA[11] organised a workshop on the contribution of the dredging industry to climate change adaptation at the ECCA[12] 2015 Conference in Copenhagen, Denmark; and NordPIANC ran a workshop on climate adaptation for arctic navigation infrastructure at Lappeenranta, Finland in 2015. Similar, climate-specific workshops should be organised for members of all partner associations.	✓	✓	✓	✓	1e.(i) Promote, support, organise or facilitate a minimum of five climate change-themed workshops or similar events annually, including in developing countries; document and share the outcomes with other coalition partners. Amongst others, a collaborative workshop between PIANC and the Philippine Ports Authority is already planned for 2016, and climate themed workshops will be held in South Africa and in the UK, also in 2016 1e(ii) Use these workshops to co-promote relevant activities of coalition partners, either by invitation or using agreed standard materials	2015 2015
					1f. Prepare and promote webinars and web-based tools	
Some coalition partners promote live/interactive or pre-recorded webinars and similar. The advantage of web-based awareness raising is that it can be made widely available, globally, and that it can cover topics at a variety of levels of detail.	✓	✓	✓	✓	1f(i) Identify themes for technical webinars or web-based 'tool box talks' on climate-related topics; agree on lead partners to prepare and run each event. Promote and advertise events through the website and via relevant partner and supporter associations.	2016

[11] Central Dredging Association
[12] European Conference on Climate Change Adaptation

1g. Awareness of the potential effects of climate change, and the resulting need to improve the resilience of waterborne transport infrastructure, varies considerably within the membership of the coalition partners. As such, it is a priority for the Think Climate coalition to understand not only how climate change will affect waterborne transport infrastructure and the operations reliant thereon, but also the requirements of association members. In other words, it is important to establish what support the owners, operators and users of waterborne transport infrastructure need to enable them to build capacity and deliver effective mitigation and adaptation measures. Developing this understanding will help to ensure that future actions are properly targeted and that they address the real needs of those responsible for navigating a changing climate across all parts of the sector.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					1g. Undertake a gap analysis to understand the wider needs of the waterborne transport infrastructure sector	
Associations joining the Think Climate coalition have provisionally indicated known gaps in knowledge and understanding insofar as climate change issues are concerned.	✓	✓	✓	✓	1g.(i) Undertake a gap analysis (possibly based on a questionnaire or similar survey, but supplemented by other activities such as discussion sessions at workshops, conferences, etc.) to identify the needs of waterborne transport infrastructure owners, operators and users	End 2016

2. Promote action to reduce (net) greenhouse gas emissions and encourage a shift towards low carbon waterborne transport infrastructure and operations

2a.-2d. The waterborne transport infrastructure sector needs to play its part in reducing greenhouse gas emissions. Whilst port and waterway infrastructure and operations typically account for only a very small proportion[13] of the total greenhouse gas emissions associated with the shipment of a particular consignment, it is nonetheless important that the owners, operators and users of waterborne transport infrastructure take steps to minimise the emissions associated with their activities, thus contributing to the 'less-than-2-degrees' pathway. The associations represented on the coalition recognise the importance – and the urgency – of implementing effective mitigation measures: to reduce greenhouse gas emissions; to avoid decisions that lock in to fossil fuel-based systems; and to move towards low carbon infrastructure.

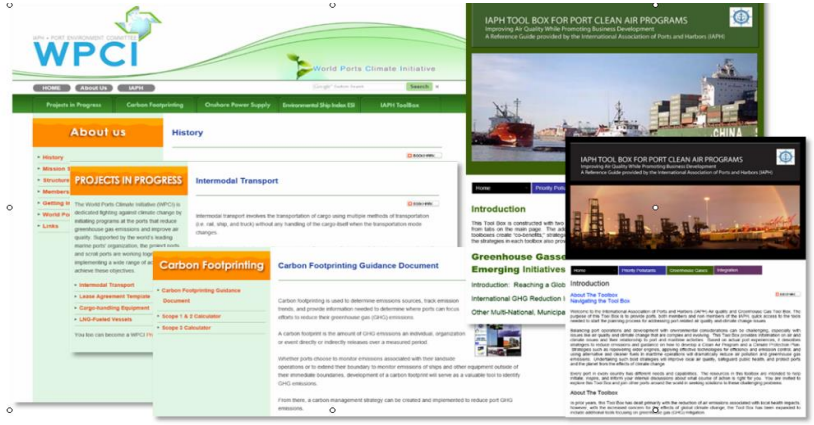
Several of the partners in the Think Climate coalition already have activities and initiatives ongoing to help their members manage greenhouse gas emissions associated with waterborne transport infrastructure but awareness of these initiatives is often limited outside the lead association. Most of these initiatives would benefit from further dissemination and promotion both to raise awareness and encourage increased uptake. Where existing activities are not directly relevant to other parts of the wider sector they may nonetheless provide inspiration - a model or ideas on which other organisations might build to create an equivalent resource. Such opportunities need to be identified and exploited.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					2a. Promote awareness of and scale up relevant IAPH World Ports Climate Initiative activities	
IAPH has produced a 'Tool Box' to give ports easy access to the tools needed to address port-related air quality and climate change issues. This includes a range of resources to reduce greenhouse gas (GHG) emissions developed through the World Ports Climate Initiative (WPCI): • a carbon foot-printing reference helps ports to develop or improve their GHG emissions inventories, both from landside operations' emissions and from ships and other equipment outside their boundaries • the promotion of intermodal transport – reducing or avoiding handling of cargo improves efficiency and productivity as well as reducing emissions to air	✓		✓		2a.(i) Improve awareness and take-up of each of these resources, for example via presentations at conferences, dedicated workshops, webinars and tool-box talks, *inter alia* emphasising the opportunity for significant potential for cost savings as well as carbon savings 2a.(ii) Promote these initiatives, with modification as appropriate, to other types of owner and operator within the wider waterborne transport infrastructure sector. For example work with representatives of inland ports and with terminal operators to promote the adaption and uptake of relevant WPCI resources.	End 2016 End 2017

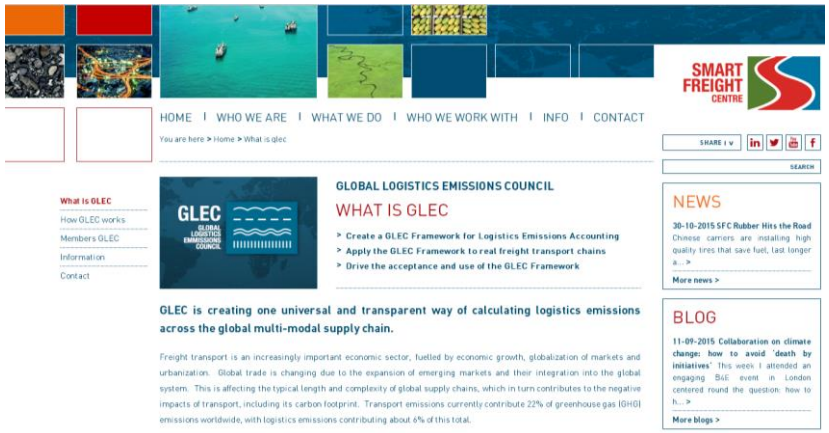
[13] See, for example, the following presentation indicating that <1% of the total CO_2 emissions associated with the movement of a single container from China to Scotland derive from port-related activities:
http://www.fta.co.uk/export/sites/fta/_galleries/downloads/international_supply_chain/presentation_decarbonising_the_maritime_supply_chain.pdf

• support is provided to ports promoting the installation and use of onshore power supply (OPS) via practical information on measures to improve air quality in ports and port cities including reducing vessels' dependence on auxiliary engines						
					2b. Promote uptake of the GLEC framework for emissions calculations	
Smart Freight Centre leads and coordinates the Global Logistics Emissions Council (GLEC) which is working across the various modes, industry sectors and global regions to develop a common framework for the calculation of logistics emissions as an enabler to design, selection, reporting and tracking of more efficient logistics and global supply chains.	✓		✓		2b.(i) Engage the wider sector in promoting the uptake of the GLEC framework for the calculation of logistics emissions, for example through presentations, workshops and articles in technical publications	2016
					2c. Raise awareness and promote Blue Carbon pilot studies	
EuDA is developing a CO_2 strategy to facilitate the capture and long term storage of atmospheric CO_2. 'Blue Carbon' initiatives will be delivered through the restoration of habitats that are natural carbon sinks such as saltmarshes, seagrasses and mangroves. This initiative could provide valuable, transferable experience for emissions associated with both existing and new waterborne transport infrastructure.	✓	✓	✓	✓	2c.(i) Other coalition members will work with EuDA to identify and promote pilot studies to improve understanding and facilitate take-up of Blue Carbon (offsetting) initiatives 2c.(ii) Raise awareness of the potential for and experience with Blue Carbon restoration as an offsetting measure, through presentations, workshops and technical briefing notes and guidance 2c.(iii) Explore the viability of setting a legal framework for emissions rights to facilitate the development and maintenance of such environments	2016 2017 2018
					2d. Raise awareness of relevant partner initiatives to reduce emissions from vessels	
Other initiatives being implemented, particularly by infrastructure owners and operators, are seeking to reduce emissions from vessels using, or involved in the development of, waterborne transport infrastructure. For example: • an Environmental Ship Index (ESI): an IAPH-WPCI tool to evaluate the amount of nitrogen oxide (NOX) and sulphur oxide (SOX) released by a seagoing vessel, enables ports to identify and reward clean ships • IHMA's promotion of 'time stamp' structures for use in port entry software, will not only contribute to safer and more efficient ports but also improve fuel efficiency.	✓		✓		2d.(i) Raise awareness of these initiatives, promote their uptake and seek opportunities to replicate or scale-up such initiatives through presentations, webinars, technical articles and briefing notes	2016

Whereas these activities are associated with vessels rather than directly with the infrastructure, they are nonetheless important in contributing to an overall reduction in emissions, including in the vicinity of waterborne transport infrastructure.						



The World Ports Climate Initiative promoted by coalition partner IAPH provides an important example of the work already underway in the sector to reduce greenhouse gas emissions associated with waterborne transport infrastructure



The Smart Freight Centre's Global Logistics Emissions Council provides an example of integrated action on emissions reduction, working across the various modes, sectors and regions to develop a common tool for calculating logistics emissions

2e.-2g. Whilst some tools do already exist to help identify and reduce emissions associated with the use of waterborne transport infrastructure, general awareness of emissions reduction or offsetting options remains low and there are some significant gaps in knowledge and experience. Some low carbon technology relevant to waterborne transport infrastructure already exists or is being developed, but awareness of these initiatives could be improved. Low carbon options are also being developed in other sectors (road, rail, flood risk management) some of which have the potential to be applied in the port or waterway environment, but cross-sectoral dialogue is needed to help highlight such opportunities, followed by awareness-raising within the waterborne transport infrastructure sector. Establishing the needs of the owners, operators and users of waterborne transport infrastructure sector will enable both technical guidance and research and development requirements to be identified.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					2e. Prepare and disseminate technical guidance on carbon management for port and navigation infrastructure projects	
PIANC's new technical Working Group (WG188) will develop guidance on carbon management for port and navigation infrastructure projects. The Working Group will collate available international experiences including those of other coalition partners; review navigation-relevant case studies; and report on methods to quantify and manage navigation infrastructure carbon footprints as well as describing good practice for conservation of carbon-sequestering coastal ecosystems (blue carbon). These methodologies and best practices will be relevant not only to the international PIANC community but also to other coalition partners and supporters.	✓	✓	✓	✓	2e.(i) Invite coalition partner associations to nominate representatives to Working Group 188, and confirm the relevance of the Terms of Reference to all associations 2e.(ii) Ensure effective dissemination of the resulting guidance on carbon management for port and navigation infrastructure projects; advertise and distribute the guidance via partner associations; deliver or facilitate workshops; submit conference papers, etc.	End 2015 End 2017
					2f. Establish an effective means of documenting and monitoring emissions from dredging and infrastructure construction projects	
In relation to new dredging and infrastructure projects in particular, EuDA and its members are contributing to policies aimed at reducing CO_2 emissions from construction projects (e.g. Netherlands CO_2 performance scale)	✓		✓		2f.(i) EuDA and other coalition partners will cooperate locally and regionally as appropriate to establish datasets and methodologies with the objective of deriving an effective means of documenting and monitoring emissions from dredging and other waterborne transport infrastructure construction projects.	2017
					2g. Facilitate the preparation of new technical guidance on mitigation and offsetting measures and low carbon alternatives	
Whilst some resources exist, there are also gaps in experience. In some parts of the sector, the owners, operators and users still lack knowledge, both about the measures that can be taken to reduce or offset greenhouse gas emissions from existing waterborne transport infrastructure and about the options available to shift to low carbon alternatives. Action is therefore needed to identify gaps and determine priorities with regard to the need for new technical resources, guidance documents and similar.	✓	✓	✓	✓	2g.(i) Use discussion sessions at workshops, conferences, etc., to identify gaps in knowledge and understanding about GHG emissions and mitigation and offsetting measures for existing and new waterborne transport infrastructure. Highlight tried-and-tested and potential new measures, low carbon alternatives and options that avoid locking into fossil fuel futures. Consider measures and alternatives used by other sectors that may be of relevance to waterborne transport infrastructure. 2g.(ii) Where relevant information is available from existing initiatives, develop and disseminate briefing papers and checklists to enable the owners, operators and users of waterborne transport infrastructure to make more informed choices about GHG mitigation and/or offsetting 2g.(iii) Identify outstanding gaps in technical resources to help with the selection and delivery of mitigation, offsetting and low	2016 2017 2017 onwards

					carbon alternatives (e.g. briefing papers, detailed technical guidance or knowledge gaps requiring research and development) 2g.(iv) Facilitate the preparation of international good practice technical guidance on priority topics 2g.(v) Agree on a strategy to enable identified research and development priorities to be communicated and realised.	 2018 2018

2h. Capacity building is another vital step towards achieving the coalition's vision. Where inland or maritime waterborne transport infrastructure owners, operators or users are unfamiliar with options for reducing or offsetting greenhouse gas emissions, for shifting to low carbon infrastructure, or for avoiding locking in to fossil fuel futures, technical guidance can usefully be supplemented by a campaign of awareness raising and training.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					2h. Facilitate the development and delivery of training and capacity building in relation to emissions reduction options	
Whilst there are various ad hoc awareness raising activities associated with the existing initiatives listed in Annex 2, there has been no coordinated, sector-wide campaign of activity dedicated to mitigation i.e. reducing or offsetting emissions from waterborne transport infrastructure and to promoting low carbon alternatives. Any capacity building initiative should both seek to provide training in relation to existing products and resources (e.g. introduction to WPCI resources; combined training sessions to support integrated calculations of logistics emissions according to GLEC framework) as well as identifying possible new initiatives.	✓	✓	✓		2h.(i) Coalition partners will take steps to identify their members' key capacity building requirements in relation to mitigation and offsetting measures and low carbon alternatives 2h.(ii) Coalition partners will then plan for and facilitate the delivery of relevant sector-specific mitigation training based both on existing coalition products and newly identified needs. This could include: • classroom (face-to-face) or internet-based (virtual), formal or informal training courses; • other types of training (e.g. workshops, toolbox talks, webinars) • facilitation of secondments or peer review opportunities (for example via the creation of networks within or between associations); • virtual meeting places and chat-based forums for the exchange of information. This action could lead to the identification of new coalition supporters in the form of training providers.	2017 2018

3. Improve preparedness, strengthen resilience and enable the waterborne transport infrastructure sector to adapt to climate change

3a.-3c. Levels of preparedness to deal with the effects of climate change vary considerably within the Think Climate coalition partners' members. Many organisations and individuals are not yet well prepared. Uncertainty is a real issue, often culminating in a lack of action, and there are plenty of examples where significant improvements in planning and preparedness are needed to reduce vulnerability and to strengthen the resilience of waterborne transport infrastructure.

Awareness raising and capacity building are fundamental prerequisites to improving resilience. Access to technical advice and guidance is similarly essential for effective delivery. Most of the associations in the coalition have a mandate that includes the preparation and/or dissemination of good practice guidance; and the provision or signposting of training and other activities aimed at capacity building. Ensuring that their members have access to sector-specific resources will be vital for these associations if the owners, operators and users of inland and maritime waterborne transport infrastructure are to become better informed and hence better-prepared to navigate the effects of a changing climate.

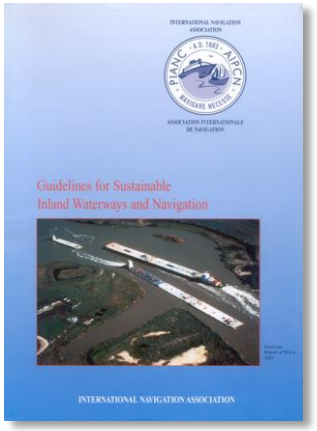
What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					3a. Prepare and disseminate technical guidance on climate change adaptation for inland and maritime navigation infrastructure	
PIANC's Working Group 178 is preparing guidance on climate change adaptation for inland and maritime navigation infrastructure. This guidance, due for publication in 2017, will describe good practice - from understanding the climate science, collecting locally-relevant data, building capacity and carrying out risk assessments through to the evaluation and selection of appropriate measures to strengthen both institutional and structural assets, and otherwise adapt to climate change. Part of this initiative is the organisation of workshops which aim to: • raise awareness of climate change; of adaptation planning and delivery options; of the guidance document • provide a platform for the presentation of regionally-specific examples and the exchange of experience • identify and collate case study information for the PIANC WG 178 guidance document.	✓	✓	✓	✓	3a.(i) Ensure all interested coalition partners are participating in WG178 and are encouraged to organise workshops or other WG 178 events 3a.(ii) Confirm the relevance of the WG178 project to all partners. Where interests are different, explore the need for and promote opportunities to produce equivalent guidance for other parts of the sector (e.g. for terminal operators, freight handlers) 3a.(iii) Ensure effective dissemination of the final WG178 report and any equivalent guidance documents. Advertise and distribute the guidance via partner associations; deliver or facilitate workshops; submit conference papers, etc.	End 2015 2016 End 2017

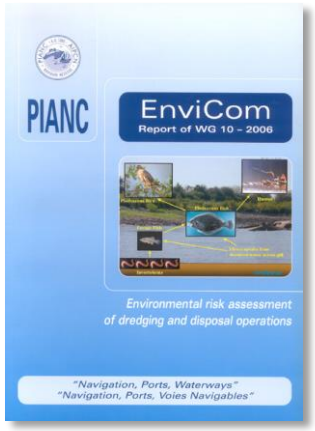
These and other case study examples collected to inform the report will be presented as part of the guidance.						
					3b. Update PIANC's Task Group 3 report Climate Change and Navigation	
PIANC's Task Group 3 report 'Climate change and navigation' was prepared in 2008 using the 2007 IPCC outcomes. This guidance needs to be updated to include the 2014 Fifth Assessment Report and to include reference to regional assessments.	✓	✓	✓		3b.(i) Prepare Terms of Reference for the update and issue call for Task Group members including for members from coalition partner associations; prepare updated TG3 report. 3b.(ii) Advertise and disseminate the revised PIANC TG3 report; use for reference in workshops; submit and prepare conference papers, etc.	End 2016 End 2017
					3c. Improve awareness of the implications of climate change for operational practices and supporting infrastructure	
IMPA is continually monitoring and disseminating to members, information about operational practices, new equipment and techniques, etc. to facilitate safe operation and ship manoeuvring in increasingly challenging environmental and meteorological conditions, whilst meeting the continuing and improved goals of shipping trade efficiency		✓	✓		3c.(i) Improve awareness amongst port authorities, national administrations, shipowners and managers, class and trade associations and others about the implications of climate change for ship movements in port and how operational practices and supporting infrastructure may need to adapt to these demands	2015; ongoing

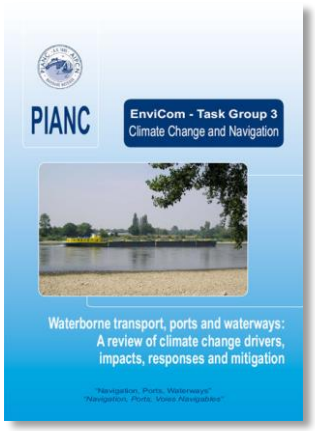
3d.-3e. In addition to raising awareness and building capacity, providing access to sector-specific technical support and guidance on adaptation options and delivering more resilient infrastructure is another fundamentally important aspect of improving resilience and adaptation capability.

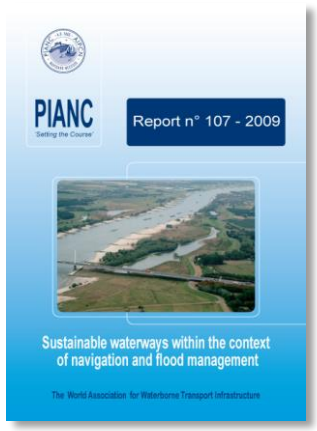
A key role of PIANC and many of the other associations in the coalition is the promotion of technical excellence. This is achieved *inter alia* through the preparation and publication of good practice guidance. Such publications enable individuals throughout the sector to access up-to-date international or regional documents - for example sector-specific summaries and interpretation of factual information; technical good practice guidance; and in some cases standards. These reports typically set out the key guiding principles to be applied in the national or local context. In the specific case of climate adaptation, guidance and other resources will be needed to cover the spectrum of decision–making, from initial risk assessment through to design guidance.

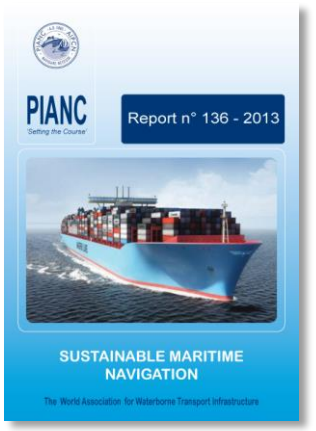
Existing relevant good practice may need to be reviewed and developed to more explicitly accommodate climate change issues. Effective dissemination of relevant existing publications and, on completion, of the various technical guidance documents currently in preparation will be an essential action in the coming years. Equally important, however, will be the identification of critical gaps in knowledge/understanding and guidance. Coordination between coalition members in setting up relevant initiatives leading to the preparation of new resources is therefore another priority action.

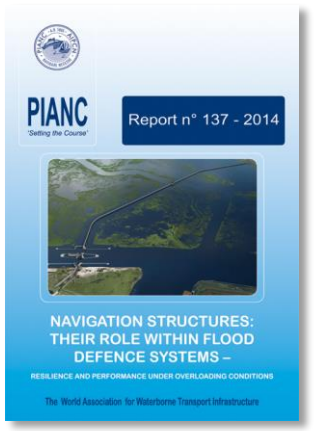


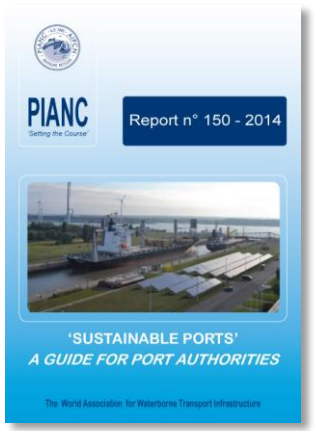












A key role of PIANC is promoting technical excellence via the preparation and publication of guidance documents and web-based resources, enabling individuals throughout the sector to access up-to-date international good practice

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					3d. Raise awareness of existing technical guidance relevant to risk assessment and climate proofing for new waterborne transport infrastructure	
PIANC has already published several guidance documents of relevance, for example, to those involved in understanding and assessing the risks and consequences of climate change or in ensuring that waterborne transport infrastructure design is 'climate-proofed'. Many of these Working Groups included representatives of relevant coalition partner associations.	✓	✓	✓	✓	3d.(i) Review and revise if appropriate, and then ensure coalition partners and supporters are aware of publications such as: • Sustainable Ports - A Guide for Port Authorities. PIANC Report 150. 2014 • Navigation Structures: Their Role within Flood Defence Systems. Resilience and Performance under Overloading Conditions. PIANC Report 137. 2014 • Harbour Approach Channels - Design Guidelines. PIANC Report 121. 2014 • Sustainable Maritime Navigation. PIANC Report 136. 2013 • Sustainable Waterways within the Context of Navigation and Flood Management. PIANC Report 107. 2009 • Dredging management practices for the environment - a structured selection approach. PIANC Report 100. 2009 • Life Cycle Management of Port Structures, Recommended Practice for Implementation. PIANC Report 103. 2008 • Environmental risk assessment of dredging and disposal operations. PIANC EnviCom WG 10 report. 2006 3d.(ii) Discuss with the relevant PIANC Commission opportunities for any review or update of existing guidance in a climate change context	2016 onwards 2016 onwards
					3e. Facilitate the preparation of new technical guidance on navigation infrastructure adaptation and strengthening resilience	
It is expected that Working Group 178 will highlight the need for additional technical guidance. For example, anticipating the outcomes of the WG 178 report, it is likely that more detailed guidance will be needed on improving the resilience of waterborne transport infrastructure systems. Recommendations for further initiatives are similarly likely to be made through conferences, workshops and other avenues.	✓	✓	✓	✓	3e.(i) Work with coalition partners and supporters to identify other inland and maritime waterborne transport infrastructure topics on which international good practice guidance is needed 3e.(ii) Facilitate the preparation of technical guidance on priority topics (e.g. through discussions with the relevant PIANC Commission)	End 2016 2017 onwards

3f. As indicated above, capacity building is another vital step towards achieving the coalition's vision. For a variety of reasons, many organisations with interests in inland or maritime waterborne transport infrastructure currently have a limited capacity to adapt to the changing climate. This might be an institutional or resourcing issue; it may be a function of the scale of the organisation; or there may be a lack of access to relevant, sector-specific training. In addition to providing guidance and technical reference materials, the associations represented on the coalition will therefore instigate a number of actions dedicated to training and capacity building.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					3f. Facilitate the development and delivery of training and capacity building on adaptation options for navigation infrastructure	
Some of the associations represented on the coalition have a reasonable appreciation of the needs of their members in relation to climate change preparedness issues; others have a less mature understanding. If effective steps are to be taken to strengthen the resilience of waterborne transport infrastructure assets and institutions in the face of a changing climate, and to promote relevant adaptation measures, all partner associations need to properly understand the needs of their members.	✓	✓	✓		3f.(i) Coalition partners to take steps to identify their members' key capacity building requirements in relation to climate change implications for waterborne transport infrastructure 3f.(ii) Coalition partners will plan for and facilitate the delivery of relevant sector-specific training: this could include • classroom (face-to-face) or internet-based (virtual), formal or informal training courses; • other types of training (e.g. workshops, toolbox talks, webinars) • facilitation of secondments or peer review opportunities (for example via the creation of networks within or between associations); • virtual meeting places and chat-based forums for the exchange of information This action could lead to the identification of new coalition supporters in the form of training providers.	End 2016 2017; ongoing

4. Encourage new ways of thinking about waterborne transport infrastructure: Working with Nature; identifying sustainable and integrated solutions

4a.-4b. The partners in PIANC's Think Climate coalition recognise that navigating a changing climate will often require changing the way we think about challenges. As climate changes, doing 'more of the same' may no longer be sustainable. New problems may need new solutions. PIANC's Working with Nature philosophy provides an example of such an approach – focusing on achieving project objectives in an ecosystem context rather than assessing consequences of a pre-defined design; and identifying win-win solutions rather than simply minimising ecological harm.

Working with Nature encourages waterborne transport infrastructure owners, operators and users to identify solutions that reduce the vulnerability of natural ecosystems and improve their resilience, at the same time as realising resilient and sustainable infrastructure projects that can help to offset carbon emissions.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					4a. Promote awareness of and scale up relevant Working with Nature activities	
Working with Nature is an established philosophy with web-based resources, a Position Paper and a system of certificates and awards. PIANC's Working Group 176 is now preparing technical guidance on the practical application of the Working with Nature philosophy to inland and maritime navigation infrastructure projects.	✓	✓	✓	✓	4a.(i) Ensure that WG 176 considers the application of the *Working with Nature* philosophy to the adaptation of waterborne transport infrastructure, providing technical guidance on options for working with natural processes, improving the resilience of both infrastructure and nature, and often reducing (net) carbon emissions as a result. 4a. (ii) Finalise and disseminate the PIANC good practice guidance document on Working with Nature. Dissemination should include facilitating or delivering workshops, submitting and preparing conference papers, etc. 4a.(iii) Scale up the promotion of the *Working with Nature* certificate and award scheme, amongst others by reaching out to coalition partners and supporters	End 2015 End 2016 2016
					4b. Continue to build knowledge and practical experience of Building with Nature and Engineering with Nature solutions	
EuDA and its members are actively involved in raising awareness of the Building with Nature[14] approach to the design, management and implementation of infrastructure	✓	✓	✓	✓	4b.(i) Continue to build knowledge and experience; work with Think Climate coalition partners to identify additional pilot projects; monitor and record experience to improve techniques	2015

[14] http://www.ecoshape.nl

projects. EuDA members are already implementing Building with Nature pilot projects in tropical and temperate climates. The 'Engineering with Nature' program is an initiative of PIANC member USACE, which is developing and delivering similar practical solutions.					and maximise their effectiveness for both climate mitigation (through carbon sequestration) and adaptation (through improved resilience).	

Applying the Working with Nature philosophy enabled Mersey Docks and Harbour Company Ltd. to identify potential beneficial uses for maintenance dredged sediment from Liverpool Docks, England. Discussions with stakeholders identified that rather than transporting the dredged silt to the existing disposal site 20 km offshore it would be preferable to deposit it at the Mid River licensed disposal site less than 1km from the Docks. Modelling and tracer studies demonstrated that disposing of the dredged material at this site on the flood tide would facilitate the natural up-estuary transport of sediment. This would in turn encourage a proportion of the silt to remain within the estuarine system to sustain the inner estuary saltmarshes, strengthening their resilience in the face of climate change. In addition to this ecological gain, another benefit of disposal at Mid River would be the reduced distance that 800,000 tonnes of dredged material will need to be transported every year for disposal. This will significantly reduce emissions and hence the carbon footprint of the port's maintenance dredging operation.

4c.-4e. The Think Climate coalition partners recognise that adaptation is not simply about increasing the resilience of waterborne transport infrastructure. Other sectors must also navigate the changing climate, and their requirements may bring new opportunities. Integration and collaborative action - not only within but also beyond the waterborne transport infrastructure sector - will be key drivers to realising effective, cost-beneficial and sustainable solutions.

What are we already doing?	Which pillars?				What else will we do?	Underway by
	S	R	I	W	**Actions**	
					4c. Promote the adoption of sustainable, integrated solutions for shippers and supply chains such as those advocated by SFC	
Multinationals' logistics supply chains are vast and complex, involving combination of trucks, trains, ships, and planes and their associated infrastructure. Improving freight efficiency will both reduce emissions and increase profits. Individual companies cannot do this alone so look to collaborate, including through green freight programmes. Think Climate coalition partner SFC helps industry to demonstrate leadership and drive change, *inter alia* by defining and driving "Smart Freight Leadership"; making connections between green freight programmes to maximise cooperation and alignment; and supporting the development of new programmes and partnerships.	✓		✓		4c.(i) Promote the adoption of sustainable, integrated solutions such as those advocated by SFC, working across and beyond the sector, including shippers and supply chains, and understanding these groups' requirements of waterborne transport infrastructure providers.	2016
					4d. Promote the adoption of intermodal transport principles such as the WPCI Intermodal Transport Initiative	
IAPH, through the WPCI, is actively involved in the promotion of intermodal transport, an initiative that relies on an integrated approach to reduce or avoid handling of cargo - improving efficiency and productivity and reducing costs, as well as reducing emissions to air.	✓		✓		4d.(i) Raise awareness and promote the adoption of intermodal transport principles throughout the waterborne transport infrastructure sector, worldwide.	2016
					4e. Disseminate information about integrated initiatives such as Early Contractor Involvement	
EuDA is active in promoting initiatives such as 'Early Contractor Involvement' (ECI), an approach to contracting *inter alia* for waterborne transport infrastructure that promotes integration through teamwork and innovation, in turn contributing to just-in-time, value for money navigation infrastructure projects.	✓		✓		4e.(i) Collate and disseminate relevant experience with such initiatives, enabling members of partner associations to adopt integrated practices leading to both cost and carbon savings.	2016

NAVIGATING A CHANGING CLIMATE: ANNEX 1

PARTNER CHARACTERISTICS

Partner name*	Membership types	Geographic coverage	Members in how many countries?	Existing levels of climate awareness amongst membership?	Key objectives of association relevant to the Navigating a Changing Climate initiative
World Association for Waterborne Transport Infrastructure **PIANC** www.pianc.org	Government, corporate organisations, public and private sector, individuals	Global	65	Varied. Some members well informed; larger ports or waterways operators may be well-prepared. But low levels of awareness elsewhere in the sector	• Keep the international waterborne transport community connected • Bring together the best international experts on technical, economic and environmental issues pertaining to waterborne transport infrastructure to prepare high-quality technical reports • Provide expert guidance, recommendations and technical advice
International Association of Ports and Harbors **IAPH** www.iaphworldports.org	Port authorities and port-related businesses	Global	90	Varied. Some members well-informed; larger ports and terminal operators may be well-prepared. But low levels of awareness elsewhere in the sector	• Strengthen relationships among the member ports by facilitating interaction, dialogue, problem-solving and formulation of best practices. • Leverage member expertise through strong technical committees and programs that create platforms focused on resolving complex port and maritime industry concerns and building greater efficiency and sustainability for ports worldwide. • Promote and demonstrate IAPH members' leadership and commitment to a cleaner, safer and more environmentally sustainable industry for the benefit of the global community. • Proactively coordinate with other international maritime and related organisations (such as IMO, UNCTAD, WCO, PIANC, etc.) and advocate for global solutions to issues that impact IAPH members
International Harbour Masters' Association **IHMA** www.harbourmaster.org/	Individuals	Global	40	Some recognition of the risks associated with climate change	• Promote safe, secure, efficient and environmentally sound conduct of marine operations in port waters • Develop and foster collaboration and good relations among harbour masters world-wide • Represent the professional views of harbour masters internationally, regionally and nationally • Collect, collate and supply information of professional interest to the membership
International Maritime Pilots' Association **IMPA** www.impahq.org	National pilot associations	Global	44	Variable. Some, who rely on freshwater levels daily are very aware. Others are sceptical.	• Represent the international community of pilots • Use the resources of the membership to promote effective safety outcomes in pilotage as an essential public service • Constantly seek out the best available knowledge and information and make it available to members in order to

					advance the profession and maintain its relevance to the modern world
European Dredging Association **EuDA** www.european-dredging.eu	European dredging companies and national dredging associations	European (but most member companies operate globally)	50	Generally high: EuDA gathers emissions data; has studied specific dredging vessels' emissions patterns; and prepared targeted communications papers with industry-backed methodologies to estimate CO_2 emissions from dredging projects.	• Provide the official interface between European dredging companies and the EU's Institutions and some international organisations (e.g. IMO, HELCOM or ILO) • Support the dredging companies in developing know-ledge and capacity to tackle new challenges *inter alia* through specialised working groups • Promote investment in marine/maritime research and innovation; strong emphasis on social and environmental affairs
International Bulk Terminals Association **IBTA** www.drybulkterminals.org	Corporate organisations	Global	28	Mostly low but some exceptions	• Exchange of experience and expertise among members on matters of operational safety and efficiency in a non-commercial environment • Some members participate at IMO and in other UN Committees via the joint venture IBTA organised through the Dry Bulk Terminals Group Secretariat • Operational and safety benchmarking
Smart Freight Centre **SFC** www.smartfreightcentre.org	Global network across stakeholder groups	Global	40	Variable. Many initial contacts at the forefront taking action in respect of GHG reduction in the logistics sector but there is less awareness elsewhere in the sector	• Make global freight sector more efficient and environmentally sustainable • Focus on industry (shipper-carrier relationship) whilst also working with government and civil society • Remove market barriers and leverage existing initiatives to catalyse uptake of practical solutions and proven technologies • Create a universal and transparent way of calculating logistics emissions across the global supply chain

* International associations are invited to join the coalition as partners; regional associations may join as partners or supporters; national associations, corporate bodies and other organisations are encouraged to sign up as supporters of the Navigating a Changing Climate initiative.

NAVIGATING A CHANGING CLIMATE: ANNEX 2

EXISTING PARTNER INITIATIVES

Planned, ongoing and completed climate-related initiatives relevant to waterborne transport infrastructure

Description of initiative and link to further information	Lead association	Status	Topic or theme[15]				Pillars[16]			
			A	M	P	N	S	R	I	W
World Ports Climate Initiative										
In 2008, the International Association of Ports and Harbors (IAPH) requested its Port Environment Committee to provide a mechanism for assisting the ports to combat climate change. The C40 World Ports Climate Declaration was adopted later that year, as 55 ports from all over the world committed to jointly reduce the threat of global climate change. Since that time, the WPCI has developed a website and formed subgroups focusing on themes that are developing guidance to ports seeking to monitor and reduce their GHG emissions. These themes currently include: • Carbon Foot-printing and Modelling Tools • On-shore Power Supply • Environmental Shipping Index • Cargo-handling Equipment Further information about these and other related initiatives can be found via the WPCI website at: http://wpci.iaphworldports.org/index.html	IAPH	Ongoing	✓	✓			✓		✓	
WPCI Intermodal Transport										
Intermodal transport involves the transportation of cargo using multiple methods of transportation (i.e. rail, ship, and truck) without any handling of the cargo itself when the transportation mode changes. Intermodal transport enhances the economic performance of a transport chain by using modes in the most productive manner. It reduces cargo handling as well as improves security and reduces damages and loss. Intermodal transport allows cargo to be transported more efficiently and thus reduces transportation cost and congestion on the roads as well as air emissions. In the World Port Climate Initiative (WPCI) one of the projects concerns the improvement of intermodal transport and the role port authorities can play in this international logistical network. For further information, see http://wpci.iaphworldports.org/project-in-progress/index.html	IAPH	Ongoing	✓	✓			✓	✓	✓	

[15] Topics or themes: **A** = Awareness raising; **M** = Mitigate emissions; **P** = improve Preparedness; **N** = New ways of thinking
[16] Pillars: **S** = Sustainable; **R** = Resilient; **I** = Integrated; **W** = Working with Nature

Description of initiative and link to further information	Lead association	Status	Topic or theme[17]				Pillars[18]			
			A	M	P	N	S	R	I	W
Global Logistics Emissions Council (GLEC)										
GLEC is a voluntary industry partnership, led and coordinated by the Smart Freight Centre, which operates at global level, with involvement from major shippers, LSPs carriers, the main industry programs (e.g. Green Freight Europe, Lean & Green, SmartWay and Green Freight Asia) and global industry associations. GLEC has developed a draft Framework for Logistics Emissions Methodologies for the calculation and reporting of emissions from logistics covering all modes, transfers and regions. This has been out to consultation, as well as undergoing practical testing with industry partners, during 2015. A revised version will be formally launched for more widespread application during 2016. http://www.smartfreightcentre.org/glec/what-is-glec	SFC	Ongoing	✓	✓		✓	✓		✓	
Working with Nature										
The conventional approach of designing navigation infrastructure and then assessing its potential environmental impacts relies on damage limitation, and is not sustainable. PIANC's *Working with Nature* philosophy sets out four-steps to be followed early in the project development process in order to identify options for sustainable navigation infrastructure: 1. Establish project need and objectives 2. Understand the environment 3. Use stakeholder engagement to identify win-win options 4. Prepare project proposals to benefit both navigation and nature The *Working with Nature* initiative has several strands http://www.pianc.org/workingwithnature.php. A Position Paper is available in several languages; a certificate and award scheme has been established; and work is ongoing to prepare technical guidance on Working with Nature in practice (PIANC Technical Working Group 176). Case study examples of *Working with Nature* projects can be found on the website at http://www.workingwithnature.pianc.org/wwnprojectoverview.php#bottom	PIANC	Ongoing	✓	✓	✓	✓	✓	✓	✓	✓

[17] Topics or themes: **A** = Awareness raising; **M** = Mitigate emissions; **P** = improve Preparedness; **N** = New ways of thinking
[18] Pillars: **S** = Sustainable; **R** = Resilient; **I** = Integrated; **W** = Working with Nature

Description of initiative and link to further information	Lead association	Status	Topic or theme[19]				Pillars[20]			
			A	M	P	N	S	R	I	W
Building with Nature										
Building with Nature is a new design philosophy in hydraulic engineering, administered by EcoShape. Natural elements such as wind, currents, flora and fauna are utilised in designing a hydraulic engineering solution, thereby promoting resilient solutions and creating additional benefits for nature, recreation and the local economy. Building with Nature projects relevant to waterborne transport infrastructure have included: • Sustainable delta cities e.g. use of willow or other vegetation as protection against sea level rise whilst providing more natural 'soft' quays in urban harbour areas • Tropical coastal areas e.g. stabilising coastlines and reducing erosion risk by integrating mangrove restoration, small-scale hard engineering, and sustainable land use; development of tools to protect sensitive tropical marine ecosystems by adaptive management of construction operations • Shallow coastal seas e.g. disposal of fine dredged material to provide a semi-continuous source of sediment that should be transported by natural processes to contribute to salt marsh development. • Information on Building with Nature projects is at http://www.ecoshape.nl/en_GB/examples.html	EuDA (in that EcoShape has several EuDA members amongst its partners)	Ongoing	✓	✓	✓	✓	✓	✓	✓	✓
Technical Guidance on Climate Adaptation for Ports and Navigable Waterways										
The consequences of climate change will affect both existing and new seaport and inland waterway infrastructure: adaptation (to reduce vulnerability or increase resilience) will therefore be vital. New designs will need to take into account the effects of climate change and some existing infrastructure may need retrofitting. Non-structural measures including modifications to management activities, maintenance regimes and other port, harbour and waterway operations are also likely to be needed. In addition to accommodating changes in mean or typical conditions, the implications of an increase in extreme event frequency and intensity need to be better understood and appropriate adaptation options need to be identified. This Technical Guidance, due for completion at the end of 2016, will provide guidance on climate change adaptation planning and delivery for inland and maritime navigation infrastructure; generate a toolbox of adaptation options including non-structural (e.g. management) as well as structural measures; evaluate the effectiveness of different adaptation options; and provide an overall guidance framework for decision making.	PIANC	Ongoing	✓		✓	✓	✓	✓	✓	✓

[19] Topics or themes: **A** = Awareness raising; **M** = Mitigate emissions; **P** = improve Preparedness; **N** = New ways of thinking
[20] Pillars: **S** = Sustainable; **R** = Resilient; **I** = Integrated; **W** = Working with Nature

Description of initiative and link to further information	Lead association	Status	Topic or theme[21]				Pillars[22]			
			A	M	P	N	S	R	I	W
Technical Guidance on Carbon Management for Port and Navigation Infrastructure										
Starting in February 2016, PIANC Technical Working Group 188 will investigate the carbon footprint of navigation infrastructure development, operations and maintenance and will draw on existing approaches worldwide to identify good practices for management of the sector's carbon footprint. It will raise awareness of the carbon sources and sinks relevant to waterborne transport, focusing on the unique carbon contributions of - and opportunities to reduce and offset emission from - waterways navigation infrastructure development, including dredging and the beneficial use of dredged sediments. The group will review navigation-relevant case studies and report on methods to quantify and best manage navigation carbon footprints. These methodologies, lessons-learned, and best practices will provide sector-specific technical information on carbon management for navigation and infrastructure projects to decision makers globally.	PIANC	Planned	✓	✓			✓	✓	✓	

[21] Topics or themes: **A** = Awareness raising; **M** = Mitigate emissions; **P** = improve Preparedness; **N** = New ways of thinking
[22] Pillars: **S** = Sustainable; **R** = Resilient; **I** = Integrated; **W** = Working with Nature

PIANC General Secretariat
Boulevard du Roi Albert II 20, B. 3
1000 Brussels – Belgium

www.pianc.org
VAT BE 408-287-945
ISBN 978-2-87223-230-7

PRESS RELEASE

December 4, 2015

PIANC
The World Association for Waterborne Transport Infrastructure

New International Coalition of Navigation Infrastructure Associations urge Think Climate

On Sunday 6th December, Transport Day at the Paris #COP21(1), PIANC's Think Climate coalition will formally launch its 2015-2020 Action Plan, entitled Navigating a Changing Climate(2).

The international associations that are partners in the PIANC(3) Think Climate coalition(4) have prepared this Action Plan jointly, as an initiative under the Transport Focus of the Lima-Paris Action Agenda(5) coordinated by the Paris Process on Mobility and Climate(6). The Navigating a Changing Climate initiative forms part of the COP21 #WeAreTransport campaign(7), which seeks to deliver urgent action: decarbonising the transport sector, improving the resilience of transport infrastructure, and adapting transport infrastructure to the effects of the changing climate.

The principle of *stronger together* underpins the work of the Think Climate coalition: broadening effort, scaling-up activity, and reaching out to an extended audience around the world. The Action Plan sets out the measures required to realise the coalition's vision of ensuring the owners, operators and users of navigation infrastructure(8), globally:

- are aware of the issues associated with the changing climate, and of the need to act now
- have access to existing and new, sector-specific technical and institutional resources aimed at facilitating climate change mitigation and adaptation
- have developed the capacity to make timely and effective mitigation and adaptation decisions, and
- collaborate with others within and beyond the sector to identify and deliver integrated, resilient and sustainable solutions, with an emphasis on *Working with Nature* (9).

By providing a one-stop-shop for information and support, *inter alia* through the preparation of technical good practice guidance and the organisation of conferences, workshops and webinars, the Think Climate coalition will encourage the navigation infrastructure sector:

- to take measures to reduce or offset greenhouse gas emissions; to take decisions that avoid locking into fossil fuel futures; and to move to low carbon infrastructure
- to act to prepare for climate change, to strengthen resilience, and to adapt inland and maritime waterborne transport infrastructure to sea level rise, more frequent floods or droughts, more extreme wave, wind or flow conditions and other effects, and
- to seek integrated and sustainable solutions by Working with Nature and by engaging with others, both within and beyond the navigation sector.

Geoffroy Caude, President of PIANC, said "This is a vitally important initiative. Waterborne transport infrastructure has always been designed and operated taking into account extreme water levels, storms, waves and droughts but climate change is exacerbating these conditions and we are already seeing conditions rarely if ever seen before – for example the120 consecutive days of low water experienced this year on the River Rhine, Europe´s busiest waterway, or the severe water shortages in lake Gatun (the source of fresh water to the Panama canal locks) associated with the strongest El Nino event recorded since the opening of this canal in 1914. Events of such significance require a commensurate response. PIANC's new Think Climate coalition therefore brings together all the major international associations with interests in navigation infrastructure, with the objective of hastening mitigation action to reduce emissions from waterborne transport infrastructure; improving preparedness; and promoting the adaptation of infrastructure to the effects of the changing climate.

PIANC is proud to lead the Think Climate coalition and to be part of the #WeAreTransport campaign".

PIANC, Boulevard du Roi Albert II 20, B 3 – B 1000 Brussels – Belgium
T + 32 2 553 71 61 – F + 32 2 553 71 55 – e-mail: info@pianc.org – **www.pianc.org**

Notes for Editors

(1) COP21, the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, will take place in Paris, France, from November 30th to December 11th. COP21 will be a crucial conference in that it needs to achieve a new international agreement on the climate, applicable to all countries, with the aim of keeping global warming below 2°C
http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php

(2) A copy of the Navigating a Changing Climate Action Plan can be found via:
http://www.pianc.org/thinkclimate.php

(3) PIANC is the World Association for Waterborne Transport Infrastructure, a forum where professionals around the world join forces to provide expert advice on cost-effective, reliable and sustainable infrastructure to facilitate the growth of waterborne transport. Established in 1885 as a non-political and non-profit organisation, PIANC brings together the best international experts on technical, economic and environmental issues pertaining to waterborne transport infrastructure. Members include national governments and public authorities, corporations and interested individuals
http://www.pianc.org/aboutpianc.php

(4) In addition to PIANC, the partners in the Think Climate coalition are:
   a. International Association of Ports and Harbors (IAPH) http://www.iaphworldports.org/
   b. International Harbour Masters' Association (IHMA) http://www.harbourmaster.org/
   c. International Maritime Pilots' Association (IMPA) http://www.impahq.org/
   d. International Bulk Terminals Association (IBTA) http://www.drybulkterminals.org/
   e. Smart Freight Centre (SFC) http://www.smartfreightcentre.org/
   f. European Dredging Association (EuDA) http://www.european-dredging.eu/

(5) The Lima-Paris Action Agenda (LPAA) is a joint undertaking of the Peruvian and French COP presidencies, the Executive Office of the Secretary-General of the United Nations and the UNFCCC Secretariat. It is aimed at strengthening global climate action throughout 2015, in Paris in December and beyond. The LPAA aims at demonstrating that the transition to a low-GHG and climate-resilient economy and society is urgent; is politically, economically and technologically feasible; and is already underway http://climateaction.unfccc.int/

(6) The PPMC, an open and inclusive platform that actively invites all organisations and initiatives that support effective action on transport and climate change to join, was created to strengthen the voice of the sustainable transport community in the UNFCCC process, especially with a view to the upcoming Conference of Parties (COP21) in December 2015 in Paris. http://ppmc-cop21.org/; also http://ppmc-cop21.org/pianc-think-climate-coalition-releases-action-plan-on-navigating-a-changing-climate/

(7) #WeAreTransport: see http://ppmc-cop21.org/the-transport-community-comes-together-in-support-of-accelerating-action-on-climate-change-wearetransport/

(8) Waterborne transport (or navigation) infrastructure includes ports and harbours; canals and navigable rivers including major waterways such as the Panama Canal and the River Rhine as well as waterways used for recreational boating; dredged channels; docks and locks; breakwaters and embankments; quays, wharves, jetties and pontoons; marinas, and much more.

(9) Working with Nature is a philosophy developed by PIANC to help ensure: that the natural environment is taken into account in the earliest stages of an initiative or project; that ecosystem services and the role of physical processes are considered alongside logistical and economic issues; and that win-win solutions are identified through collaboration with stakeholders http://www.pianc.org/workingwithnature.php

Infoblatt

F &E-Vorhaben: Behördenkooperation Klimawandel und -anpassung (FKZ: 3715481030)

Auftragnehmer: adelphi / IÖR / UP Transfer an der Universität Potsdam

Laufzeit: 01.10.2015 – 30.09.2018

1. Zielstellung

Das F&E-Vorhaben zur Behördenkooperation ist seitens des Umweltressorts zur Unterstützung der behördenübergreifenden Zusammenarbeit im Rahmen der DAS-Umsetzung angelegt. Das Vorhaben setzt thematisch an ausgewählten Defiziten der Vulnerabilitätsanalyse des Bundes von 2015 an, hat aber nicht den Anspruch hat, alle Defizite bzw. alle Forschungserfordernisse des Netzwerks bzw. der Vulnerabilitätsanalyse aufgreifen zu können. Demgegenüber soll im Vorhaben auch die Möglichkeit bestehen, Themen aus den Ressorts bzw. den Oberbehörden aufzugreifen.

Nachdem das Netzwerk Vulnerabilität thematische und räumliche Schwerpunkte der Vulnerabilität auf der Basis von Wirkungsketten identifiziert hat, sollen ergänzend in diesem Vorhaben:

a) Die Schadenspotenziale durch klimawandelgebundene Risiken für Gesellschaft, Wirtschaft und Ökosysteme in Deutschland bestimmt und soweit möglich ökonomisch bewertet werden. Dabei soll so weit wie möglich auf die im Vorgängervorhaben identifizierten Wirkungsketten zurückgegriffen werden.

b) Anpassungsmaßnahmen in Kombination mit einem Mix geeigneter Politikinstrumente zu deren Umsetzung vertieft untersucht, d.h. zum Beispiel die Wirksamkeit abgeschätzt, deren Kosten ermittelt und die Zuständigkeit (Bund, Länder, Kommunen, andere Akteure) analysiert werden.

2. Arbeitspakete

Der grundlegende methodische Ansatz sowie Zwischen- und Endergebnisse der einzelnen Arbeitspakete werden auf den Treffen der Bundesoberbehörden vorgestellt und diskutiert.

AP 1 Organisation und allgemeine fachliche Unterstützung der Netzwerkarbeit

Im Vorhaben sollen 2 Mal pro Jahr ganztägige Treffen der Bundesoberbehörden durchgeführt werden. Die Treffen sollen zum einem als informelle Austauschplattformen über allgemeine Aktivitäten der teilnehmenden Behörden/Institutionen im Themenfeld der Klimaanpassung und zum anderen für fachliche Diskussionen zu Zwischen- und Endergebnisse aus dem Vorhaben genutzt werden.

AP 2 Bewertung von Klimawirkungen

Im Netzwerk Vulnerabilität wurden Hotspots der Vulnerabilität auf der Basis von Wirkungsketten identifiziert. In diesem Arbeitspaket sollen für die wichtigsten Wirkungsketten zentrale ökonomische, soziale und ökologische Schäden und Schadenspotenziale für Deutschland beschrieben und bewertet werden. Wo fachlich sinnvoll möglich sollen Schadenspotenziale ökonomisch bewertet werden.

Sektorale Anpassungsstrategien und -maßnahmen liefern einen wichtigen Beitrag zur Senkung von Schadenspotenzialen. Daher soll im Projekt verglichen werden zwischen:

a) einem Basisszenario ohne Klimawandel
b) einem Szenario mit Klimawandel und ohne Anpassungsmaßnahmen
c) einem Szenario mit Klimawandel und Anpassungsmaßnahmen

Auf dem ersten Treffen der Bundesoberbehörden im 2. Quartal 2016 sollen die Auswahl der zu bearbeitenden Klimawirkungen sowie die für die Ermittlung der Schadenspotenziale zu verwendenden Datengrundlagen diskutiert werden. Begründete Vorschläge werden derzeit erarbeitet und auf dem Treffen vorgestellt.

AP 3 Ableitung von sektoralen Anpassungszielen

Die DAS enthält als übergreifendes Ziel die Verminderung der Verletzlichkeit bzw. der Erhalt und die Steigerung der Anpassungsfähigkeit natürlicher, gesellschaftlicher und ökonomischer Systeme. Um dieses Ziel zu erreichen wurden im Rahmen des Fortschrittsberichtes zur DAS die Verletzlichkeiten dieser Systeme anhand der bedeutenden Klimawirkungen aufgezeigt. In einigen Ländern wie bspw. UK wurden sektorale Zielsetzungen im Rahmen von nationalen Anpassungsstrategien erarbeitet. In AP 3 soll das Für und Wider sektoraler Anpassungsziele beispielhaft diskutiert und Empfehlungen für die IMA erarbeitet werden. Die Ziele sollen für einzelne Handlungsfelder der DAS, d.h. sektoral aus bestehenden Zielsetzungen – insbesondere des Fortschrittsberichtes – zusammengestellt bzw. abgeleitet werden und Bezug auf die Bewertungen der Klimawirkungen bei „starkem Wandel“ nehmen.

AP 4 Integrierte Bewertung von Maßnahmen und Politikinstrumenten der Klimaanpassung

Bisher fehlt die vertiefte Analyse und Erarbeitung von effektiven Kombinationen an Politikinstrumenten um die Umsetzung von Maßnahmen(bündeln) in der Breite gezielt voranzutreiben (Policy Mix). Dementsprechend sollen solche Kombinationen von Politikinstrumenten zur Umsetzung von Anpassungsmaßnahmen identifiziert werden, welche bedeutende Klimawirkungen und Schadenspotenziale deutlich reduzieren.

AP 5 Beispielhafte Maßnahmen- und Instrumentenanalysen und deren Kosten

Um geeignete Anpassungsmaßnahmen sowie Politikinstrumente fachlich zu begründen sollen für im Vorhaben auszuwählende Beispiele vertiefte Analysen durchgeführt und insbesondere auch Kosten für die Umsetzung von Maßnahmen und Politikinstrumenten erfasst werden.

3. Bedeutung für die Weiterentwicklung der DAS

Das Vorhaben liefert fachliche Vorarbeiten für den nächsten Fortschrittsbericht und den APA III. Die Zwischen- und Endergebnisse des Vorhabens werden zur Information der IMA Anpassungsstrategie aufbereitet.

Anpassung an die Folgen des Klimawandels in der Normung

ISO
international

- ISO/TC 207/SC 7: Minderung & Anpassung
  Ziel: Entwicklung von Standards zu Anpassung, Kooperation mit UNFCCC
- Themen (geplant): Generelles Rahmenwerk zu Anpassung, Vulnerabilitätsbewertung, Monitoring & Evaluierung, Anpassungsplanung
  Output: Dokumente, die einen Rahmen für ‘gute Praxis der Anpassung‘ setzen, vorrangig für Organisationen (öffentliche und private)

CEN
europäisch

- Auftrag KOM an CEN & CENELC
  Ziel: Resilienz von Infrastrukturen insb. Transport, Energie, Bauen/Gebäude sowie IuK-Technologie
  Output: Anpassung von europ. Normen, mittelfristig eventl. Ausrichtung von Finanzierung
- Beitrag zum CEN Guide 4 (Lebenzyklus), mittelfristig: europ. Rahmenwerk zu Anpassungs-Management vorrangig für Infrastrukturvorhaben

DIN
national

- NA 172-00-13 AA,
  Ziel: Spiegelung ISO und CEN
  Output: Beiträge für internationale Normung, koordiniert Arbeiten und Stellungnahmen
- KU AK-4, Ziel: Mainstreaming in nationale Normung
  Output: Empfehlungen zur Klimaanpassung in nationalen Normungsgremien, aktuell: DIN SPEC zu Unsicherheit

Stand: 02/2016

BMBF-Fördermaßnahme „*Stadtklima im Wandel*“, Rahmenpapier

Koordinator der Fördermaßnahme: [redacted] Technische Universität Berlin

1. Übergeordnete Zielsetzungen der Fördermaßnahme

Die vom Bundesministerium für Bildung und Forschung (BMBF) am 4. März 2015 **ausgeschriebene Fördermaßnahme** *„Stadtklima im Wandel“* (engl. *„Urban Climate under Change“*) stellt sich der Herausforderung, Großstädten und Stadtregionen ein wissenschaftlich fundiertes, praxistaugliches Instrumentarium zur Bewältigung der mit heutigen und zukünftigen Klimabedingungen und Luftbelastungen einher gehenden Probleme an die Hand zu geben. Bereits heute verursachen Starkniederschläge und Stürme, Hitze- und Kältewellen, Trockenperioden und Dürren sowie Episoden mit erhöhter Luftbelastung gravierende wirtschaftliche Schäden und Gesundheitsbelastungen bis hin zu Todesfällen. In Großstädten und Stadtregionen besteht durch die Konzentration der Bevölkerung einerseits sowie die von urbanen Strukturen verursachten Modifikationen der atmosphärischen Prozesse andererseits ein besonders hoher diesbezüglicher Handlungsbedarf. Durch die regionalen Folgen des globalen Klimawandels werden sich die genannten Probleme in den nächsten Jahrzehnten weiter verstärken und zusätzliche Anstrengungen erforderlich machen.

Ein zentrales Ziel der Fördermaßnahme ist die Entwicklung, Validierung und Anwendung gebäudeauflösender Stadtklimamodelle für ganze Großstädte wie Stuttgart oder Berlin. Bisher verfügbare Stadtklimamodelle sind entweder zu grobmaschig, um die gerade für die Planung von Maßnahmen zur Erhaltung und Verbesserung des Stadtklimas, zum Klimaschutz und zur Anpassung an den Klimawandel sowie zur Verbesserung der Luftreinhaltung äußerst wichtigen mikroskaligen (Gebäude und Straßenschluchten) und lokalskaligen (Stadtquartiere) Prozesse auflösen zu können, oder sie decken nur kleinere Stadtgebiete ab und können nicht an großräumige numerische Modelle gekoppelt werden, wie sie in der Wettervorhersage oder für regionale Klimaprojektionen zum Einsatz kommen.

Damit ein gebäudeauflösendes Stadtklimamodell in der Lage ist, einen Beitrag zur Lösung der zuvor genannten Probleme zu leisten, muss dieses zunächst hinsichtlich seiner Leistungsfähigkeit getestet und beurteilt werden. Dazu sind umfassende Daten zu Wetter, Klima und Luftqualität in Großstädten erforderlich. Leider sind solche Daten bis heute nur begrenzt verfügbar, was insbesondere für mehrjährige oder gar multidekadische atmosphärische Langzeitbeobachtungen in Städten gilt. Daher sollen im Rahmen der Fördermaßnahme bereits verfügbare Daten aufbereitet und fehlende Daten über Langzeitmessungen und Intensivmesskampagnen neu erhoben werden. Dazu sind auch verbesserte Konzepte und Analysewerkzeuge erforderlich, deren Erarbeitung ein wichtiges Ziel der Fördermaßnahme darstellt. Darüber hinaus sollen die Beobachtungsdaten auch einer eigenständigen Verwertung für spezifische Anwendungen zugeführt werden können.

Eine weitere unabdingbare Anforderung an ein neues Stadtklimamodell ist seine Praxistauglichkeit. Dies bedeutet, dass die Modellergebnisse einerseits belastbare Aussagen für eine Vielzahl konkreter Anwendungen ermöglichen sollen, und andererseits die Anforderungen an die Rechnerinfrastruktur und Fachkenntnisse der potenziellen Nutzer/innen möglichst gering sind. Daher besteht ein weiteres zentrales Ziel der Fördermaßnahme, ausgewählte Anwendungsbeispiele und Nutzerkreise direkt in die Modellentwicklung und Messdatenerhebung zu integrieren, um die Praxistauglichkeit des Stadtklimamodells und der Messkonzepte und Analysewerkzeuge sicherzustellen.

2. Struktur der Fördermaßnahme

Die mit der Fördermaßnahme verfolgten übergeordneten Ziele sollen durch drei Module erreicht werden, die in enger Kooperation und Verzahnung jeweils eigenständige, sich ergänzende Aufgaben wahrnehmen sollen (Abb. 2.1).

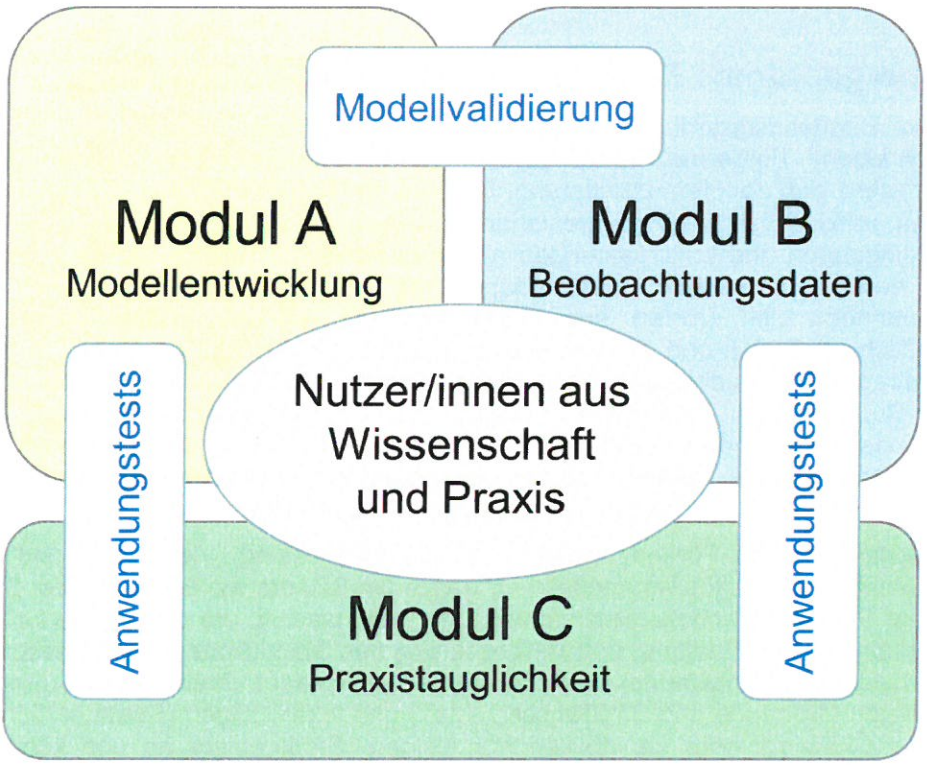


Abb. 2.1: *Struktur der BMBF-Fördermaßnahme „Stadtklima im Wandel".*

Die zentrale Aufgabe im Modul A *„Entwicklung eines leistungsstarken Stadtklimamodells"* besteht darin, ein neues Stadtklimamodell zu entwickeln, das den übergeordneten Zielen der Fördermaßnahme gerecht wird. Das Verbundprojekt *MOSAIK „Modellbasierte Stadtplanung und Anwendung im Klimawandel„* (engl. *„Model-based city planning and application in climate change"*) soll die Aufgaben des Modul A übernehmen.

Das neue Stadtklimamodell soll in **Modul B** *„Evaluierung von Stadtklimamodellen"* anhand existierender und neu zu erhebender Beobachtungsdaten umfassend getestet und validiert werden. Darüber hinaus sollen die Beobachtungsdaten direkt für praktische Anwendungen eingesetzt werden können. Die Aufgaben des Moduls B sollen vom Verbundprojekt *3DO „Dreidimensionale Observierung atmosphärischer Prozesse in Städten"* (engl. *„Three-Dimensional Observation of Atmospheric Processes in Cities"*) wahrgenommen werden.

Im **Modul C** *„Überprüfung der Praxis- und Nutzertauglichkeit von Stadtklimamodellen"* sollen konkrete Anwendungen identifiziert werden, welche mit dem in Modul A entwickelten neuen Stadtklimamodell sowie den im Modul B erhobenen Beobachtungsdaten umgesetzt werden könnten. Das Stadtklimamodell soll daraufhin getestet werden, ob es in der Praxis anwendbar ist. Die beiden Verbundprojekte *KliMoPrax „Klimamodelle für die Praxis"* (**engl.** *„Climate Models for Practice"*) sowie *UseUClim „Beurteilung der praktischen Anwendbarkeit und der Nutzerfreundlichkeit eines Stadtklimamodells zur Förderung einer klimagerechten Stadtentwicklung"* (engl. *„Review of practical and user serviceability of an urban climate model to foster climate proof urban development"*) bedienen gemeinsam das Modul C.

Nachfolgend werden die geplanten Forschungs- und Entwicklungsarbeiten der drei Module in Übersichtsform vorgestellt. Die spezifischen Beiträge der einzelnen Partner der vier Verbundprojekte sind in den jeweiligen Vorhabenbeschreibungen der Modulverbünde erläutert.

2.1 Modul A „*Entwicklung eines leistungsstarken Stadtklimamodells*“

Das zentrale Ziel des Verbundprojekts *MOSAIK* ist die Entwicklung eines modernen, effizienten und benutzerfreundlichen Stadtklimamodells, welches gebäudeauflösende Simulationen von Großstädten mit einer Größe von 1‘000 bis 2‘000 km² (z.B. Berlin) und Gitterweiten von 10 m und feiner erlaubt. Das Modell soll sowohl auf Großrechnern mit mehreren Tausend Rechenkernen als auch auf PCs mit begrenzten Ressourcen einsetzbar sein. Ebenso soll es möglich sein, Grafikbeschleunigerkarten zu verwenden. Das Modell wird auf dem hochoptimierten, turbulenzauflösenden Large-Eddy Simulationsmodell (LES) PALM basieren und in der Lage sein, die städtische Grenzschicht sowohl im klassischen RANS-Modus als auch im LES-Modus zu simulieren.

PALM wird dazu um eine Reihe etablierter Verfahren erweitert. Dazu zählt eine skalenabhängige Turbulenz- und Gebäudeparametrisierung, ein Berechnungsverfahren für die Energiebilanz aller Oberflächen in der Stadt, ein Modell für das Innenraumklima mit Berechnung des Energiebedarfs, ein Luftchemiemodul, sowie ein Multiagentenmodell, mit dem die Auswirkung des Lokalklimas auf repräsentative Stadtbewohner auf Grundlage sozioökonomischer Daten bewertet werden kann. Die Kopplung an größerskalige Modelle wird über ein Einwege-Nesting realisiert. Zusätzlich wird mit dem Modell ein Selbst-Nesting (Lupenfunktion) möglich sein, mit welchem, basierend auf einer ganzstädtischen Simulation, einzelne Stadtquartiere hochaufgelöst (1 m Gitterweite) mit wenig Rechenaufwand simuliert werden können. Anwender sollen damit in der Lage sein, verschiedene Planungsvarianten hinsichtlich Bebauung und Oberflächenbegrünung und deren Auswirkungen wie Abschattungseffekte vergleichen und beurteilen können.

Das Modell wird durch eine benutzerfreundliche graphische Oberfläche komplementiert, in welcher sowohl die Modellsteuerung als auch die Vorbereitung und Verarbeitung von Eingabe- und Ausgabedaten erfolgen. Standardgrößen, wie beispielsweise die physiologische äquivalente Temperatur (PET) oder der universelle thermische Klimaindex (UTCI), können direkt vom Modell berechnet und mit Hilfe der grafischen Oberfläche visualisiert werden.

Das vom *MOSAIK*-Konsortium (siehe Tab. 2.1) entwickelte Stadtklimamodell wird als Open Source Modell bereitgestellt werden. Die grafische Oberfläche wird als Freeware verfügbar sein.

Tab. 2.1: *Teilprojekte (TP), Wissenschaftliche Leitung und Antrag stellende Institutionen im Verbundprojekt MOSAIK des Moduls A (Verbundkoordination: [redacted]).*

TP	Wissenschaftliche Leitung	Institution
TP1	[redacted]	Uni Hannover
TP2		HU Berlin
TP3		Hochschule Offenburg
TP4		KIT
TP5		DLR
TP6		GEO-NET
TP7		DWD
TP8		IPS
TP9		FU Berlin

2.2 Modul B „*Evaluierung von Stadtklimamodellen*“

Das Verbundprojekt *3DO* beantragt, die dem Modul B zugeordneten Forschungsaufgaben zu übernehmen. Im Rahmen der vorgesehenen Forschungs- und Entwicklungsarbeiten sollen existierende Beobachtungsdaten aufbereitet und neue Messungen in Berlin, Hamburg und

Stuttgart durchgeführt werden. Die drei Städte wurden ausgewählt, um einerseits stadtklimatische Effekte direkt untersuchen zu können, andererseits aber auch unterschiedliche regional- und geländeklimatische Einflüsse des Umlandes (Küstenlage, Relief) auf die städtischen Klimabedingungen berücksichtigen zu können. Verbesserte Konzepte und Werkzeuge sollen entwickelt und getestet sowie in eine Integrationsplattform implementiert werden, welche für die gesamte Fördermaßnahme zur allgemeinen Nutzung bereitgestellt werden soll. Die Modellvalidierung sowie Anwendungstests sollen gemeinsam mit den Partnern der Module A bzw. C durchgeführt werden. Das in 14 Teilprojekten organisierte *3DO*-Konsortium (siehe Tab. 2.2) sieht vor, sowohl Langzeitbeobachtungen (LTO) als auch Intensivmesskampagnen (IOP) mit einer hochauflösenden, hochgenauen Instrumentierung durchzuführen, um eine Vielzahl dreidimensionaler atmosphärischer Datensätze zu erheben, die nicht nur die Modellvalidierung ermöglichen, sondern auch direkt für Anwendungen in der Stadtplanung, zum Klimaschutz oder zur Luftreinhaltung genutzt werden können. Es ist zu erwarten, dass der vorgeschlagene, innovative, dem Stand der Technik entsprechende Forschungsansatz einen essenziellen Beitrag zum Gesamterfolg der Fördermaßnahme leistet.

Tab. 2.2: *Teilprojekte (TP), Wissenschaftliche Leitung und Antrag stellende Institutionen im Verbundprojekt 3DO des Moduls B (Verbundkoordination: [redacted]).*

TP	Wissenschaftliche Leitung	Institution
TP1	[redacted]	TU Berlin
TP2		HU Berlin
TP3		FU Berlin
TP4		TU Braunschweig
TP5		IASS
TP6		FZ Jülich
TP7		KIT
TP8		Uni Stuttgart
TP9		TU Dresden
TP10		Uni Hamburg
TP11		DWD
TP12		Uni Hannover
TP13		GEO-NET
TP14		DLR

[1]Senatsverwaltung für Stadtentwicklung und Umwelt Berlin
[2]Abteilung Stadtklimatologie, Amt für Umweltschutz, Landeshauptstadt Stuttgart

2.3 Modul C *„Überprüfung der Praxis- und Nutzertauglichkeit von Stadtklimamodellen"*

Mit der Entwicklung eines „leistungsstarken, innovativen und gut anwendbaren Stadtklimamodells für eine moderne Stadtplanung, das im Rahmen der Fördermaßnahme entwickelt und getestet werden soll, soll den verantwortlichen Planungsakteuren in den deutschen Kommunen ein praktikables und übertragbares Werkzeug an die Hand gegeben werden, mit dessen Hilfe sich bedarfsorientierte, praxisnahe Maßnahmen für eine klimawandelangepasste Umsetzung von Maßnahmen zum Umbau und zur Entwicklung der Siedlungsräume in stadtplanerischen Verfahren und Prozessen ableiten lassen. Bislang fehlen in der Praxis Stadtklimamodelle, die klar definierte und weiterzuverarbeitende Aussagen treffen und so eine fachübergreifende Analyse im Sinne einer nachhaltigen – und somit auch klimawandelgerechten – Stadtentwicklung als kommunale Gemeinschaftsaufgabe zulassen.

2.3.1 Verbundprojekt KliMoPrax

Das Ziel des Verbundprojekts *KliMoPrax* (siehe Tab. 2.3) ist, die Praxis- und Nutzertauglichkeit und somit die Anwendbarkeit des in Modul A zu entwickelnden Stadtklimamodells sicherzustellen und zusammen mit den beteiligten kommunalen Praxispartnern und späteren Anwendern eine bedarfs- und anforderungsgerechte Umsetzung zu garantieren.

In Abstimmung mit dem Verbundprojekt *UseUClim* (siehe Abschnitt 2.3.2) wird *KliMoPrax* dazu direkt zu Beginn gemeinsam mit potenziellen Anwendern einen Satz typischer, übertragbarer Nutzungssituationen erarbeiten. Diese und die von *UseUCLIM* erarbeiteten Ergebnisse bilden die Grundlage für den Anforderungs- und Anwendungskatalog, der gemeinsam von beiden Konsortien erstellt und frühzeitig mit den Modulen A und B abgestimmt und anschließend allen Partnern der Fördermaßnahme zur Verfügung gestellt wird, um die Modellentwicklung (Modul A) und die Messkonzepte (Modul B) auf die Nutzerbedürfnisse fein zu justieren. Auf dieser Grundlage wird das neue Stadtklimamodell von *KliMoPrax* in enger Abstimmung mit *UseUClim* mittels ausgewählter Testanwendungen und Fallstudien in direkter Zusammenarbeit mit ausgewählten kommunalen Pilotpartnern (Anwender und Nutzer) in einem iterativen Prozess getestet und bewertet.

Die Testfälle und Kommunen werden wissenschaftlich begleitet. Untersucht werden alle Prozessschritte im Rahmen eines kontinuierlichen Dialogs zwischen den Partnern in Modul C sowie mit Partnern der Module A und B. Fünf verschiedene Untersuchungen bzw. wissenschaftliche Berichte im Kontext klimagerechte Stadtentwicklung, Mainstreaming (Stadt-) Klimawandel und Übertragbarkeit/Wirtschaftliche Potenziale sowie zur zukünftigen Stadtklimaforschung für die Stadt der Zukunft ergänzen diesen Begleitprozess.

Am Ende der dreijährigen Laufzeit wird von den beiden Verbundprojekten *KliMoPrax* und *UseUClim* gemeinsame eine Evaluation durchgeführt. Der Evaluationsbericht wird anhand der durchgeführten Tests und der Validierung des Modells durch Messdaten zeigen, ob ein anwendungsreifer und übertragbarer Prototyp eines Stadtklimamodells zur Verfügung steht, der eine Ableitung von Maßnahmen im Sinne einer nachhaltigen und klimawandelgerechten Stadtentwicklung unter Berücksichtigung weiterer Veränderungsprozesse ermöglicht. Der Bericht wird auch mögliche Lücken aufführen, analysieren und Hinweise für eine nutzergerechte Weiterentwicklung des Stadtklimamodells - auch im Hinblick auf eine mögliche zweite Förderphase - enthalten. *KliMoPrax* unterstützt *UseUClim* in diesem Arbeitspaket, das die Weiterführung der im Rahmen der Fördermaßnahme begonnenen Aktivitäten adressiert (siehe Abschnitt 2.3.2).

Tab. 2.3: *Teilprojekte (TP), Wissenschaftliche Leitung und Antrag stellende Institutionen im Verbundprojekt KliMoPrax des Moduls C (Verbundkoordination: [redacted]).*

TP	Wissenschaftliche Leitung	Institution
TP1	[redacted]	FiW Aachen
TP3		GEO-NET
TP4	Halbig	DWD
TP5	[redacted]	difu, Köln
TP6		TU Dortmund

Das Büro BKR Aachen Noky & Simon Stadtplaner, Umweltplaner, Landschaftsarchitekt ist als Unterauftragnehmer in *KliMoPrax* eingebunden.

Die Städte Berlin, Bonn, Essen, Hamburg, Karlsruhe und München, der Regionalverband Ruhr (RVR), Essen sowie das regionale Klimaanpassungsnetzwerk *dynaklim* im Ruhrgebiet sind Kooperationspartner in *KliMoPrax*.

2.3.2 Verbundprojekt UseUClim

Die Entwicklung eines leistungsstarken und anwenderorientierten Stadtklimamodells kann nur dann gelingen, wenn die Anwender nicht nur die Gelegenheit haben, das angestrebte Produkt in der Entwicklungsphase zu testen, sondern auch Nutzeranforderungen an ein solches Modell in die Entwicklung einfließen können. Beiden Aspekten wird in *UseUClim* Rechnung getragen.

Basierend auf dem flexiblen Rahmen des Living Labs gliedert sich die inhaltliche Struktur entlang der folgenden vier Phasen:

Im ersten Arbeitspaket werden die Nutzersituationen und -anforderungen an das zu entwickelnde Stadtklimamodell identifiziert und an Modul A übermittelt. Zusätzlich werden Anforderungen an ein mögliches Monitoring-System ermittelt und an Modul B übermittelt. Beides geschieht in enger Abstimmung mit dem *KliMoPrax*-Konsortium; so werden u.a. zwei gemeinsame Workshops organisiert und abschließend ein gemeinsamer Katalog erstellt.

Im zweiten Arbeitspaket wird das in Modul A entwickelte Stadtklimamodel getestet. Hierfür sind zwei jeweils etwa vierwöchige Testphasen vorgesehen. Zu Beginn jeder Testphase erhalten die Testanwender Einführungen in die jeweiligen Testversionen; abschließend werden Feedback-Berichte erstellt. Für den Abschluss der zweiten Testphase geschieht dies zusammen mit dem *KliMoPrax*-Konsortium. In dieser Phase werden ebenfalls prototypische Schnittstellen (Interfaces) zu anderen Anwendungen erarbeitet (z.B. sozio-ökonomische Schadenskalkulationen nach Extremereignissen). Abschließend werden dem Modul A Verbesserungsvorschläge geliefert.

In der gemeinsam entwickelten einheitlichen Struktur für Modul C übernimmt *UseUClim* keine Aufgaben im neuen Arbeitspaket 3.

Das vierte Arbeitspaket adressiert die Weiterführung der im Rahmen der Fördermaßnahme begonnenen Aktivitäten. Dies schließt u.a. den Aufbau eines nationalen Netzwerks ein, dem dann mindestens die Projektpartner der Module A, B und C angehören sollen, um die Weiterentwicklung des Modells auch nach dem Ende der Fördermaßnahme sicherzustellen, sowie weitere Disseminations- und Verwertungsaktivitäten, wie etwa die Integration des Stadtklimamodells in bereits heute bestehende Klimadienstleistungsinfrastrukturen.

Tab. 2.4: *Teilprojekte (TP), Wissenschaftliche Leitung und Antrag stellende Institutionen im Verbundprojekt UseUClim des Moduls C (Verbundkoordination: [redacted]).*

TP	Wissenschaftliche Leitung	Institution
TP1	[redacted]	GERICS
TP2		Fraunhofer IPB

Die Städte Chemnitz, Dresden und Leipzig sowie das Unternehmen Grontmij GmbH sind als Unterauftragnehmer in *UseUCLIM* eingebunden.

3. Übersicht über die Arbeitspläne

Nachfolgend werden die Arbeitspläne der vier Verbundprojekte der drei Module in Übersichtsform vorgestellt, wobei der Schwerpunkt auf einer Darstellung der geplanten Zusammenarbeit zwischen den Verbünden und Modulen liegt.

3.1 Modul A „*Entwicklung eines leistungsstarken Stadtklimamodells*“

Das Verbundprojekt *MOSAIK* wird aus 15 Arbeitspaketen bestehen, welche sich in die drei Kernbereiche „Modellentwicklung“ (Arbeitspakete M1-M7), „Datenmaterial“ (Arbeitspakete D1-D4) und „Planung“ (Arbeitspakete P1-P3), sowie ein Koordinierungsarbeitspaket (C) aufteilen. Die M-Arbeitspakete werden sich auf die Entwicklung des Modellkerns, der adäquaten Repräsentation von Effekten städtischer Oberflächen (Energiebilanzlöser für alle städtischen

Oberflächen), und der Luftchemiemodellierung fokussieren. Die D-Arbeitspakete hingegen werden sich mit der Bereitstellung aller benötigten Eingabedaten, der Verarbeitung der Ausgabedaten sowie der Entwicklung einer benutzerfreundlichen Oberfläche befassen. Letztere stellt dabei die wesentliche Schnittstelle zu den Anwendungen des Stadtklimamodells in den Modulen B und C dar. Die P-Arbeitspakete werden sich mit der Entwicklung von Werkzeugen zur Bewertung von Modelldaten für die Stadtplanung befassen. Dazu zählt unter anderem die Implementierung eines Multiagentenmodells. Die folgende Abbildung verdeutlicht den Arbeitsfluss und zeigt die Schnittstellen zwischen den Modulen.

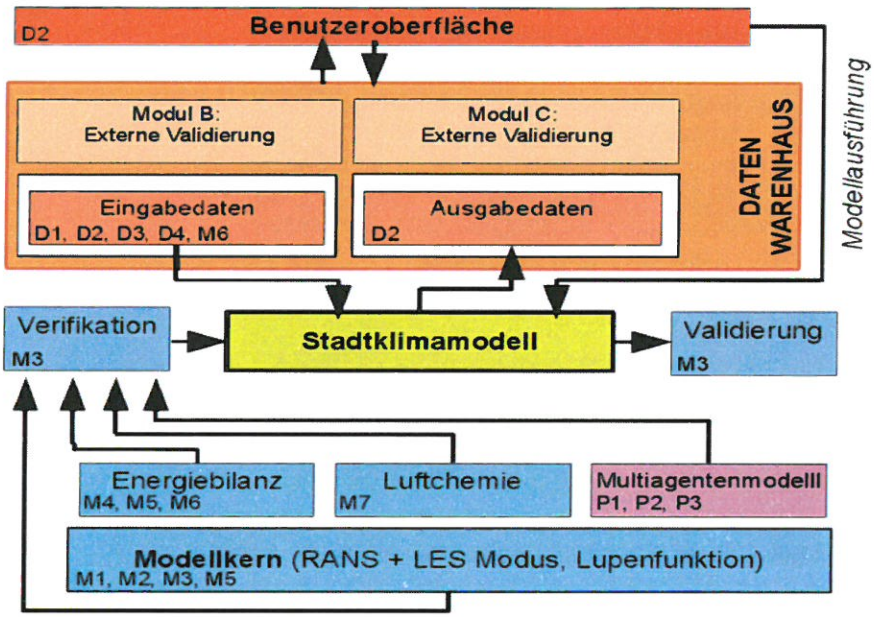


Abb. 3.1: *Arbeitsfluss im Modul A und Schnittstellen zu den Modulen B und C.*

3.2 Modul B „*Evaluierung von Stadtklimamodellen*“

Der Arbeitsplan im Verbundprojekt 3DO umfasst 14 Arbeitspakete (WP), die in fünf Gruppen zusammengefasst sind. Der Arbeitsfluss und die Schnittstellen zu den anderen Modulen ist in Abb. 3.2 dargestellt.

In den WP 110, 120 und 130 sollen existierende Daten von Langzeitbeobachtungen (LTO) zu Wetter und Klima, Aerosolen und Luftschadstoffen der deutschen Großstädte Berlin, Hamburg und Stuttgart einschließlich ihres jeweiligen Umlandes aufbereitet sowie neue LTO-Messungen vorbereitet und durchgeführt werden. Die mehrjährigen, teils viele Dekaden umfassenden LTO-Daten sollen in den WP 210, 220 und 230 um weitere Datensätze ergänzt werden, welche im Rahmen von insgesamt vier Intensivmesskampagnen (IOP) erhoben werden sollen. Geplant sind zwei Sommer- und zwei Winter-IOP in den Jahren 2017 und 2018. Durch die zwischen den *3DO*-Partnern abgestimmten Messkonzepte wird eine dreidimensionale Erfassung der Atmosphäre von der bodennahen Luftschicht (Urban Canopy Layer; UCL) über die städtische Grenzschicht (Urban Boundary Layer; UBL) bis in die freie Atmosphäre oberhalb der planetaren Grenzschicht (Planetary Boundary Layer; PBL) in den drei Stadtregionen realisiert, welche zudem auch detaillierte Untersuchungen der Stadt-Umland-Unterschiede erlaubt. Alle Messdatensätze sollen nach umfangreicher Qualitätskontrolle in einheitlicher Form allen Partnern der Fördermaßmaßnahme zur Verfügung gestellt werden.

Im Verbundprojekt *3DO* sollen verbesserte Konzepte (WP 310) und Werkzeuge (WP 320 und 330) entwickelt, getestet und zum Einsatz gebracht werden. Dies betrifft insbesondere Konzepte für experimentelle Untersuchungen in Städten, für die Integration von Beobachtungs- und Modelldaten, sowie für Modellvalidierung und Referenzdaten. Die im WP 320 verbesserten Analyse- und Visualisierungswerkzeuge sollen in eine Integrationsplattform implementiert werden (WP 330), welche modulübergreifend entwickelt, getestet und genutzt werden soll.

Gemeinsam mit Partnern des Moduls A sollen die Messdaten zur Validierung des neuen Stadtklimamodells herangezogen werden (WP 420). Eigene numerische und physikalische Modellierung mit gröber aufgelösten Modellen bzw. mit hochaufgelösten Modellen für kleinere Stadtgebiete sowie Windkanal-Experimente (WP 410) sollen hierbei dafür sorgen, dass alle Werkzeuge ohne Zeitverzug entwickelt und getestet werden können, bevor diese zum Einsatz kommen. Im WP 430 sollen ausgewählte Anwendungsbeispiele gemeinsam mit Partnern des Moduls C für die Nutzung von Messdaten in der Praxis identifiziert und anschließend im Hinblick auf deren Verwendbarkeit für konkrete Anwendungen in der Stadtplanung, zum Klimaschutz oder zur Luftreinhaltung zu testen.

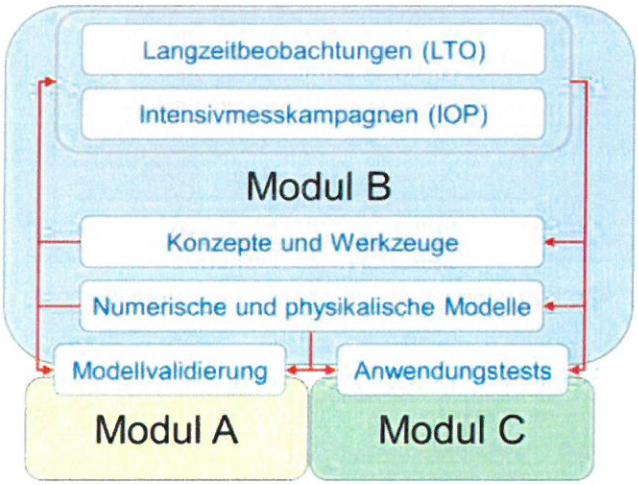


Abb. 3.2: *Arbeitsfluss im Modul B und Schnittstellen zu den Modulen A und C.*

Die Koordination des Verbundprojekts 3DO ist im WP 510 angesiedelt. Der designierte *3DO*-Verbundkoordinator wurde zudem gebeten, auch die Koordination der gesamten Fördermaßnahme zu übernehmen (WP 520).

3.3 Modul C „*Überprüfung der Praxis- und Nutzertauglichkeit von Stadtklimamodellen*“

Das Modul C wird von den Verbünden *KliMoPrax* und *UseUClim* auf Basis eng abgestimmter, sich ergänzender Arbeitsplanungen mit einer gemeinsamen Projektstruktur bearbeitet. Diese umfasst fünf Arbeitspakete (AP) mit insgesamt 18 Aktivitäten (A).

Die beiden Verbundprojekte im Modul C benennen jeweils einen Verbundkoordinator als zentrale Ansprechpartner für die Vertreter der Module A und B sowie des Projektträgers DLR für Aspekte, die das ganze Modul C betreffen. Analog werden wesentliche Aussagen und zentrale Arbeitsergebnisse aus Modul C für die Module A und B erst nach Abstimmung zwischen den Konsortien übergeben. Die Ansprechpartner werden von den Konsortien zu Förderbeginn namentlich benannt.

Die Verbünde erbringen ihre Forschungsleistungen zwar unabhängig, erarbeiten aber die **zentralen Produkte von Modul C, den „Nutzer-** und Anforderungskatalog sowie den abschließenden Evaluationsbericht gemeinsam. In gleicher Weise führen sie die zu diesen Produkten zugehörigen Workshops und Arbeitstreffen mit den Pilot- oder Praxispartnern ebenfalls gemeinsam durch, um Synergien zu schaffen:

- ein Start-Workshop für Modul C im Projektmonat 3/4, an dem alle Verbundpartner, die Pilot- und Praxispartner sowie jeweils ein relevanter Vertreter der Module A und B teilnehmen (zur gemeinsamen Vorstellung des Gesamtprojekts und Erarbeitung erster Anforderungen),
- ein gemeinsamer Workshop im Projektmonat 11 zur Abstimmung und Übergabe des finalen Entwurfs des Anforderungskatalogs (einschl. Nutzungssituationen), und
- ein Abschluss-Workshop für Modul C (analog zum Start-WS) im Projektmonat 30/31 zur Diskussion und Abstimmung der Inhalte des Evaluationsberichts.

Die Vorbereitung und Durchführung der Testanwendungen des neuen Stadtklimamodells bzw. der zur Verfügung gestellten Anwendungen und Anwenderoberflächen erfolgt dagegen in beiden Verbünden getrennt voneinander mit unterschiedlichen Pilotpartnern, aber mit vorab abgestimmten unterschiedlichen Nutzungssituationen und stadtklimatischen Fragestellungen. Auf diese Wiese kann das neue Stadtklimamodell in bis zu neun Pilotkommunen getestet und die unterschiedlichen Testverfahren und -prozesse der beiden Verbünde miteinander verglichen werden.

Die Verbünde für Modul C haben mit dem Projektträger abgestimmt, dass sie ihre Arbeiten in **Modul C durch eine mit Experten und Praktikern besetzte** „*Steuerungsgruppe Modul C*" begleiten lassen wollen, die Arbeitsergebnisse und Produkte dezidiert aus der Nutzerperspektive beurteilt. Die Steuerungsgruppe soll bis zu vier Mal in der Förderphase mit Vertretern von *KliMoPrax* und *UseUClim* zusammentreffen. Die „*Steuerungsgruppe Modul C*" wird durch das FiW Aachen betreut.

4. Zentrale Aktivitäten der Fördermaßnahme

Die Koordinatoren der vier Verbundprojekte werden unter der Leitung des designierten Koordinators das Koordinationsgremium der Fördermaßnahme bilden und eine Vielzahl zentraler Aktivitäten definieren, mit dem Projektträger und dem BMBF abstimmen, organisieren und durchführen.

Von großer Bedeutung für den Erfolg der Fördermaßnahme ist die Vorbereitung und Durchführung von vier zentralen Veranstaltungen. Das Kick-Off-Meeting soll bereits im ersten Monat nach Förderbeginn in Berlin stattfinden, um den sofortigen Beginn modulübergreifend koordinierter Forschungs- und Entwicklungsarbeiten sicherzustellen. In den Folgejahren sollen zwei Jahrestreffen in Hannover bzw. in Aachen durchgeführt werden, um den aktuellen Arbeitsstand in den Verbundprojekten zu kommunizieren und weitere Absprachen zu koordinierten Arbeiten zu treffen. Das Final Meeting soll gegen Ende der Fördermaßnahme in Hamburg stattfinden, um die erreichten Ergebnisse der gesamten Fördermaßnahme zu evaluieren, die weitere Verwertung der Ergebnisse und Produkte zwischen den Partnern abzustimmen und ggf. die Planungen zu einer zweiten Förderperiode mit dem Projektträger und dem BMBF zu diskutieren.

Der modulübergreifende Austausch von Informationen sowie weitere Absprachen sollen regelmäßig zwischen den Verbundkoordinatoren und dem Projektträger erfolgen. Im gleichen Personenkreis soll auch eine interne Begutachtung der Forschungs- und Entwicklungsarbeiten der Fördermaßnahme aufgebaut werden.

Darüber hinaus wird der Aufbau eines modulübergreifenden Beirats bzw. Begleitkreises durch den Projektträger vorgeschlagen. Dieser soll dem Koordinationsgremium einerseits Verbesserungsvorschläge unterbreiten, andererseits auch an der internen Begutachtung der Fördermaßnahme teilnehmen.

Die Verbundprojekte sollen die Verwertung ihrer Ergebnisse und Produkte eigenständig planen und realisieren und ggf. mit dem Koordinationsgremium abstimmen. Dazu gehören u.a. modulspezifische Veröffentlichungen, PR-Aktivitäten sowie Modul-Webseiten. In Ergänzung zu diesen Modul-Aktivitäten soll es auch zentral organisierte, mit den Modulen abgestimmte Veröffentlichungen und PR-Aktivitäten geben. Eine zentrale Webseite der Fördermaßnahme soll hierbei auf die Webseiten der Module verlinken.

Zusätzlich zur programminternen Validierung des neuen Stadtklimamodells soll ein internationales Vergleichsprojekt für Stadtklimamodelle „*Urban Climate Model Intercomparison Project (UCMIP)*" unter Beteiligung aller Module vorbereitet werden, an welchem auch das neue Stadtklimamodell teilnehmen soll. Das *UCMIP* könnte im Anschluss an die Fördermaßnahme entweder als Bestandteil einer zweiten Phase der Fördermaßnahme „*Stadtklima im Wandel*" oder als eigenständiges Vorhaben durchgeführt werden.

5. Verwertung der Ergebnisse

Durch die langjährigen, umfassenden Erfahrungen der Antragsteller aller vier Verbundprojekte in den relevanten Themenfeldern sowie aufgrund bereits umfangreich geleisteter Vorarbeiten sind die wissenschaftlichen und technischen Erfolgsaussichten der Fördermaßnahme als sehr hoch einzuschätzen.

Im Modul A bestehen exzellente Chancen, dass das Verbundprojekt *MOSAIK* ein neues leistungsstarkes Stadtklimamodell entwickeln kann, das national und international eine führende Rolle einnehmen wird. Aufgrund der umfassend verfügbaren Messinfrastrukturen und Daten von Langzeitbeobachtungen sowie dem Einsatz hochinnovativer Messtechniken im Verbundprojekt *3DO* werden nach dem Abschluss der Fördermaßnahme atmosphärische Datensätze für drei deutsche Städte verfügbar sein, welche nicht nur den Nachweis der Leistungsfähigkeit des neuen Stadtklimamodells erbringen können, sondern selbst ein hohes Anwendungspotenzial in den Bereichen Stadtklima, Klimaschutz und Anpassungsmaßnahmen an den Klimawandel sowie Luftreinhaltung besitzen. Die umfassenden Erfahrungen der Partner in den Verbundprojekten *KliMoPrax* und *UseUClim* werden mit großer Wahrscheinlichkeit dazu führen, dass die Ergebnisse der Forschungs- und Entwicklungsarbeiten in den Modulen A und B nicht nur aus wissenschaftlicher Sicht bedeutsam sein werden, sondern auch den spezifischen Anforderungen praktischer Anwendungen entsprechen.

Das neue Stadtklimamodell bietet wegen seiner Leistungsfähigkeit und seiner vielfältigen neuartigen Techniken sehr gute weitere wissenschaftliche Nutzungsmöglichkeiten. Das Modell kann zudem aufgrund seines Open-Source-Charakters von verschiedenen Anwendern aus Forschung und Entwicklung, Behörden und Ingenieurbüros verwendet werden. Durch die Leistungsfähigkeit des Modells ist zukünftig mit einer rasch steigenden Nutzergemeinschaft zu rechnen. Dabei ist der Beitrag des Moduls C zur Verbreitung der Produkte und Ergebnisse in potenziellen Anwenderkreisen von großer Bedeutung.

Mit der Fördermaßnahme werden die bereits bestehenden wissenschaftlich-technischen Infrastrukturen für Langzeitbeobachtungen atmosphärischer Prozesse in Berlin, Hamburg und Stuttgart weiter ausgebaut und sollen auch im Anschluss an die Fördermaßnahme von Partnern des Verbundprojekts *3DO* langfristig weiterbetrieben werden. Dies ist im Hinblick auf die auch vom Gutachtergremium festgestellte Notwendigkeit für einen weiteren Ausbau von Langzeitbeobachtungen von großer Bedeutung sowohl für die Stadtklimaforschung als auch für Anwendungen der Ergebnisse und Produkte.

Die zu erwartenden Ergebnisse und Produkte sowie die im Rahmen der Fördermaßnahme zu entwickelnden nationalen und internationalen Kooperationen werden exzellente Grundlagen für eine Vielzahl weiterer drittmittelfinanzierter Forschungs- und Anwendungsprojekte bieten.

Es bestehen sehr gute Aussichten, die Ergebnisse aller Partner der Fördermaßnahme in begutachteten Fachzeitschriften zu veröffentlichen und auf Fachkonferenzen zu präsentieren. Dabei soll vorrangig darauf geachtet werden, dass die Veröffentlichungen frei zugänglich (Open Access) sind. Darüber hinaus wird auch angestrebt, die frei verfügbaren Ergebnisse und Produkte der Fördermaßnahme auf breiter Front den potenziellen Anwendern bekannt zu machen und diese zu motivieren, diese in konkreten eigenen Anwendungen zu nutzen und ihre Erfahrungen bei der Umsetzung wieder an die Partner der Verbundprojekte zurück zu spiegeln.

Nicht zuletzt bietet die Fördermaßnahme den beteiligten Nachwuchswissenschaftler/innen exzellente Chancen, sich für eine wissenschaftliche Laufbahn weiter zu qualifizieren.

EUROPEAN COMMISSION

Meeting of the Working Group on Adaptation (WG6)

2 February 2016

Salle Whallstein,
Berlaymont building, Rue de la Loi 200, 1049 Bruxelles

Morning session: WG6 only

10:00-10:05	Welcome and introduction; adoption of the agenda.
10:05-10:50	COP 21 implications for Adaptation. Report from Jake Werksman, EU lead negotiator on Adaptation and Loss and Damage, followed by questions and answers.
10:50-11:45	Urban adaptation: - information point on developments on the new Covenant of Mayors - Presentation by Member States on how they encourage local adaptation: IE, PL, PT, NO, (tbc).
11:45-12:15	Future work on 2017 Report and adaptation scoreboard. Timing and Member States' involvement.
12:15-13:00	A.O.B.: - Presentation by the EEA on recent and future activities - Information point on the 2014 LIFE call (EASME?) - Presentation by DE on progress report on German adaptation strategy
13:00-14:00	Lunch

Afternoon session: Workshop open to stakeholders from the insurance sector

14.00-14.30	Introduction and policy background on insurance, the green paper on insurance and natural catastrophes and its follow-up
14.30-15.00	Presentation by the Insuresilience (examples of local adaptation action (building in floodplains, dealing with droughts)
15.00-15.30 15.30-15.45	Presentations on organisation of insurance of climate related natural catastrophes in Member States, focusing on **sectors** (agriculture, buildings, energy, transport) and/or **extreme events** (floods, droughts, windstorms, etc.). Presentations by PT, ES, SE. Discussion
Coffee break	
16.00-16.30 16.30-16.45	Presentation by MunichRe on EU and international examples of cost efficiency in dealing with natural catastrophes and climate change. Discussion
16.45-17.00:	ideas for next steps: discussion
17.00	Close

Climate Change Committee - Working Group 6 on Adaptation
Meeting 2 February 2016
Minutes (Draft)

Participants

AT, BE, DE, ES, FR, IE, LV, NL, PT, PL, SE, SI, SK, NO

CZ, GR, HR, IT, MT, RO, UK, joined by videconference and/or webstreaming

EU: Commission (DG CLIMA, DG ENV), EEA

0. Introduction.

Welcome and introduction and welcome by Beatriz Yordi, Head of Unit DG CLIMA A.3.

1. Adaptation in the Paris Agreement

Jacob Werksman, principal advisor in DG CLIMA, presented the Paris agreement, key result of COP21, as a historical achievement given its ambition, transparency and fairness. The contents of articles 7 (Adaptation) and 8 (Loss & Damage) were explained, including the implications for the EU. On adaptation, the agreement is interpreted as bringing opportunities rather than obligations, by defining a global framework for enhancing adaptive capacity, strengthening resilience and reducing vulnerability. It was concluded that the EU Adaptation Strategy is consistent with the Paris Agreement. Coupled with the potential 2018 review of the EU adaptation strategy, it offers also an opportunity to further strengthen and extend it, and reflect on inclusion in INDCs.

- BE raised a question about the nature of the adaptation article, in particular in relation to the requirements of adaptation planning processes and implementation (Art. 7.9). The Commission replied that the article should be interpreted as a "soft binding" obligation. While the intention of the article is to be binding (Parties shall […]), it is nuanced with 'as appropriate'.
- AT reflected about the fact that the global mean temperature increase goal (i.e. to be held well below 2ºC) will not be reached with the Parties INDCs' commitments. The Commission replied that Paris did not solve this but did set the legal framework to achieve the objective. AT also asked about plans to further link the loss and damage provisions of the Paris agreement with the Sendai Framework for disaster risk reduction. Commission replied that the Warsaw Mechanism on Loss and Damage, that will be given continuity by the Paris Agreement, will provide the linkages between both processes. On AT's question about the expectations for COP22, the Commission replied that it will mostly address the pre-2020 commitments, which will not have been completed by then, and given the need for more time to set new work programmes arising from Paris.
- EEA asked about the implications, in particular for the EU, of expert review process defined in Art. 13 of the Paris Agreement. The Commission replied that the inclusion of adaptation in national reports will be voluntary and is seen as an opportunity to

exchange information and keep track of actions. Parties may choose whether to include adaptation actions as part of future NDCs, or to communicate through a different channel.

2. Urban adaptation

The Commission presented some scoreboard findings on local adaptation and its links with the NAS processes and governance systems. The key elements of supportive and well-tailored governance, such as horizontal and vertical coordination, a combination of top-down and bottom-up approaches were emphasized. MS with strong and efficient governance tend to be more advanced in their adaptation policy cycle. Several good practice examples and enabling factors were mentioned to encourage sub-national level actions, such as encouraging legislation in DK and UK, binding legal framework in FR, specific actions for cities in UK, DE and IT.

The Commission further presented the new Covenant of Mayors for Climate and Energy, integrating the two EU initiatives Mayors Adapt and the Covenant of Mayors and embracing both climate change mitigation and adaptation under one umbrella. This initiative was launched in October 2015 and provides a framework for integrated action to successfully implement local climate change and energy policies. Most importantly, it offers wide-ranging support and knowledge sharing (e.g. city twinning programme), creates new local opportunities that help cities move towards integrated, sustainable approach on mitigation and adaptation, facilitates access to a range of EU funding instruments as well as ensures recognition and high visibility of the city efforts. Pioneer European cities are already joining the new Covenant of Mayors.

- IE presented the national approach to local adaptation, where governance is built horizontally and vertically following primarily a sectoral approach. The Irish framework aims mostly at building capacity at local level to face the adaptive challenge; i.e. providing advice, expert support, guidelines, seminars and case studies, and fostering networking. Highlighted tools are the 'local authority adaptation support wizard', the climate and adaptation platform 'Climate Ireland' and a set of forthcoming 'Local Adaptation Guidelines'. A revised national Adaptation Framework will further develop the Irish approach to adaptation.
- PL presented their national approach to adaptation, which has been triggered by recent climate extreme events. A NAS recently adopted (2013) aims at ensuring that by 2020, there should be local adaptation plans in all cities above 100 000 inhabitants, meaning 44 cities or 30% of the country population. This is being addressed through a Project co-financed by the Cohesion Fund and the operational programmes for 2013-20. The Polish government coordinates the project and provides guidance and incentives to cities. PL considers that, as adaptation is a new challenge for many Member States, the EU adaptation policy should mostly aim at providing support to assist the full development of national adaptation strategies.
- PT is implementing a project, co-funded by the EEA grants programme, aiming at developing local Strategies for Adaptation to Climate Change in 26 Municipalities covering the full national territory, and therefore with high potential to pilot the process in different municipalities facing diverse risks all along the country. Building capacity of local technicians and of journalists as key intermediaries with the society,

are among the main project achievements. Other goals include setting up a network and a platform to support municipal adaptation.

Main comments from MS were:

- CZ pointed out that they aim to encourage local authorities to join the Covenant of Mayors initiative, but spotted the need to carefully assess the implications of signing; excessively demanding conditions, e.g. on developing local adaptation strategies within two years, can result in preventing municipalities to join. DG CLIMA stated that the 2 years deadline was defined in consultation with cities, that local authorities should join the initiative once they are confident that they can submit their local strategy within the deadline but that signatories can ultimately extend the deadline (an extension of around 6-9 months is being defined).
- NL pointed to the Informal Meeting of Ministers that will take place at the end of May, as an opportunity to raise the importance of the adaptation topic in the EU Urban Agenda. Adaptation is one of the 12 themes of the EU Urban Agenda. NL also highlighted the Mayors & Water conference (on 11 February 2016 in Leeuwarden (NL)) with the view to develop an Urban Water Agenda 2030,

3. EU Adaptation Strategy. Future work on 2017 Report and adaptation scoreboard

The Commission provided background information on the process started in 2013 developing an adaptation preparedness scoreboard for measuring MS' level of readiness, and reported about the tentative schedule for the scoreboard, starting in September 2016, with a call from the Commission to MS to update their national pages in Climate-ADAPT, as a key source of information for updating the national fiches and subsequently filling in the 2017 scoreboard. MS will have the opportunity to provide additional factual information, over the draft national fiches provided by MS by the end of 2016. A first reflection on the timing and potential elements of the planned Report to the Council and Parliament in 2017 was presented, as well as the option for promoting a review of the EU Adaptation Strategy in 2018.

Main comments from MS were:

- CZ commented that they plan to adopt their Adaptation action plan by December 2016, following the recent adoption of a NAS, and expressed concern with the scoreboard timing presented. The Commission replied that it will address national circumstances flexibly, and asked MS to inform as soon as possible of potential difficulties of the scoreboard schedule with the national programming periods, in order to properly plan the exercise.
- AT expressed some concern about the tight timing presented to complete the scoreboard, exercise, in particular on the feedback to be provided by MS. On the 2017 report, AT raised questions about its contents, sources of information and available resources to produce it. AT also asked about the planned process for involving MS in the evaluation process and report. The Commission replied mentioning that there is a process open to define all these elements, but it was a bit early to provide details on those elements.
- SI and CZ asked for enhanced consistency in how the Commission defines its demands on national adaptation policies, matching e.g. the *ex ante* conditionality 5.1

criteria for EU Regional funds with the aims of the EU Adaptation Strategy and the scoreboard. SI asked to share the minutes of the meeting to facilitate enhanced consistency. Commission clarified that *ex ante* conditionalities are part of EU regional policy and led by DG REGIO. Links between these, the EU adaptation strategy and the scoreboard are described in the available *guidance on* ex ante *conditionalities* from DG REGIO.[1]

- DE stated they might have comments about the planned review, referring in particular to adding international dimension to the strategy, when there will be more clarity on the elements and review process. AT also asked about the reasons for considering international adaptation in the review, when it had been discarded for the current strategy. The Commission said it sees an opportunity to raise the profile of adaptation using the boost to adaptation given by the Paris Agreement, plus other advantages such as a better alignment of the EU adaptation objectives in the EU neighbourhood policy.

Information points

4. EEA's recent and future activities on adaptation to climate change

The EEA presented the most significant EEA current and forthcoming activities on climate change impacts, vulnerability and adaptation. In particular, the recent reports 'Overview of climate change adaptation platforms in Europe' (May 2015), and the 'National monitoring, reporting and evaluation climate change adaptation in Europe' (Dec 2015). EEA briefly introduced the most recent developments, dissemination and networking activities in Climate-ADAPT. Forthcoming reference report on impacts and vulnerability in Europe (to be published Oct 2016) and a report on urban adaptation to be published 5 July 2016 (Open European day, Resilient cities conference).

5. The 2014 LIFE call

EASME presented the results of the 2014 call for LIFE traditional projects for climate change adaptation and governance and communication and the evaluation process for the 2015 call for traditional, integrated and technical assistance projects. The state of play on the LIFE financial instrument Natural Capital Financing Facility could not be presented due to time constraints but is available in the slides. The Commission and EASME stressed the need to see higher quality proposals of adaptation projects than in previous calls.

6. Progress report on the German adaptation strategy

DE presented the 'First Progress Report of the German Strategy for Adaptation to Climate Change', published in Dec 2015. The German adaptation strategy, adopted in 2008, is among the more developed in Europe as regards comprehensiveness, governance and implementation. The report evaluates the implementation of the Action Plan adopted in 2011, and is the basis, together with new scientific evidence and a

[1] http://ec.europa.eu/regional_policy/en/information/legislation/guidance/

dedicated vulnerability assessment, for a new Action Plan. The latter will contain 146 measures ranging from legal, financial, educational, cooperation, to infrastructure and research. The report findings place Germany as an efficient mainstreamer, ready to take a step to a more operational adaptation phase. Germany will report on Adaptation Action Plans every 5 years.

Closing remarks

The Commission announced a new meeting of the WG6, to be probably held in June 2016. Back to Back meeting on Insurance and Climate Change open to stakeholders took place in the afternoon.

European Commission

The Paris Agreement and Adaptation

Jacob Werksman
Principal Adviser
DG-CLIMA
2 February 2012

Climate Action

The Paris Agreement

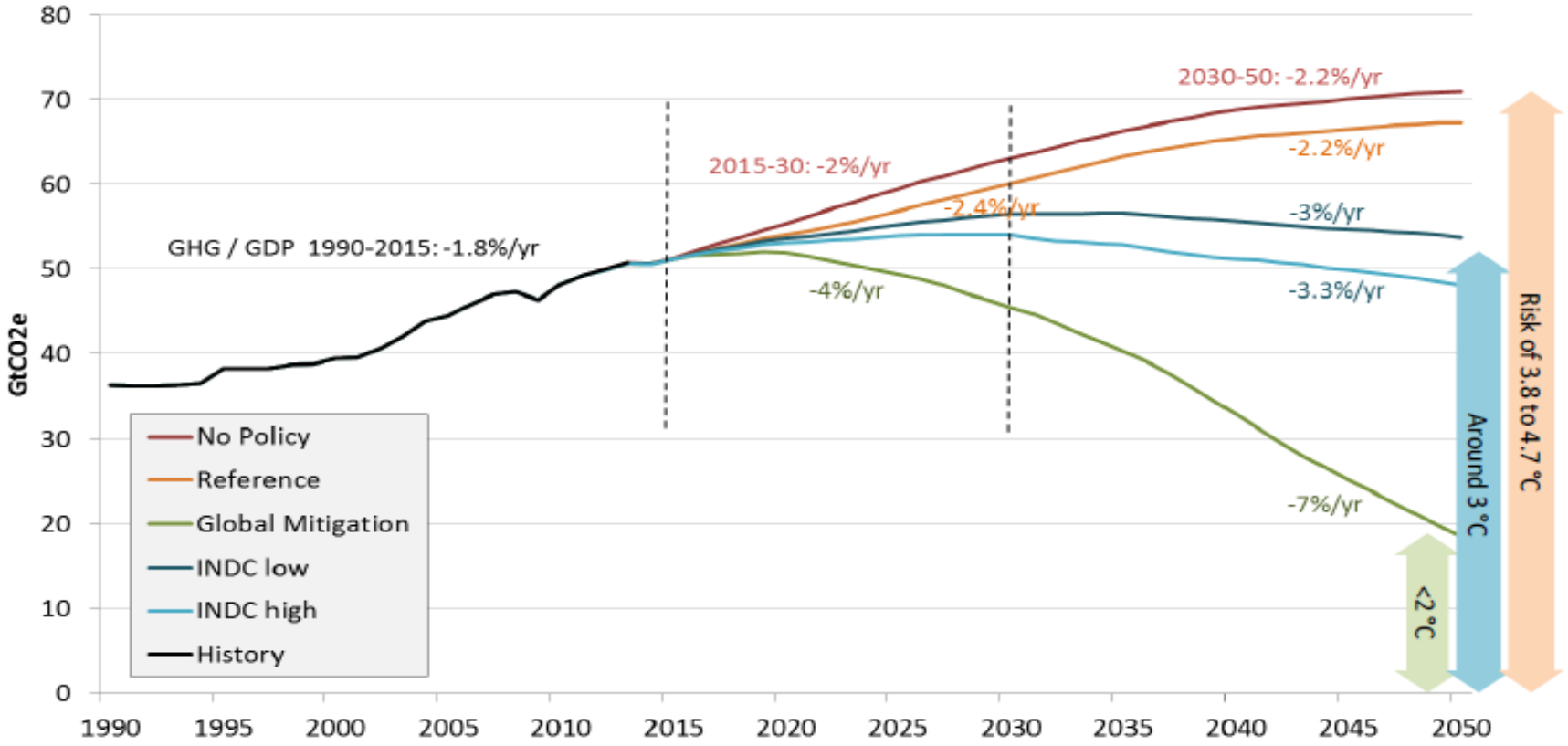
- **Legally binding, universal agreement**
- **Long-term goals**
- **5-year ambition cycle**
- **Transparency and accountability**
- **Support for developing countries**
- **Balanced and linked provisions cover mitigation, adaptation and support**

An ambitious Agreement

- A long-term goal to hold temperature increases below 2^0 C, and pursue efforts to limit to 1.5^0 C
- Global emissions to peak as soon as possible, net zero emissions in the second half of the Century
- Legally binding obligations to maintain successive mitigation targets and to pursue domestic mitigation measures – over 187 countries have submitted their plans (many of which include adaptation)
- A global stocktake every five years starting in 2018 with increased ambition over time (and that applies to adaptation and finance)

Impact of the INDCs on global emissions

(GtC02e, total excluding sinks) and percent change in emission intensity per unit of GDP



Source: POLES – JRC Model

A transparent Agreement

- All Parties must account for their contributions – track progress on targets
- Methodologies and common metrics will apply
- Enhanced transparency and accountability framework, with biennial reporting and expert review, and a standing committee on implementation and compliance
- And that applies to adaptation and finance

A fair Agreement

- **CBDR-RC in light of different national circumstances and equity**
- **Additional support and flexibility for LDCs and SIDS**
- **Developed country goal of mobilising US$100bn per year extended to 2025, new goal to be set before 2025 widening the donor base**
- **Capacity building and technology transfer for developing countries; support for monitoring, reporting and verification**
- **Adaptation at political par; Loss and Damage for the first time part of an international agreement**

Balanced and Linked approach to Adaptation

- **Generally, the Agreement creates a new vision and new opportunities for adaptation, rather than new obligations**

- **Overall purpose of the Agreement includes:**

  "increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production."

- **A new "global goal" of "enhancing adaptive capacity, strengthening resilience and reducing vulnerability . . . ensuring an adequate adaptation response in the context of the temperature goal"**

Supporting Individual Party's Adaptation

- **Recognition: opportunity to include in the scope of NDCs, and in a public registry**
- **Guiding principles for good practice: (country-driven, gender-responsive, participatory, transparent, inclusive, informed by science and traditional knowledge, etc)**
- **Transparency and accountability: opportunity for technical expert review, etc**
- **"Continuous and enhanced" support, from scaled up resources, for particularly vulnerable (e.g. LDCs and SIDS), balanced with mitigation, and a SDM "levy"**
- **Continuous improvement, through "progression"**

Working Collectively on Adaptation

- **Strengthening cooperation, through sharing information and good practices**
- **Participating in the global stocktaking, including reviewing adequacy and effectiveness of adaptation and support, and reviewing overall progress towards the global goal**
- **Strengthening scientific knowledge**
- **Catalyzing the work of UNFCCC and other institutions**
- **Pre-2020: A Technical Examination Process on Adaptation**

Loss and Damage

- **Recognition, prominence, permanence through separate article and the anchoring of the WIM**

- **Identification of priority areas for cooperation**

  - **Early warning systems**
  - **Emergency preparedness**
  - **Risk insurance**
  - **Slow onset events**

- **New focused initiatives: task force on displacement and clearing house on risk transfer**

- **Clarity that loss and damage "does not involve or provide a basis for any liability or compensation"**

Implications for the EU

- **2013 EU Adaptation Strategy consistent with the Paris Agreement standards and principles**
- **Review in 2017 provides opportunity to strengthen and extend, incorporate dynamic review, and reflect on inclusion in NDC**
- **Importance of identifying complementarity of EU regional strategies to MS strategies**
- **Increasing expectations, transparency and accountability for the delivery of adaptation finance**
- **Managing expectations and generating positive outcomes on Loss and Damage**

Timetable

- **March 2016: ENVI Council, European Council**
  - Assessment
- **April 2016: Signing of Paris Agreement, New York**
  - ***Ratification, entry into force?***
- **2018: Facilitative dialogue:** assessment of need for further global action, based on past performance and IPCC Special Report
- **2020: Update:** communicate or update existing NDC & submission of first mid-century emission reduction strategy
- **2023: Global stocktake**
- **2025: Update NDC for post-2030 contribution**

European Commission

Thank you!

Visit DG Climate Action online:

ec.europa.eu/clima/

facebook.com/EUClimateAction

twitter.com/EUClimateAction

pinterest.com/EUClimateAction

youtube.com/EUClimateAction

European Commission

Urban adaptation: Reimagine your city

Climate Action

European Commission

Multi-level governance and local adaptation
Some outcomes of the Scoreboard exercise

- The key elements of supportive and well-tailored governance include horizontal and vertical coordination and broad stakeholder participation.
- A combination of top-down and bottom-up approaches reinforce adaptation action (National Adaptation Frameworks vs strong regional and local coordination).
- About half of the MS demonstrate action at the regional and local levels, but only few MS have a strong and efficient multi-level governance (e.g. horizontal and vertical co-ordination, information on adaptation at sub-national levels effectively collected).
- MS that have strong and efficient governance in place are usually most advanced in their adaptation policy cycle, i.e. with their NAS adopted or already revised and having an accompanying Action Plan in place.

Climate Action

Good practice and current enabling factors

- **Regional level action plays an important role in a number of countries (FI, DE, SE, IT, ES, BE). In Sweden, for example, the county administrative boards (CABs) coordinate climate adaptation in 21 regions. As a result - 19 regional climate adaptation action plans are in place (as at September 2015);**

- **Local level action is enabled in many ways, e.g. encouraging legislation (DK, UK); binding legal frameworks (FR); legal frameworks for specific sectors (AT, FI, DE, NL); capacity building; funding:**
  - **In DK: interaction between state and municipalities is central. Agreement to increase investments in waste water; and the amended Danish water sector act enables waste water companies to invest in adaptation. By the end of 2015 nearly all Danish municipalities have approved an adaptation plan.**

Good practice and current enabling factors

- **Specific actions for cities: foreseen through reporting requirements, expanded dialogue, city-networks etc.:**
  - UK NAP report contains a "Cities commitment" from the 9 largest cities; DE government expands dialogue on adaptation with the local authority associations and other bodies; In IT, city action is promoted through the Sustainable Cities network and Coordination of Italian Local Agenda 21 guidelines for "local adaptation action plans of urban systems to climate change'.
- **EU-level initiatives:**
  - EU Urban Agenda & Covenant of Mayors builds on the support from cities and regional bodies that officially commit to provide strategic guidance, financial and technical support to its signatories.

Climate Action

Mayors Adapt

- Born in 2014
- 150 European cities, 28 million people in one year
- Exchange of good practices: city twinning programme: Less advanced municipalities matched with mentor ones
- Assessing vulnerabilities, identifying and selecting options, implementing and monitoring
- Map and city profiles now in Climate-ADAPT! http://climate-adapt.eea.europa.eu/mayors-adapt

Climate Action

Urban Success Stories

Bologna, Italy

Urban regeneration plan, cycling and intelligent transport systems, increase of green areas and decrease of sealed surfaces

Copenhagen, Denmark

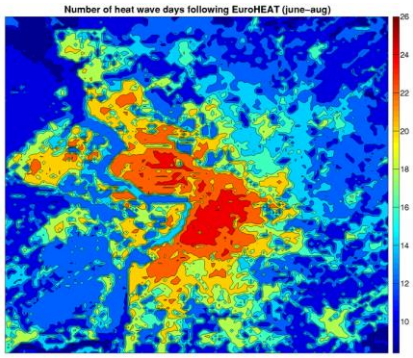
Green growth in adaptation plan, smart floods prevention, renewable energies, energy efficiency in buildings;

Copenhagen Climate Adaptation Plan: Cloudburst Management Plan

Climate Action

European Commission

Urban Success Stories



Antwerp, Belgium

Fighting the Urban Heat Island Effect. The current Building code imposes green roofs and a degree of permeability of gardens.

Växjö, Sweden

Reopening a canal for storm water management

Climate Action

Urban Success Stories

Munich's flood risk management plan, Germany

The **Isar Plan** is a flood risk management plan that involves the restoration of the formerly canalized Isar River.

Involved planning and developing the environment, as well as water management and construction

Part of the city's Strategic Guidelines on Climate Change.

Climate Action

European Commission

The new Covenant of Mayors

Climate Action

What the new initiative is?

A **Shared Vision** for **2050**...

... and **Renewed Commitments** for **2030** ...

... translated into a **series of steps**

Decarbonisation

Resilience

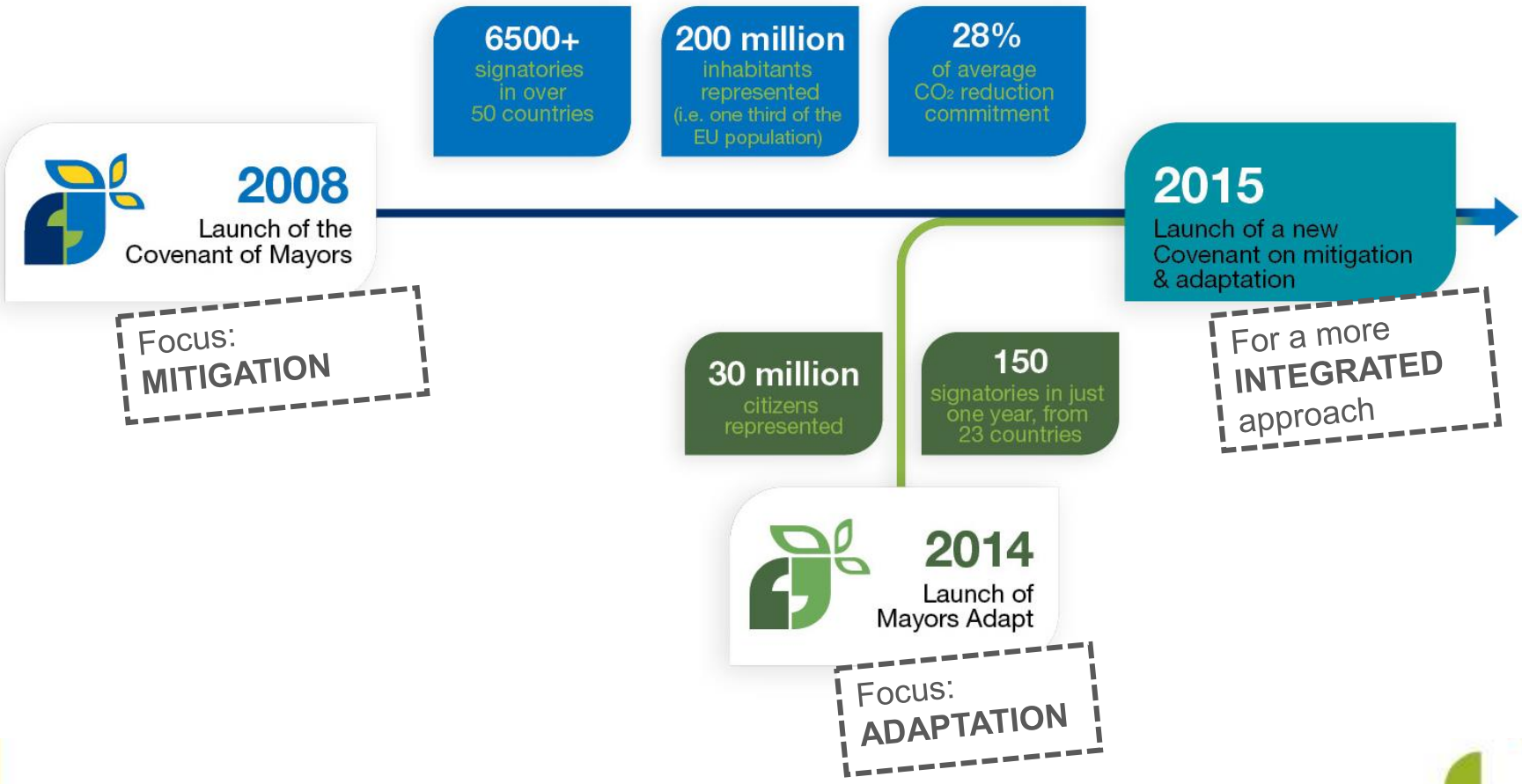
Secure, sustainable and affordable energy

- (At least) 40% lower CO_2 emissions by 2030 through improved energy efficiency and greater use of renewable energy sources;
- Increased resilience to the impacts of climate change;
- Increased cooperation with fellow local and regional authorities within the EU and beyond.

- Baseline review (i.e. Baseline Emission Inventory, Climate Risk & Vulnerability Assessment);
- Sustainable Energy and Climate Action plan and mainstreaming of mitigation/adaptation considerations into relevant plans within 2 years following the formal signing;
- Progress Report every 2 years following the submission of the plan.

Climate Action

Key Achievements and forward looking



Voluntary commitment & political ownership

STEPS \ PILLARS	MITIGATION	ADAPTATION
1) Initiation and baseline review	Preparing a **Baseline Emission Inventory**	Preparing a **Climate Change Risk and Vulnerability Assessment**
2) Strategic target setting & planning	Submitting a **Sustainable Energy and Climate Action Plan (SECAP)** * and mainstreaming mitigation and adaptation considerations into relevant policies, strategies and plans within two years following the formal signing	
3) Implementation, monitoring and reporting	**Report progress** every second year following the SECAP submission in the initiative's platform	

Benefits of joining the new Covenant of Mayors

- Public recognition of action and higher visibility
- Wide-ranging support and innovative knowledge sharing (learning from peers, helpdesk, exchange platform, quick access to expertise and good practice examples, communication)
- Creating new local opportunities, helping cities move towards an integrated, sustainable approach on mitigation & adaptation
- Increased financial opportunities (LIFE, structural funds, Horizon 2020, ELENA, ...)
- Synergies with other initiatives (Smart Cities & Communities, Climate-ADAPT…)

Local authorities joining

- Pioneer cities are joining the new Covenant:
  Liege & Gent (BE), Orgosolo, Moricone, Arpino & San Giorgio di Nogaro (IT), Lessebo (SE), East Mani (GR) and Manchester (UK)

- A new time, a new engagement and a future with plenty of synergies under this single umbrella initiative

- Looking forward to joining forces together, promote the new Covenant and invite European cities to join, and find synergies with national levels!

Some EU Funds for urban climate action

- **EU budget 2014-2020: 20 % climate-relevant expenditure** = around €190 billion, via the European Structural and Investment Funds
  - minimum 5 % of the ERDF for integrated sustainable urban development
  - €370 million for sustainable innovative urban development
  - URBACT Action Planning Networks
  - Urban Development Fund (soon operational)
  - Contact your managing authority (http://ec.europa.eu/regional_policy/en/atlas/managing-authorities)
- ELENA: technical assistance
- Project finance from European Investment Bank and European Bank for Reconstruction and Development

Some EU Funds for urban climate action

- **LIFE** fund:
  - **encourages urban** projects (e.g. green infrastructure; innovative adaptation technologies; elaboration and implementation of (local) adaptation strategies and action plans)
  - About **800 M EUR** for climate action projects in 2014-2020.
  - **Yearly Calls for proposals** (open each Spring):
    - Including projects implementing climate action plans or strategies on a large territorial scale (e.g. multi-city)
  - **Natural Capital Financing Facility** (with EIB): leverages private funding for ecosystem based approaches

Some EU Funds for urban climate action

- **Horizon 2020**: 35% of the budget for climate-related projects
  €16 billion in research and innovation in 2016-17
  - Demonstrating **innovative nature- based solutions in cities: for climate and water resilience in cities** (Challenge 2)
  - New governance, business, financing models and economic impact assessment tools for sustainable cities with nature-based solutions (urban re-naturing) (Challenge 3)
  - Sustainable urbanisation (Challenge 4)
  - Multi-stakeholder dialogue platform to promote innovation with nature to address societal challenges (Challenge 10)
  - Operationalising insurance value of ecosystems (Challenge 9)

  - **Deadline: 8 March 2016**
  - https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/search/search_topics.html

Some EU Funds for urban climate action

- **Horizon 2020**: 35% of the budget for climate-related projects
  €16 billion in research and innovation in 2016-17
  - Demonstrating **innovative nature- based solutions in cities: for climate and water resilience in cities** (Challenge 2)
  - New governance, business, financing models and economic impact assessment tools for sustainable cities with nature-based solutions (urban re-naturing) (Challenge 3)
  - Sustainable urbanisation (Challenge 4)
  - Multi-stakeholder dialogue platform to promote innovation with nature to address societal challenges (Challenge 10)
  - Operationalising insurance value of ecosystems (Challenge 9)

  - **Deadline: 8 March 2016**
  - https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/search/search_topics.html

What makes the Covenant so special?

- The first-of-its-kind movement **combining bottom-up legitimacy with institutional credibility** in a **multi-level governance model**,
- A **mainstream instrument**, gaining prominence in the main EU policies and financial instruments,
- A **reference framework for action**, flexible and adjustable to local realities,
- An **innovative platform** to network, share knowledge, capacities and experiences,
- A **good success story in Europe,** now being expanded to other regions of the world!

Endorsing moment in the hemicycle of the European Parliament, 2015 Covenant of Mayors Ceremony

© photo Nathalie Nizette

Join the Covenant!

www.eumayors.eu

Local Level Adaptation in Ireland
Supports to implementation

WG6 Meeting

February 2nd 2016

Brussels

Comhshaol, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government

National Policy Drivers

- National Climate Change Adaptation Framework(2012)
- Climate Action and Low Carbon Development Act 2015
- Planning and Development Act
  - being updated-to include Climate Change Adaptation advice
- Collectively capture adaptation at national, sectoral and local level

Sectoral Adaptation Planning

- Focus on Horizontal and Vertical co-ordination-across key sectors and down to local authorities:
  - Sectoral Adaptation Steering Committee-Chaired by DECLG with support from EPA
- Representatives from individual sectors
  - LA sector at local and regional level also represented
- Provide on going to support sectors as they put together their plans and local strategies under NCCAF
  - Expert advice, policy support, discussion, exchange of information
    Sectoral plans should follow a 5 step process(based on best practice)
- Approach to planning-based on Adaptation Planning Cycle
- Additional expert support being given to 2 ‘early mover’ sectors
  - Case study material for other sectors
  - Outputs will be fed into new NAF and down to local authorities

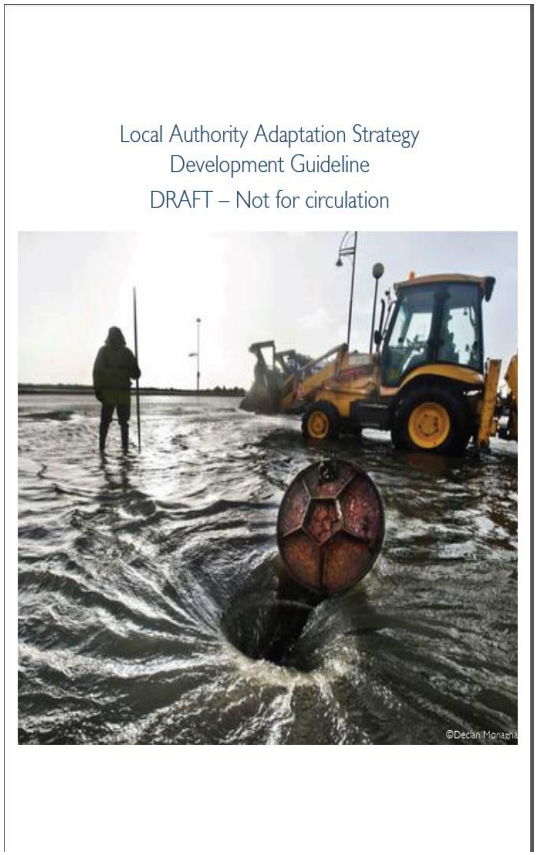
LA Structures-Overview

31 Local Authorities

3 Regional Assemblies

Adaptation supports at local level

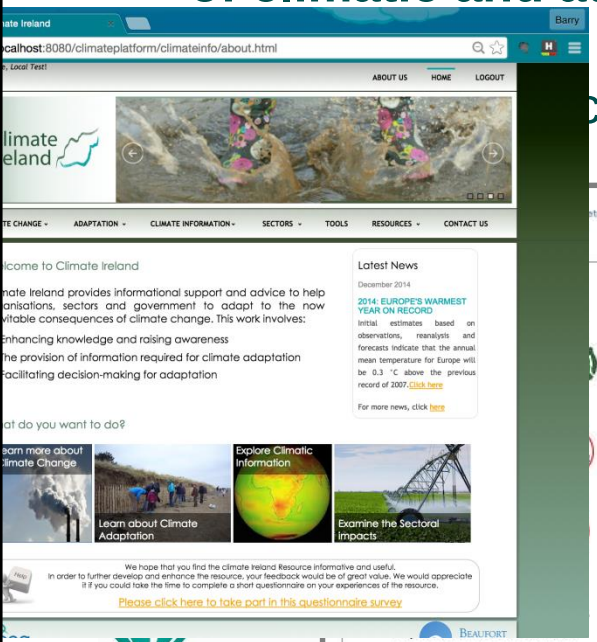
- Aim to build adaptive capacity at the local level
- Local Adaptation Strategies –stand alone documents
  - to be integrated into development plans
- Adaptation Strategy Development Guidelines have been prepared
- Capacity building Seminars conducted
  - Lack of awareness
  - Lack of knowledge and know-how
  - Lack of resources
- Case study material being developed with early movers
- Web-based information platform
  - "Climate Ireland"-key support
- Capacity building networks
  - "Climate Change networks being re-invigorated
- Mainstreaming being encouraged
- Research, Information, communications ongoing

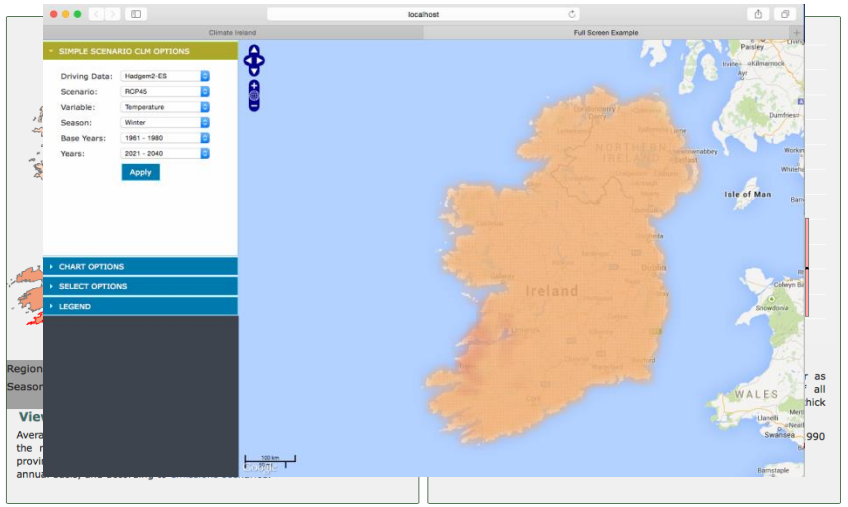


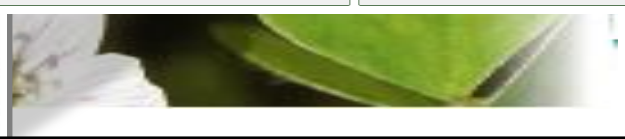
Climate Ireland

- *Ireland's Climate Information Platform* (ICIP) is an EPA-funded project.
- Aim: Design and develop a one-stop web-based resource of climatic and adaptation information (www.climateireland.ie) to **facilitate climate adaptation decision making** while also acting as a **source of climatic and adaptation information** for the general Public

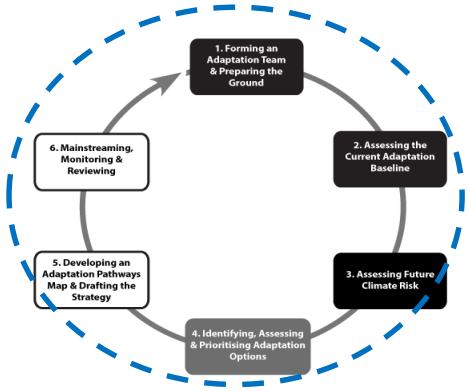
ch to Development



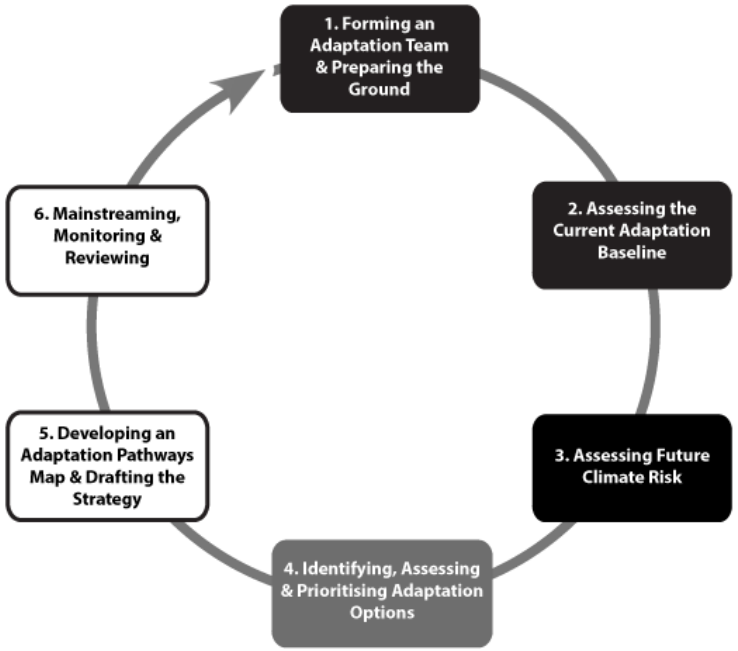




Decision Support - Local Authority Adaptation Support Wizard



- Tailored web application to facilitate LAs in meeting the requirements of the NCCAF
- Aims to harness all information and knowledge made available through Climate Ireland
- Developed in close collaboration with the EPA funded Adaptation Fellowship '*Developing guidelines for the integration of climate adaptation in Irish spatial planning and SEA procedures*'
- Currently being employed & assessed by LA representatives.



Research and improving the knowledge base

With EPA climate change research programme, Met Eireann, OPW and Universities

Funding also coming through FP7 and H2020

Structured approach; monitoring and observations, modelling and projections, vulnerability, impact and risk assessment, adaptation options assessment and costings, monitoring and evaluation

Recently completed

- **Observations, modelling-RCM-impacts for Ireland**
- **Local Authority Adaptation Guidelines**
- **Studies of impacts on biodiversity, water, phenology, etc**

On going:

- **Downscaling-sectoral risk assessment-**
- **Ecosystems and adaptation: 2 studies-peatlands and coastal ecosystems**
- **Adaptation preparedness indicators**
- **"Climate Ireland"-Information platform Phase II (further support in current call)**
- **Costing impacts and adaptation-current and future**
- **Sectoral guidelines**
- **Large urban area vulnerability**
- **Implementation of adaptation preparedness indicators**

LA supports new-possible new supports

- Improved horizontal and vertical co-ordination
- Mayor's Adapt-
- Adaptive Capacity Building Networks
  - Training
  - Demonstration projects
- Better information sharing between LAs
- Community Awareness

Next Steps

- Publication of LA Guidelines
- LA adaptation teams to be set up
- Training at regional level and expert support/mentoring
- Climate Ireland to go operational and maintained
- Development of new National Adaptation Framework

MINISTRY
OF THE ENVIRONMENT

KLIMADA

IMPLEMENTATION OF THE ADAPTATION POLICY IN POLAND
Joint activities of the State government and biggest cities in light of the National Adaptation Strategy

Szymon Tumielewicz
deputy director
Sustainable Development Department

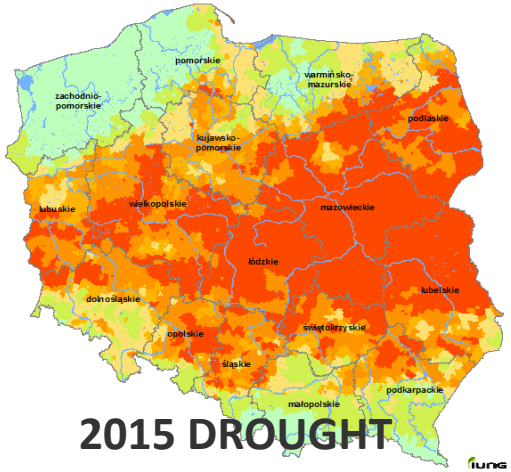
MINISTRY
OF THE ENVIRONMENT

Recent extreme weather events in Poland


2010


2012 DROUGHT


2013



2015 DROUGHT

MINISTRY
OF THE ENVIRONMENT

2015 - severe drought in Poland

May 2015

August 2015

MINISTRY
OF THE ENVIRONMENT

Adaptation to climate change

issue important for society

86% Poles believe that climate change is a major problem

37% Poles require action from central government

MINISTRY
OF THE ENVIRONMENT

National Adaptation Strategy 2020 (NAS)

- Vulnerable sectors
- Climate change scenarios
- Goals and actions


Costruction


Water management


Forestry


Agriculture


Health


Biodiversity


Coastal zone

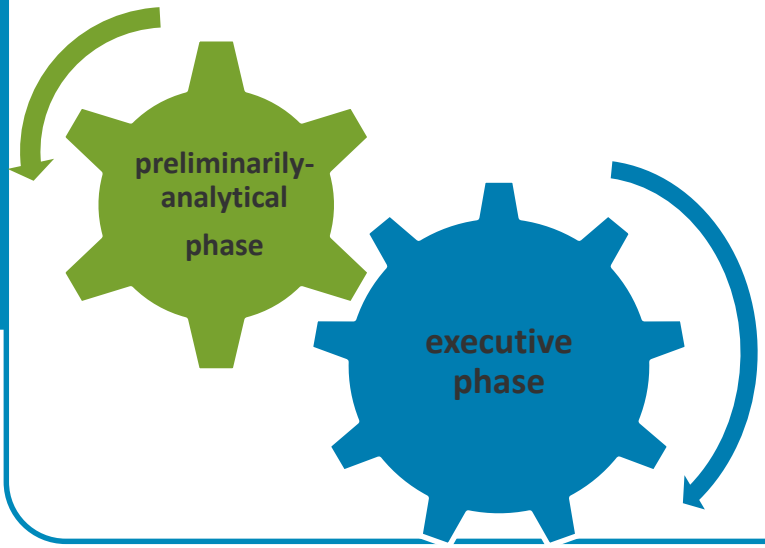

Turism


Energy


Mountain areas


Urban areas


Transport

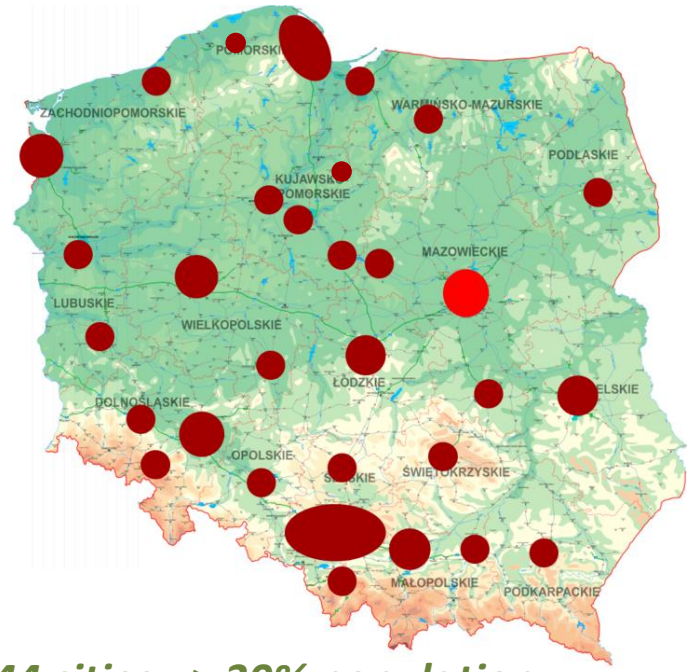


- actors responsible for implementation
- indicators for monitoring and evaluation
- financial framework

MINISTRY
OF THE ENVIRONMENT

EU-funded project:

Adaptation plans for cities with more than 100 000 inhabitants



44 cities => 30% population

cooperation MoE – cities: *Agreement*

obligations of cities:

- **establishing of the interdisciplinary team, including the leader in each city,**
- **cooperation with the contractor (selected by MoE),**
- **public consultations at various stages.**

MINISTRY
OF THE ENVIRONMENT

EU-funded project:
Adaptation plans for cities with more than 100 000 inhabitants
- main goals

- to determine vulnerability to climate change of the largest cities in Pl
  (risk identification, risk assesment)
- to develope adaptation actions at local level
  (intr. adaptation options)
- to raise awareness of climate change and adaptation

Integrated project means:

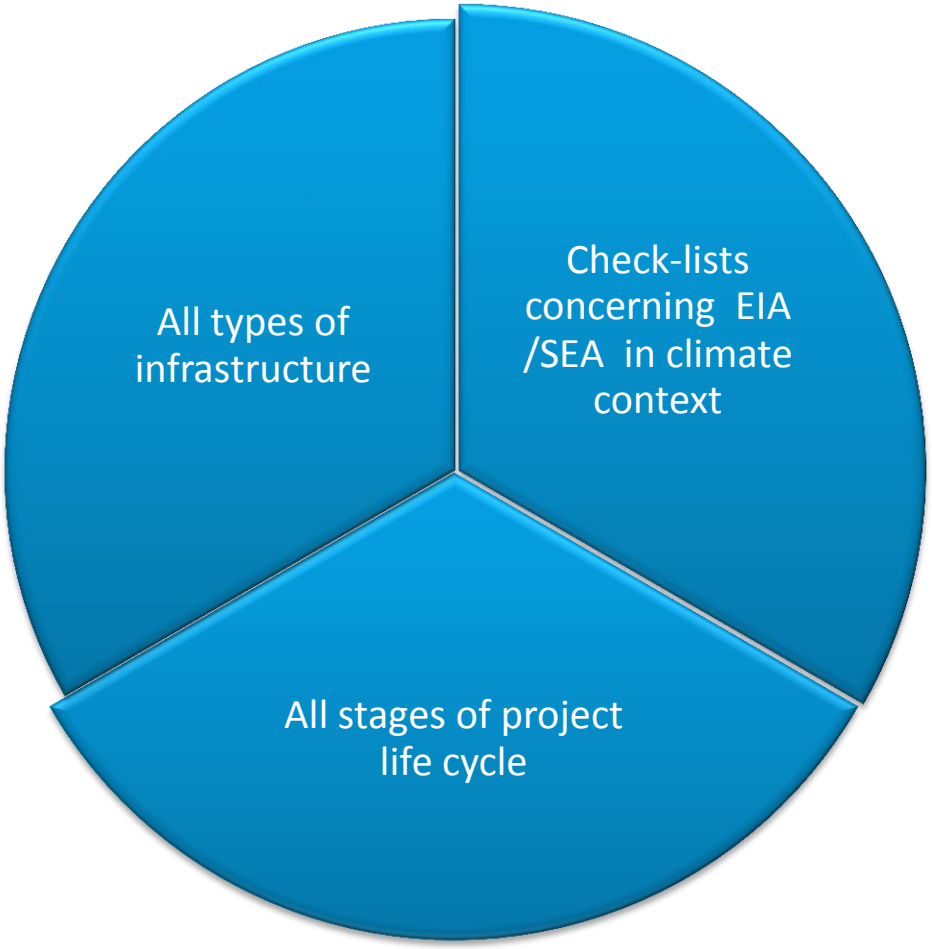
- common methodology
- to achieve NAS objectives

MINISTRY
OF THE ENVIRONMENT

Guidelines for investors:

„climate analysis" – mitigation and adaptation

Scope



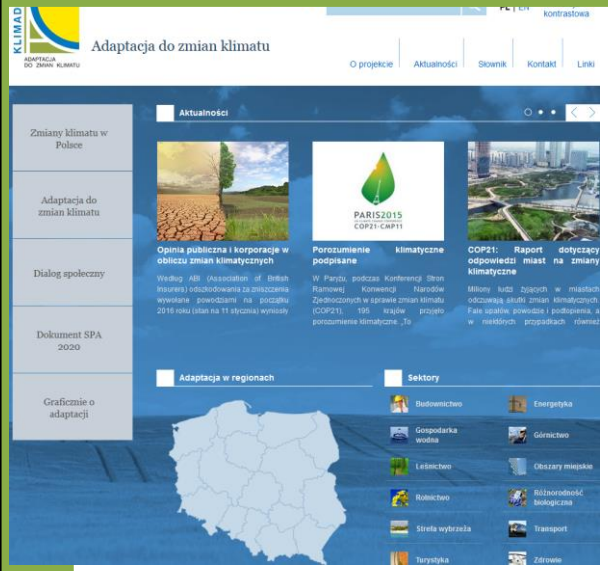
Target group

- EU funds beneficiaries under 2014-2020 financial perspective;
- managing, intermediary and implementing authorities (responsible for appraisal of the applications/projects submitted under EU funding);
- State/local budget beneficiaries;
- relevant government authorities issuing or consulting decisions and consents.

MINISTRY
OF THE ENVIRONMENT

Information sharing

web portal



on conferences

on social network services

Zielona infrastruktura: lepsza jakość życia dzięki rozwiązaniom wykorzystującym procesy przyrodnicze

Wody opadowe w mieście: nie problem, lecz cenny zasób

Woda – wyzwanie miast XXI wieku

Porozumienie Burmistrzów – UE wzywa miasta i regiony całego świata do połączenia sił w celu przeciwdziałania zmianie klimatu

Zielona infrastruktura: lepsza jakość życia dzięki rozwiązaniom wykorzystującym procesy przyrodnicze

27.01.2016 0 komentarzy

Zielona infrastruktura oferuje ciekawe rozwiązania problemów dotyczących środowiska, społeczeństwa i gospodarki, i jako taka musi być w pełni wkomponowana w różne dziedziny polityki. EEA (Europejska Agencja Środowiska) przygotowuje się do publikacji raportu na temat znaczenia zielonej infrastruktury...

+ Przeczytaj więcej...

Zielona infrastruktura: lepsza jakość życia dzięki rozwiązaniom wykorzystującym procesy przyrodnicze

27.01.2016 0 komentarzy

Zielona infrastruktura oferuje ciekawe rozwiązania problemów dotyczących środowiska, społeczeństwa i gospodarki, i jako taka musi być w pełni wkomponowana...

+ Przeczytaj więcej...

Wody opadowe w mieście: nie problem, lecz

NAJBLIŻSZE WYDARZENIA

KALENDARIUM

◄ Styczeń 2016 ►

P	W	Ś	C	P	S	N
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

NEWSLETTER

Imię i nazwisko

E-mail

ZAPISZ SIĘ

Life

Mapa Klimatyczna

CHROŃMY KLIMAT.pl

PORTAL NA TEMAT ZMIAN KLIMATU - INSTYTUT NA RZECZ EKOROZWOJU

MINISTERSTWO ŚRODOWISKA

KLIMADA

ADAPTACJA DO ZMIAN KLIMATU

Znajdź nas na Facebooku

Projekt realizowany z udziałem środków instrumentu finansowego LIFE+ Komisji Europejskiej oraz dofinansowany ze środków Narodowego Funduszu Ochrony Środowiska i Gospodarki

MINISTRY
OF THE ENVIRONMENT

Adaptation to climate change

further steps at the EU level

The review of the *EU Adaptation Strategy*, planned for 2017 is expected to provide assistance to Member States that have not achieved sufficient progress and should identify the most beneficial and cost effective solutions.

- the review should not lead to legally binding instruments at the EU level;
- taking into account the specifics of of adaptation, based primarily on activities at local and regional level, introducing EU legislation does not seem to be optimal and effective solution.

MINISTRY
OF THE ENVIRONMENT

THANK YOU
FOR YOUR ATTENTION

klimada.mos.gov.pl

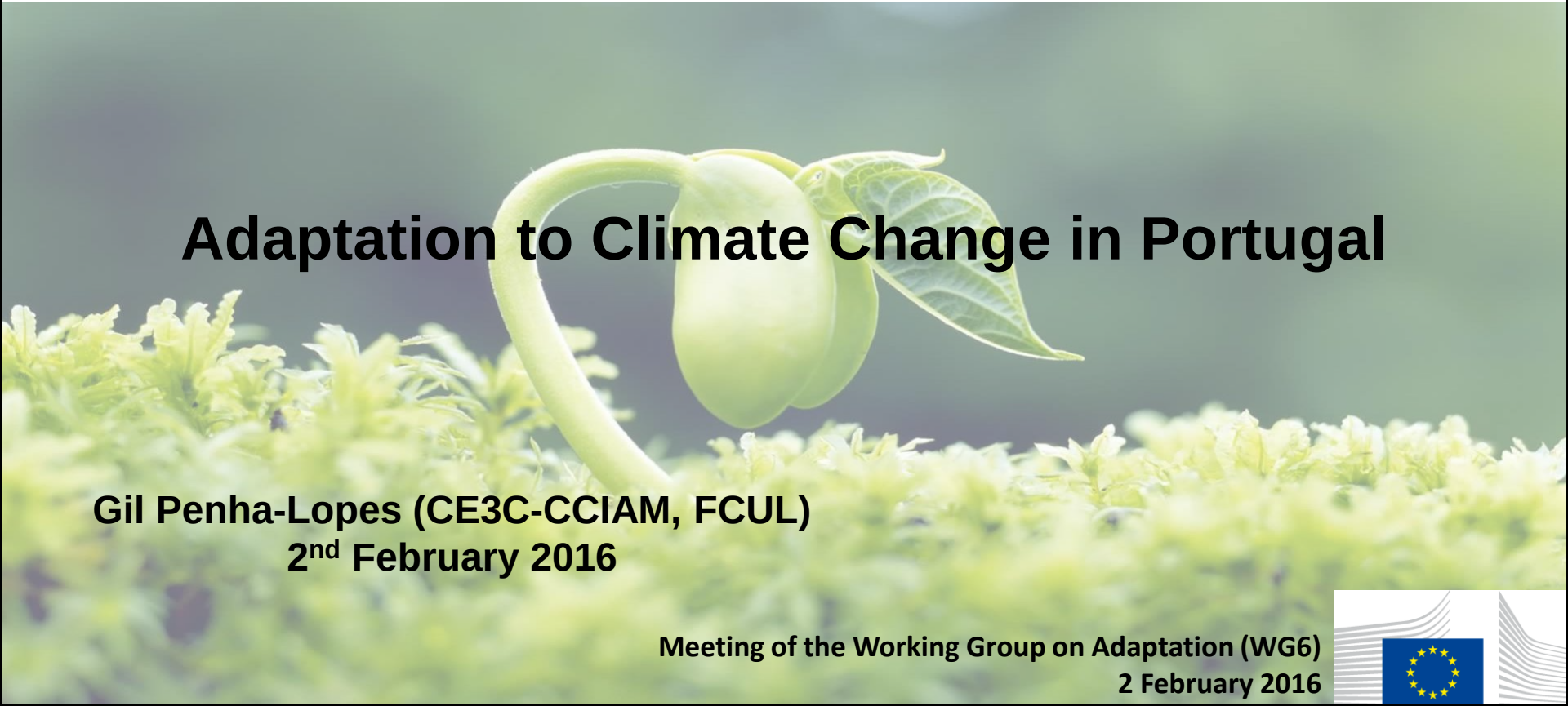
adaptacja@mos.gov.pl

ClimAdaPT.Local
Estratégias Municipais de Adaptação às Alterações Climáticas

Iceland Liechtenstein Norway eea grants

AGÊNCIA PORTUGUESA DO AMBIENTE

Fundo português de Carbono



Adaptation to Climate Change in Portugal

Gil Penha-Lopes (CE3C-CCIAM, FCUL)

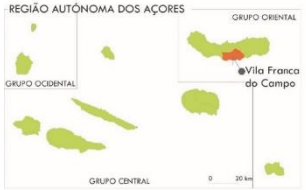
2nd February 2016

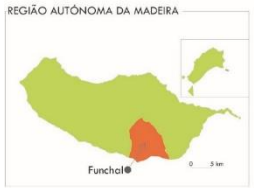
Meeting of the Working Group on Adaptation (WG6)
2 February 2016

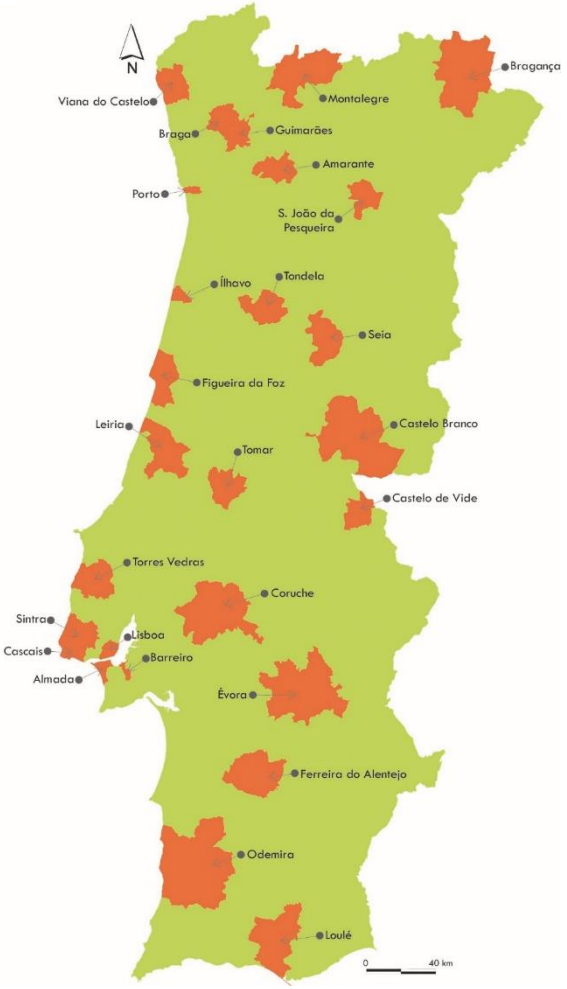
ClimAdaPT.Local
Estratégias Municipais de Adaptação às Alterações Climáticas

Co-financed by: eea grants · AGÊNCIA PORTUGUESA DO AMBIENTE · Fundo português de Carbono

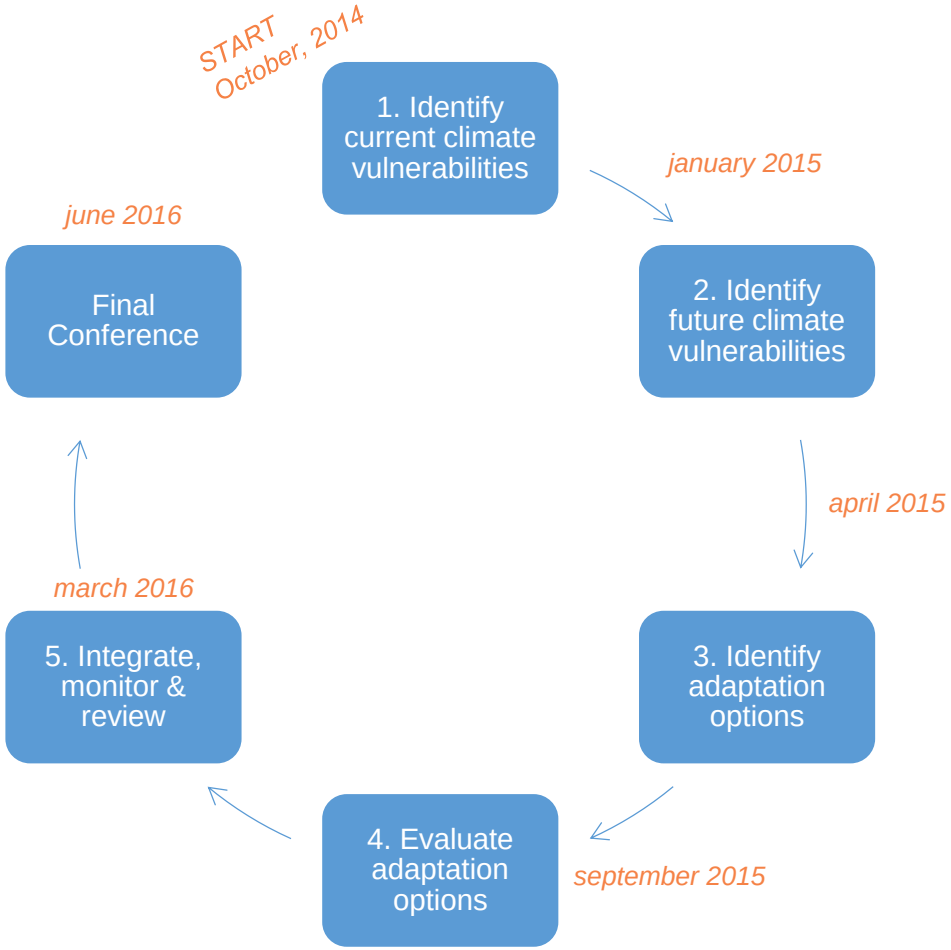
- **26 Municipal Strategies for Adaptation to Climate Change** (EMAAC)
- Practical guidance and training of **52 Municipal technicians**
- **Platform for Municipal Adaptation** to Climate Change
- **Portuguese Network for Municipal Adaptation** to Climate Change







ClimAdaPT.Local
Estratégias Municipais de Adaptação às Alterações Climáticas



Scheme adapted from UKCIP (http://www.ukcip.org.uk/)

Achievements

ClimAdaPT.Local
Estratégias Municipais de Adaptação às Alterações Climáticas

Training of municipal technicians

- **3 regional workshops:** actual and future vulnerabilities, evaluation and transposition of adaptation options
- **7 manuals**
- **Average/WS: 16 technicians plus 20 attendees**

Local Workshops with Stakeholders

- Aimed to involve local stakeholders in each of the **26** beneficiary municipalities (nov 2015 – feb 2016)
- Major key stakehoders of each Municipality
- Average/WS of 70 people

Organization of several complementary events

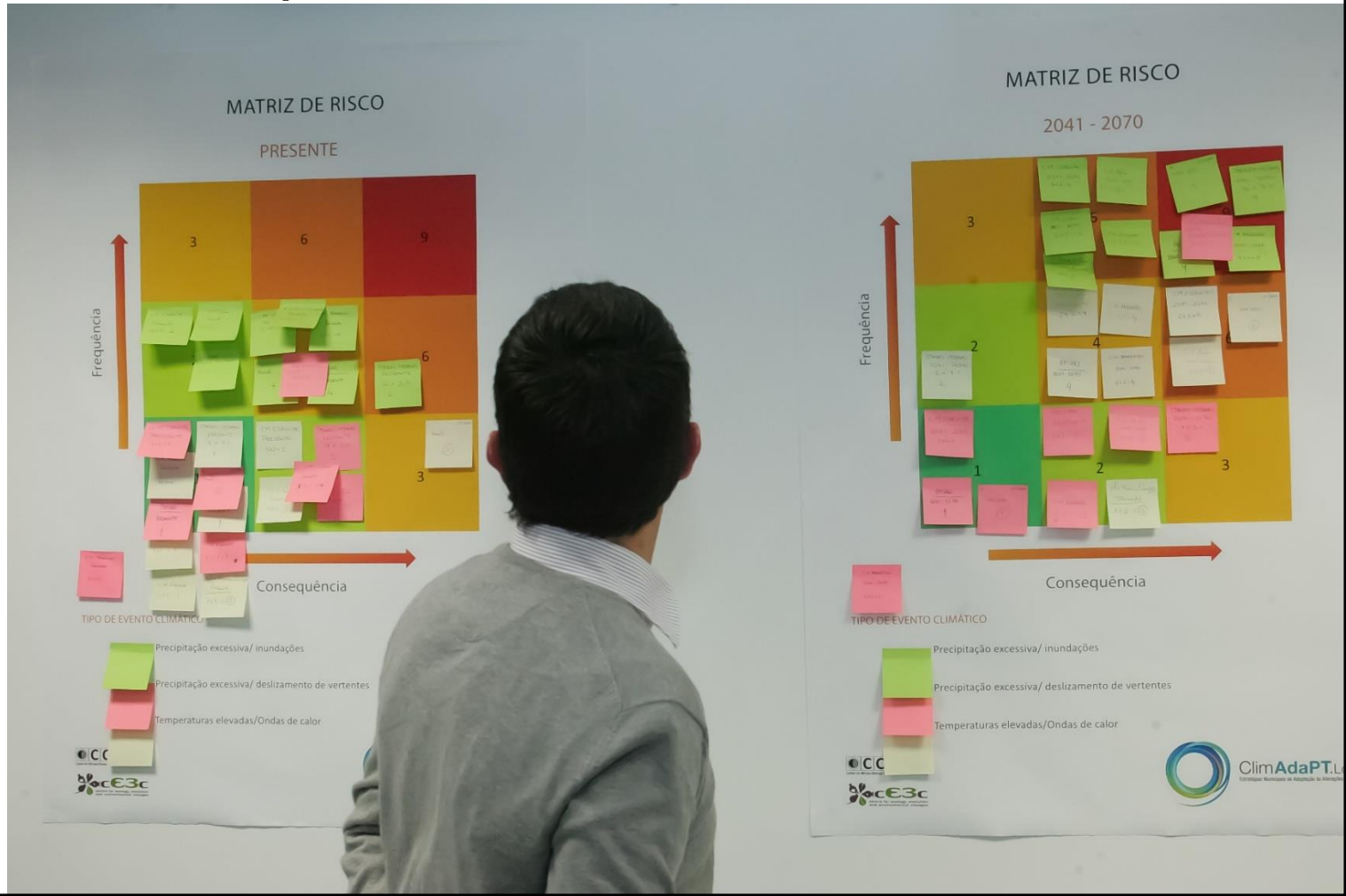
- *Workshop 'Climate Change for Journalists' (Nov'15)*
- *CC Adaptation in Portuguese companies (Nov'15)*

Project Launch – January 2015

- **200 participants**
- **17 Mayors (of 24)**
- **52 Municipal Techn.**
- **Researchers**
- **Professors**
- **Media**
- **Companies**

Training of the Municipal Technicians

Includes a mix of expert presentations, state-of-the-art of Municipal strategies, next steps and group activities (trial).



Training of the Municipal Technicians

Workshops with Local Stakeholders

- **70 participants**
- **Municipal technicians**
- **Public institutions (Civil Protection, Nature Conservations, Police, etc…)**
- **Companies**
- **Land owners**
- **Diverse stakeholders from key local sectors (Hotels, harbors, Restaurants, Farmers, Fishermens, etc…)**

Workshops "Climate Change Adaptation for Journalists"

- **30 participants**
- **15 Key climate and environmental journalists from major Media**

Some of the topics addressed:

- **How does COP21 works?**
- **What key messages is adaptation bringing?**
- **Role of Media on CC issues**

Workshops "Climate Change Adaptation for Journalists"

ClimAdaPT.Local
Estratégias Municipais de Adaptação às Alterações Climáticas

- **Dissemination**: 2500 participants in all project events; >100 references on the media (TV & radio channels, newspapers).

- Currently evaluating the possibility of producing a documentary on Local Adaptation to Climate Change in Portugal

ClimAdaPT.Local
Estratégias Municipais de Adaptação às Alterações Climáticas

ICELAND LIECHTENSTEIN NORWAY eea grants

AGÊNCIA PORTUGUESA DO AMBIENTE

Fundo português de Carbono

Thank you

www.climadapt-local.pt

geral@climadapt-local.pt

gppenha-lopes@fc.ul.pt

Ciências ULisboa

centre for ecology, evolution and environmental changes

CEDRU

WE CONSULTANTS

Quercus

INSTITUTO DE CIÊNCIAS SOCIAIS

FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA

cesam universidade de aveiro centro de estudos do ambiente e do mar

CIBIO

ALMADA CÂMARA MUNICIPAL

CASCAIS

SINTRA CÂMARA MUNICIPAL

C CHANGE

The ClimAdaPT.Local project is integrated in the AdaPT Program, supervised by the Portuguese Environment Agency as manager of the Portuguese Carbon Fund, in a total of 1,5 million Euros, 85% co-financed by the EEA Grants and 15% by the Portuguese Carbon Fund (FPC).

EU Adaptation Strategy

Future work on 2017 Report and adaptation scoreboard

Climate Action

Adaptation preparedness scoreboard

Background

EU Adaptation Strategy:

> "By 2014 the Commission will develop an adaptation preparedness scoreboard, identifying key indicators for measuring Member States' level of readiness".
>
> Context: feed into the Commission's 2017 assessment of progress by Member States (sufficiency of action, incl. coverage and quality of the NAS).

Scoreboard developed in 2013-14, including several consultations to MS.

National scoreboard fiches:

- Filled in by the Commission in late 2014 and early 2015
- Allowed testing the tool / the indicators
- Provides a baseline for comparison with the scoreboard 2017.

Conclusion: The scoreboard structure and indicators are basically sound and useful.

Climate Action

Adaptation preparedness scoreboard

Information sources 2015:

International

- National communications to UNFCCC (early 2014)
- UNISDR national information (National Platform for Disaster Risk Reduction)

European

- MMR reports & Climate-ADAPT country pages (aligned by Commission's reporting guidance)
- DG CLIMA contracts, e.g. 2013 "Science policy forum workshops for the dissemination of adaptation-related knowledge to policy makers", conducted in 12 MS that did not have a NAS, or only a recently adopted one.
- 2013 self-assessment national fiches (EEA)

National

- National adaptation strategies and action plans (irrespective of language)
- National websites

Climate Action

Adaptation preparedness scoreboard

Information sources 2016 & 2017:

- Relevant information from 2015 scoreboard (starting point, updated).

- Updated **Climate-ADAPT country pages**. MS to be approached by Commission to update country pages by September 2016.

- National adaptation strategies, action plans and websites (where these exist and are relevant).
- Information derived from forthcoming EEA reports
- Outcome of ongoing and future Commission contracts
- Updated national information on DRR (link DG ECHO)
- Update on MS mainstreaming adaptation into EIA - transposition May 2017 (link DG ENV)

Climate Action

Adaptation preparedness scoreboard

An indicative calendar for the scoreboard could be:

- Sep 2016: Commission's request to update Climate-ADAPT national pages

- Nov-Dec 2016. Commission updates national fiches.

- Dec. 16-Jan 17. MS are asked for voluntary comments / verification.

- Jan-Mar 2017. Commission revises national scoreboard fiches taking into account MS comments, and starts working on analysis/assessment.

- Apr-May 2017. Likely question to MS on EIA transposition (indicator 8a). Conclusions, graphics, etc. finalised. Exercise completed.

Climate Action

2017 Report on the EU Adaptation Strategy

In 2017 the Commission will report to the European Parliament and the Council on the state of implementation of the EU Strategy on adaptation to climate change and propose its review if needed.

Report:

- Focus on implementation: three priorities, eight actions.
  - MS progress including scoreboard
  - Mainstreaming: EU Funds, key policies
  - Informed decision-making: Knowledge, Climate-ADAPT
  - In light of new demands (IPCC, UNFCCC, DRR)
- Time schedule in parallel with the scoreboard + conclusions
- Adoption and publication in the second half of 2017

- A possible **Review** of the EU Adaptation Strategy might follow the 2017 report, most probably in 2018.

  - Deepening where relevant of priorities and actions,
    - Areas needing reinforced action (report 2017)
    - Further consideration of adaptation implementation
  - Synergies vis-à-vis the adaptation pillar of the Paris Agreement
  - Enhancing coordination, guidelines, awareness, communication
  - Forward-looking e.g. support for adaptation in the next MFF / ESIF
  - More inclusive (international dimension)

André Jol, EEA Head of Group Climate change impacts, vulnerability and adaptation

2 February 2016, Brussels

Meeting of the working group on adaptation

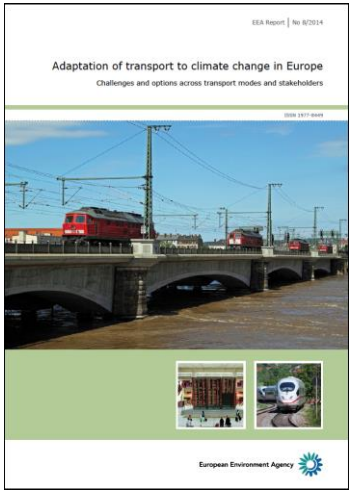
EEA recent and planned activities

European Environment Agency

EEA main products and services on CC impacts, vulnerability and adaptation 2014 - 2016

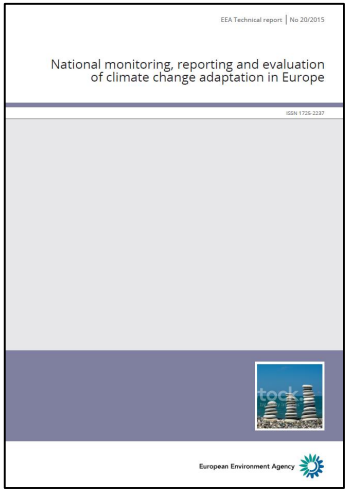
2014

2014



2015

2015



Planned reports:

- Impacts and vulnerability (Oct 2016)
- Urban adaptation (July 2016)

See also: http://www.eea.europa.eu/themes/climate

All supported by a European Topic Centre, see: http://cca.eionet.europa.eu/

European Environment Agency

Overview of climate change adaptation platforms in Europe (EEA technical report, May 2015)

- **Aim** is to share experiences and learn from existing practices
- **Content**:
  - Existing platforms: 14 countries, transnational (Pyrenees, Alpine region, Baltic Sea Region), European (Climate-ADAPT)
  - **Challenges and lessons** learned:
    - Funding
    - Engaging with users
    - Identifying relevant information/knowledge
    - Presentation information/knowledge
    - Design and technical aspects
    - Linking across sectors and scales
    - Monitoring and evaluation
  - Links with disaster risk reduction platforms and climate change services
- **Information basis**: expert meetings and workshops held in 2013 and 2014

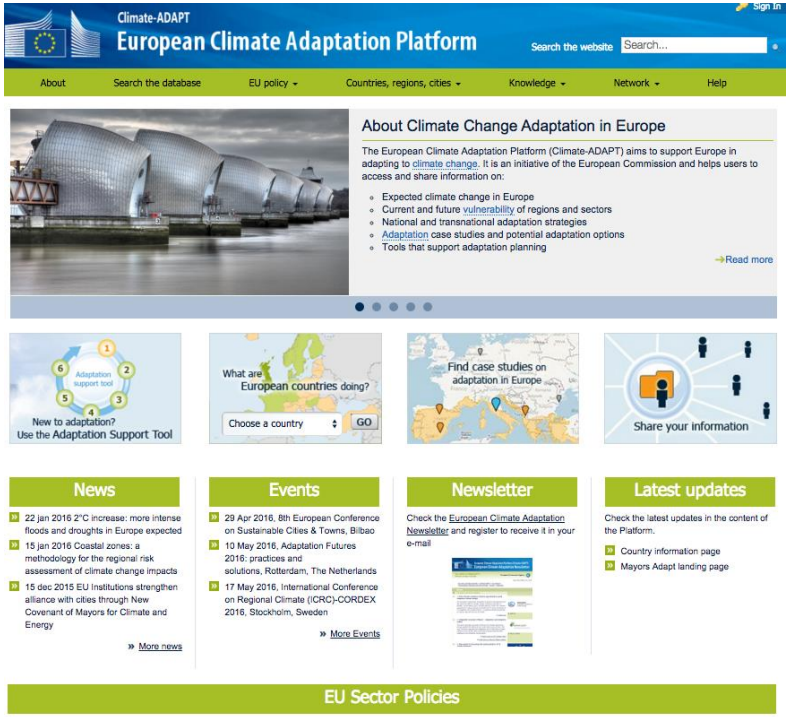
European Environment Agency

European Climate Adaptation Platform Climate-ADAPT

Collaboration DG CLIMA and EEA

2015 Key revised functionalities and content:

- (Urban) Adaptation Support Tool
- **Country pages (MMR)**
- Case studies and adaptation options
- Map viewer and time series tool
- Urban vulnerability maps
- City information (with MayorsAdapt)
- Database



Dissemination and networking:

- Webinars (April, December 2015)
- Bi-monthly newsletter, since Jan 2015

http://climate-adapt.eea.europa.eu

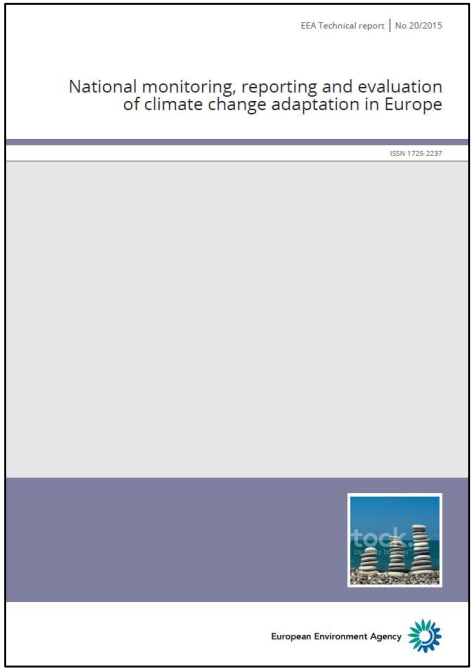
2016: updating of content and database, links to Copernicus climate change, migration to EEA content management system (improved functionalities), dissemination, **webinars, voluntary updating of country pages**

European Environment Agency

National monitoring, reporting and evaluation climate change adaptation in Europe (EEA Report, Dec 2015)

Scope:

- Presents how MRE can **inform policy making** and **facilitate** shared **learning** on national level approaches across member countries
- **14 countries have systems** for monitoring, reporting and/or evaluation of adaptation **in place or under development.**
- Most countries **focused on monitoring and reporting** activities. The **evaluation** of adaptation policies is **at an early stage** because the implementation of adaptation has only just begun.



Key topics:

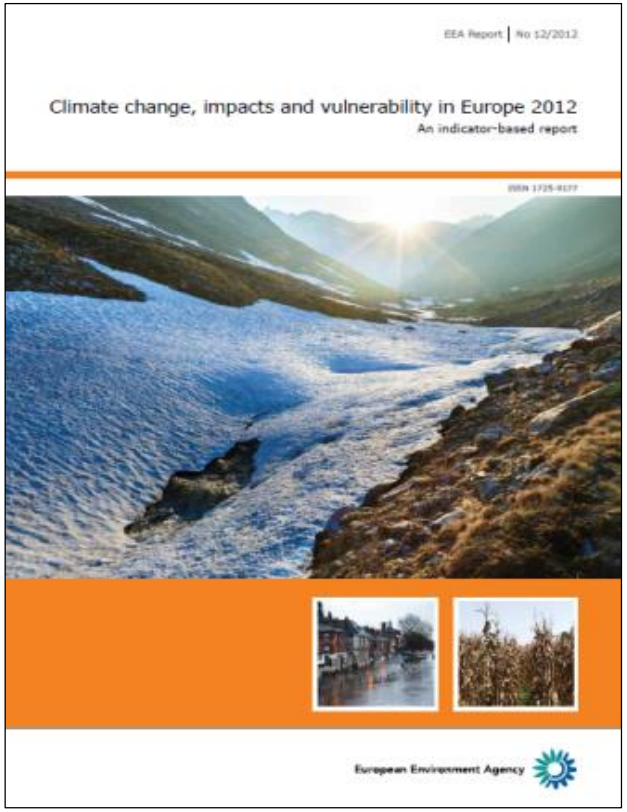
- Drivers and purposes of MRE
- Governance and participation
- Methodological approach
- Informing adaptation policy and practice
- Reflection and future plans

European Environment Agency

2016 EEA indicator report on climate change, impacts and vulnerability

- **Coordination** by EEA
- **Authors and contributors**:
  - EEA and European Topic Centres (CCA, BD, ICM)
  - Joint Research Centre (European Commission)
  - World Health Organisation
  - European Centre for Disease Prevention and Control
  - Other organisations
- **Data sources**:
  - International databases and reports
  - (European) research projects and data centres
  - Academic publications
- **External Advisory Group:**
  Commission (incl. JRC), EEA Scientific Committee, ECMWF, WHO, ECDC, regional conventions, member countries, etc.
- **Reviews:**
  - Advisory Group and experts (September/October 2015)
  - **Eionet review (Feb/March 2016)**

To be published October 2016

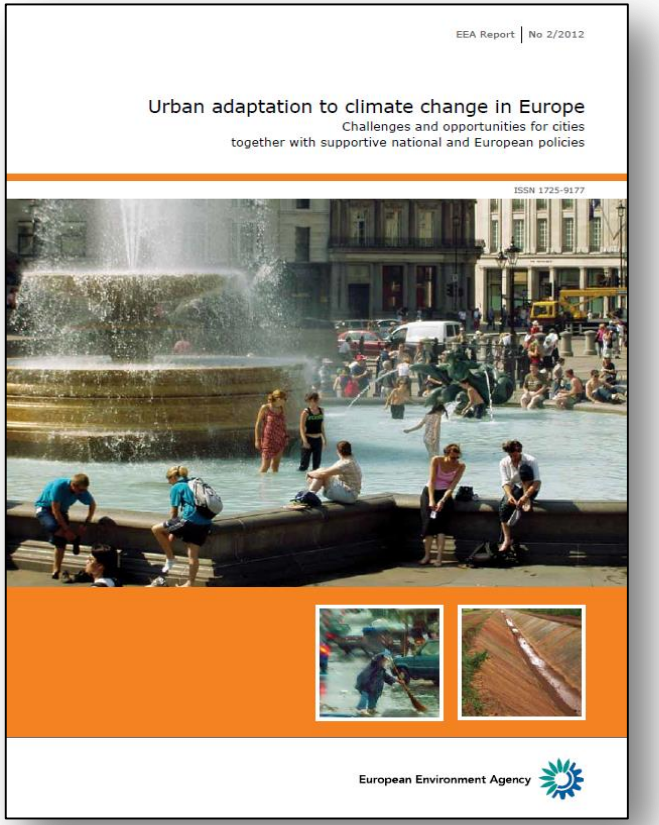


Update and extension of the 2012 EEA report

European Environment Agency

2016 EEA Report ‘Urban adaptation to climate change in Europe’

- Complementary and **new information and knowledge** after publication of 2012 report
- Overview on the **state of urban adaptation action** at different governance levels
- Explains **interaction with other themes and policies** (e.g. climate change mitigation, water management, biodiversity)
- **Assessment on various topics** (e.g. incremental or transformational adaptation; how is adaptation part of urban development and quality of life?)
- **Inputs:** information provided voluntarily by MS to EEA; Climate-ADAPT; MayorsAdapt
- **Time schedule:** development and preparation in 2015; **Eionet review 19 January – 12 February 2016**
- **To be published 5 July 2016 (Open European day, Resilient cities conference)**



Complementary to the 2012 EEA report

European Environment Agency

2016 other EEA products and activities

- **Evaluation** of climate change adaptation at **national level** - Learning to inform adaptation policy and practice (*follow-up of 2015 report on monitoring, reporting and evaluation*)
- **Financing urban adaptation** (*about 10 examples, to include in Climate-ADAPT*)
- Drafting of a 2017 EEA report on **linkages** between climate change adaptation and **disaster risk reduction**
- Close **collaboration** with the **Copernicus Climate Change Service**

2016 EEA networking and dissemination

Workshops and expert meetings (EEA)

- Annual EEA/**EIONET workshop**, 13-14 June 2016 (CPH)
- **Expert meeting** on disaster risk reduction and climate change adaptation, 11-13 April 2016 (CPH)
- **Webinars** on Climate-ADAPT

Some 2016 key events and networks

- Participation in **'Adaptation futures'** conference (Rotterdam, 10-13 May 2016)
- **Open European Day at Resilient Cities 2016**, co-organising with ICLEI Europe (Bonn, 5 July 2016), EU projects (RESIN, PLACARD) DG R&I, and collaboration with MayorsAdapt
- Participation in and support to **other networks** *(e.g. ECRAN for West Balkan countries and Turkey; Carpathian convention; Alpine convention; Baltic Sea region)*

European Commission

LIFE Programme

- LIFE Climate Change Adaptation priorities
- LIFE 2014 – funded projects
- LIFE 2015 – Traditional Grants and Integrated Projects
- LIFE Financial Instruments: Natural Capital Finance Facility

Climate Action

Climate Change Adaptation (CCA)
- policy priorities for traditional projects -

Vulnerable areas *indicated in the EU Adaptation Strategy:*

- cross-border floods management, cross-border coastal management
- urban environment
- mountain and island areas
- drought-prone areas (water, desertification, fire risks)

Green infrastructure *and* ***ecosystem-based approaches***

Vulnerability assessments and adaptation strategies*, including those with a cross-border nature*

Urban adaptation

Climate Action

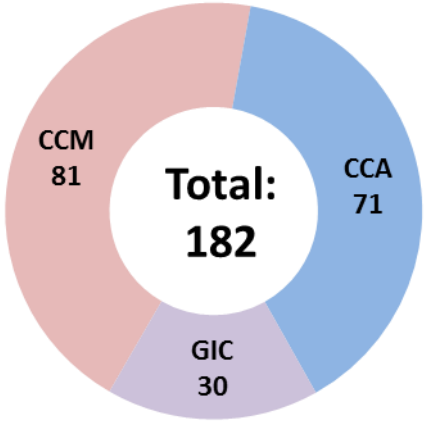
Climate Governance and Information (GIC) - policy priorities for traditional projects -

- national **2030 climate and energy strategies** and **effective investment programmes**
- **monitoring and reporting,** e.g. a solid system for tracking progress (EU ETS impacts etc.)
- **training for industry** on implementing new climate legislation ("train the trainers")
- **coordination platforms on climate policy monitoring, assessment, ex-post evaluation** (incl. adaptation indicators, risk communication and management)
- **exchange of best practice and awareness raising** on climate change vulnerabilities and adaptation options

Note: Climate governance and capacity-building are strongly encouraged, not pure awareness raising activities.

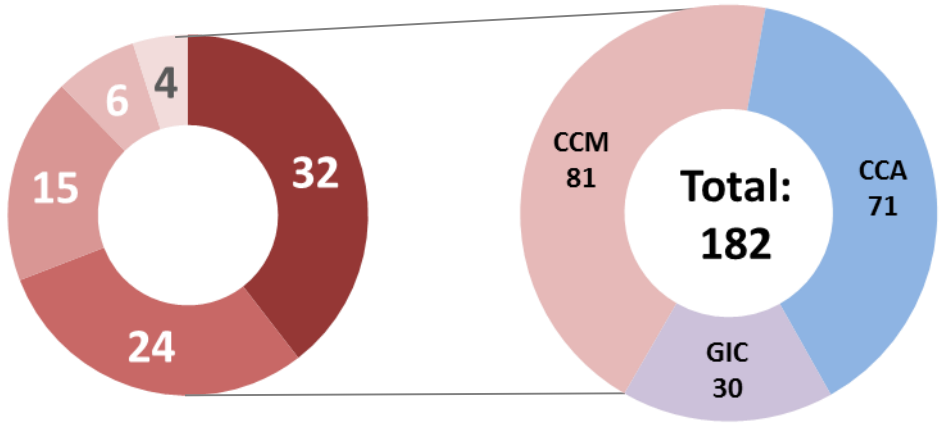
LIFE Climate Action 2014 Call - Traditional Grants

Proposals submitted



LIFE Climate Action 2014 Call - Traditional Grants

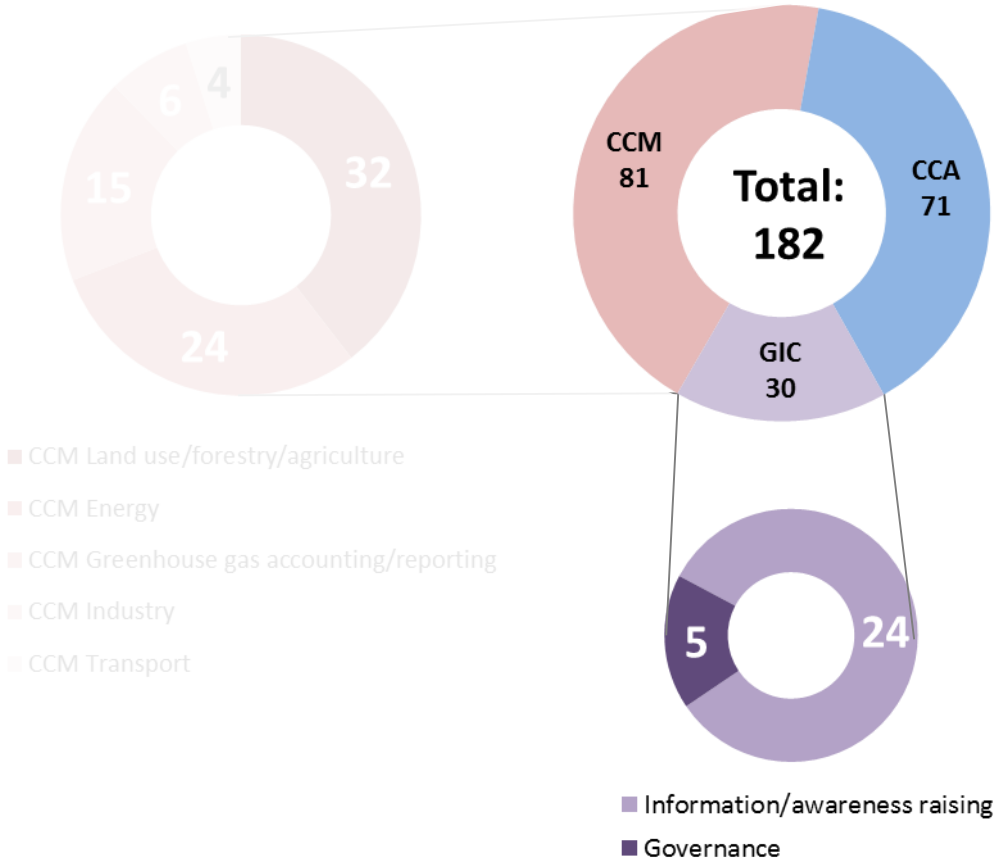
Proposals submitted



- CCM Land use/forestry/agriculture
- CCM Energy
- CCM Greenhouse gas accounting/reporting
- CCM Industry
- CCM Transport

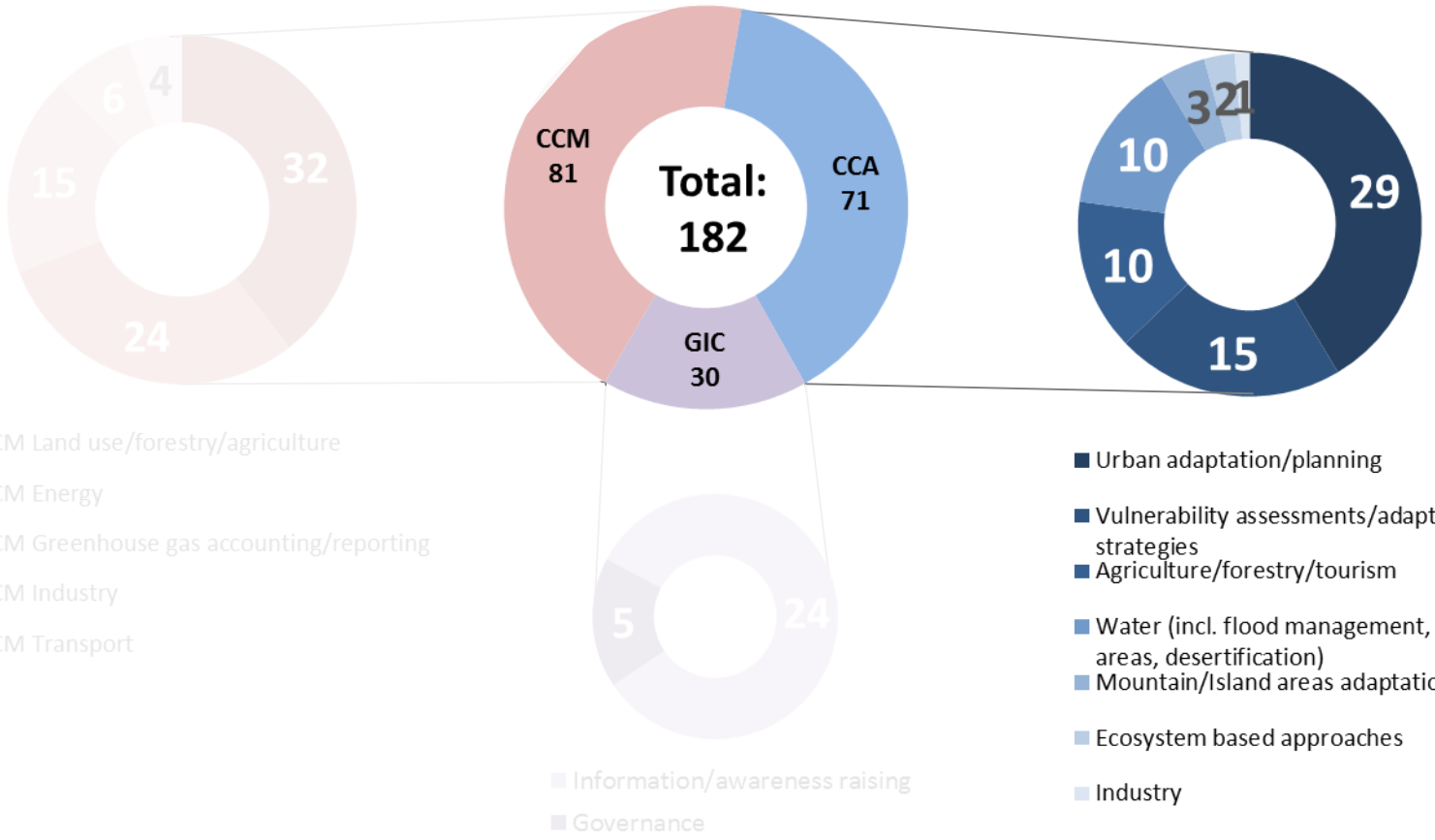
LIFE Climate Action 2014 Call - Traditional Grants

Proposals submitted



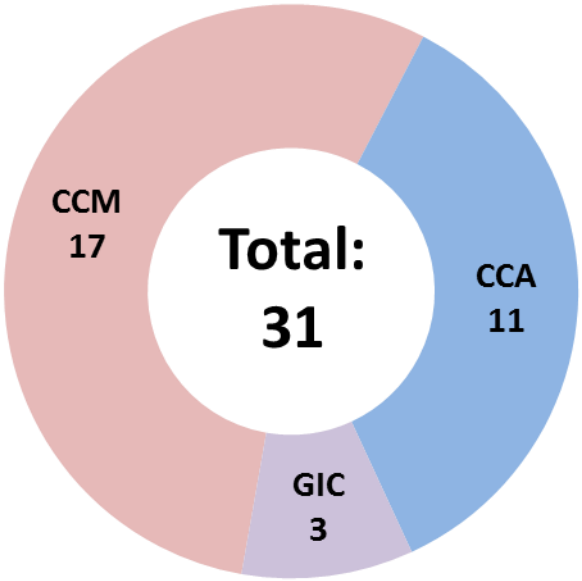
LIFE Climate Action 2014 Call - Traditional Grants

Proposals submitted



LIFE Climate Action 2014 Call - Traditional Grants

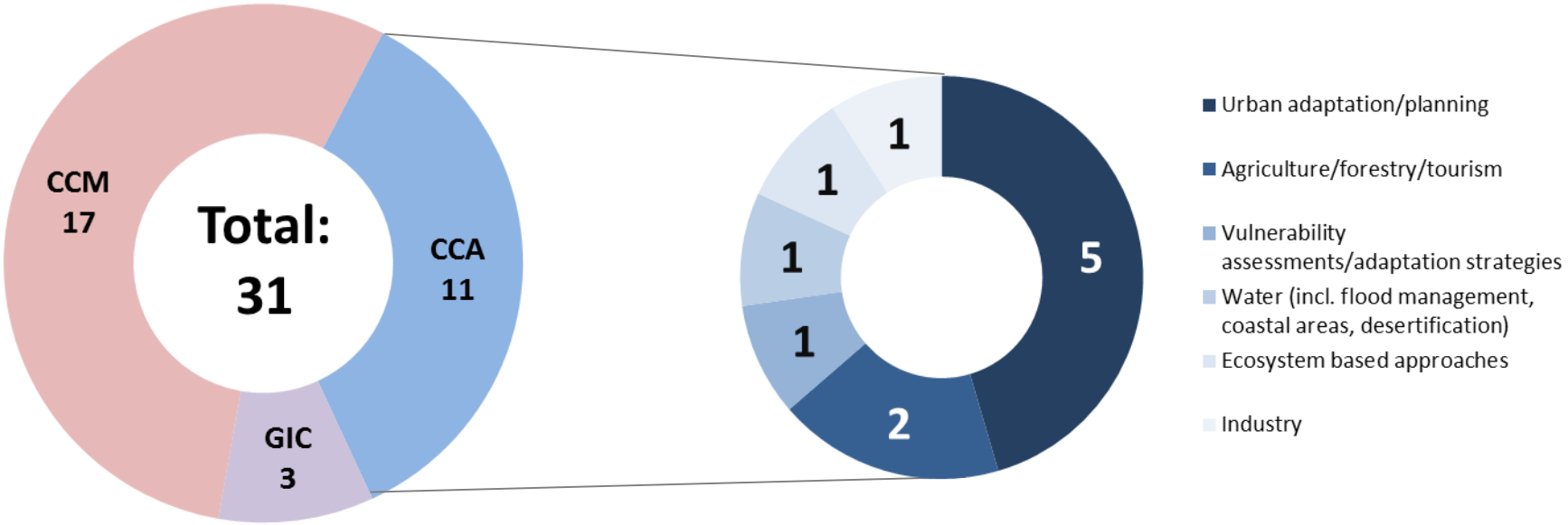
Proposals financed



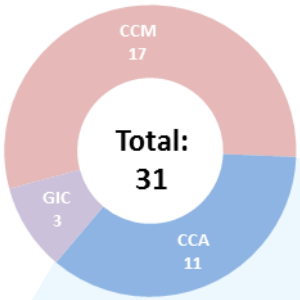
Climate Action

LIFE Climate Action 2014 Call - Traditional Grants

Proposals financed



Climate Action



LIFE 2014 Climate Change Adaptation projects:

Project number	Acronym	Coordinating Beneficiary	EU funding
LIFE14 CCA/ES/000489	LIFE LUGO + BIODINÁMICO	CONCELLO DE LUGO	1,793,130
LIFE14 CCA/ES/000612	LIFE ADAPTAMED	Consejería de Medio Ambiente y Ordenación del Territorio	3,234,049
LIFE14 CCA/GR/000389	LIFE AgroClimaWater	Spyridis A. - Koutalou V. G.P. HYETOS	1,395,749
LIFE14 CCA/GR/000928	LIFE ADAPT2CLIMA	NATIONAL OBSERVATORY OF ATHENS	898,236
LIFE14 CCA/IT/000316	Life SEC Adapt	Sviluppo Marche SpA	1,928,225
LIFE14 CCA/IT/000650	LIFE DERRIS	UNIPOL GRUPPO FINANZIARIO	790,299
LIFE14 CCA/IT/000663	LIFE IRIS	ERVET SpA - Emilia Romagna Valorizzazione Economica Territorio	993,607
LIFE14 CCA/IT/000939	LIFE HEROTILE	Industrie Cotto Possagno S.p.A.	1,442,784
LIFE14 CCA/IT/001280	LIFE PRIMES	Agenzia regionale di Protezione Civile - Regione Emilia-Romagna	1,085,761
LIFE14 CCA/NL/000302	LIFE URBAN-ADAPT	Gemeente Rotterdam	2,767,982
LIFE14 CCA/PL/000101	LIFERADOMKLIMA-PL	Gmina Radom	2,933,923

LIFE 2014 Climate Governance and Information projects:

Project number	Acronym	Coordinating Beneficiary	EU funding
LIFE14 GIC/BE/000590	LIFE MaxiMiseR	WWF European Policy Programme AISBL	405,360
LIFE14 GIC/FR/000475	LIFE Clim'Foot	Agence de l'Environnement et de la Maîtrise de l'Energie	883,060
LIFE14 GIC/PL/000008	LIFE_WZROST_PL	Fundacja WWF Polska	888,541

Urban adaptation/ planning

LIFE URBAN-ADAPT:

demonstrating urban climate adaptation and resilience in inner city Rotterdam

LIFE14 CCA/NL/000302

LIFERADOMKLIMA-PL

Adaptation to climate change through sustainable management of water of the urban area in Radom City

LIFE14 CCA/PL/000101

LIFE HEROTILE

High Energy savings in building cooling by ROof TILEs shape optimization toward a better above sheathing ventilation

LIFE14 CCA/IT/000939

Life SEC Adapt

Upgrading Sustainable Energy Communities in Mayor Adapt initiative by planning Climate Change Adaptation strategies

LIFE14 CCA/IT/000316

LIFE LUGO + BIODINÁMICO

Planning of a multi-ecological urban neighbourhood as a model for urban resilience

LIFE14 CCA/ES/000489

Agriculture, forestry, tourism

LIFE AgroClimaWater

Promoting water efficiency and supporting the shift towards a climate resilient agriculture in Mediterranean countries

LIFE14 CCA/GR/000389

LIFE ADAPT2CLIMA

Adaptation to Climate change Impacts on the Mediterranean islands' Agriculture

LIFE14 CCA/GR/000928

Ecosystem based approaches

LIFE ADAPTAMED

Protection of key ecosystem services by adaptive management of Climate Change endangered Mediterranean socioecosystems

LIFE14 CCA/ES/000612

Vulnerability assessm., adapt. strat.

LIFE DERRIS

DisastEr Risk Reduction InSurance

LIFE14 CCA/IT/000650

Industry

LIFE IRIS

Improve Resilience of Industry Sector

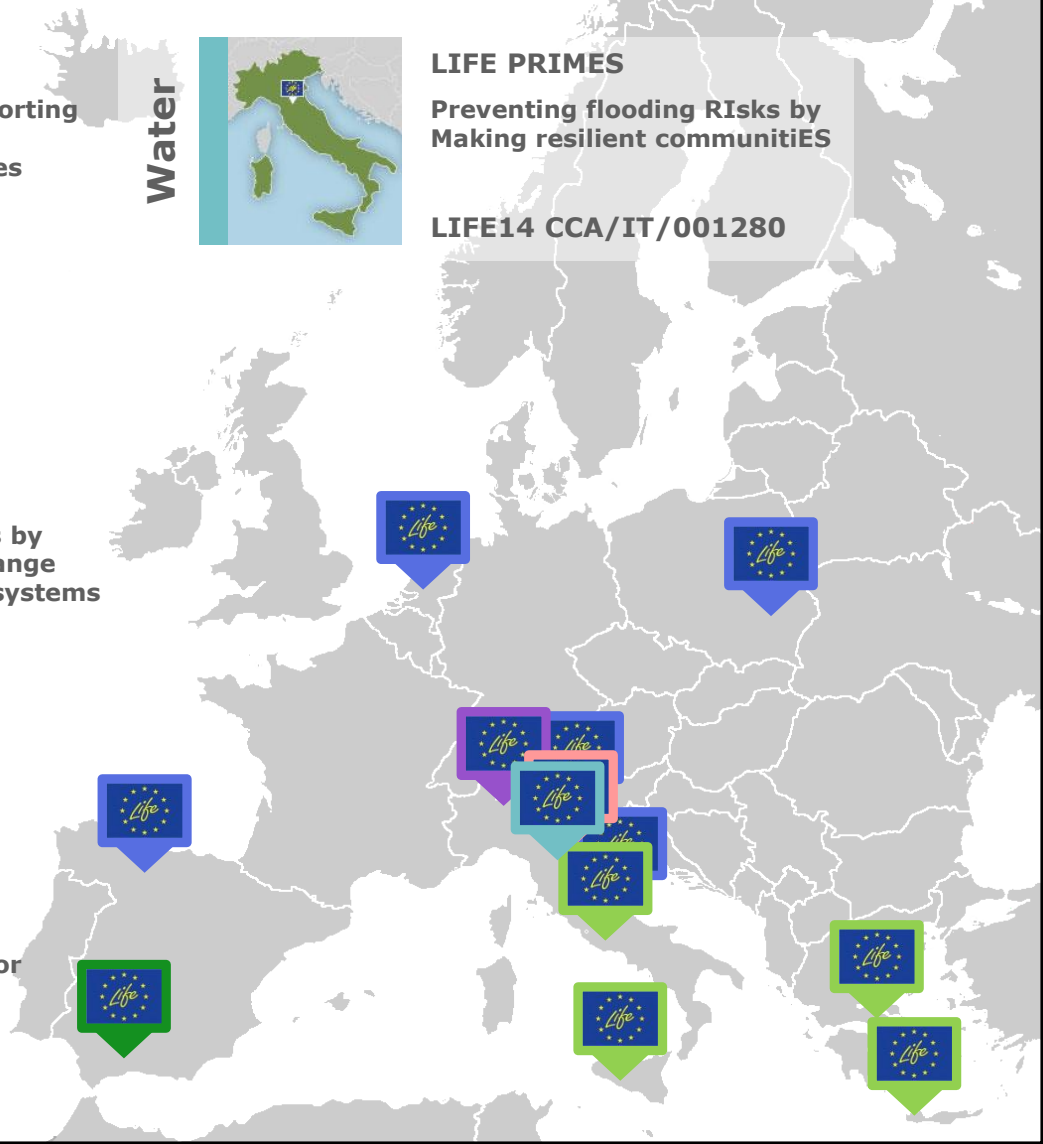
LIFE14 CCA/IT/000663

Water

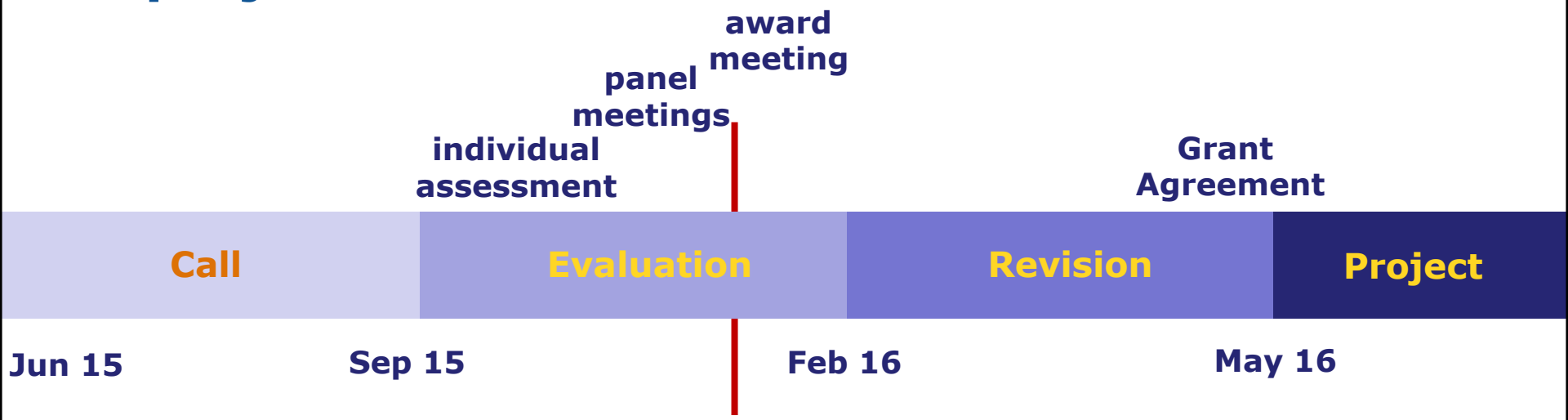
LIFE PRIMES

Preventing flooding RIsks by Making resilient communitiES

LIFE14 CCA/IT/001280



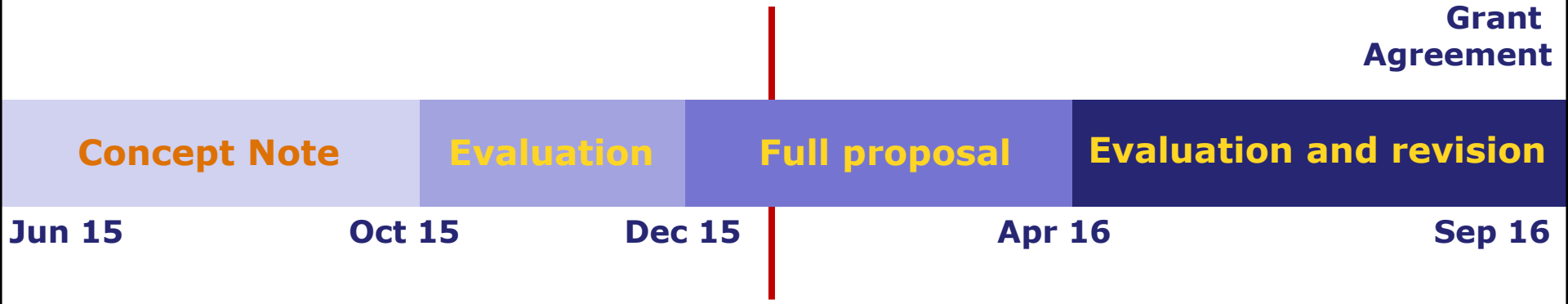
LIFE 2015 Evaluation process: Traditional projects



Proposals received:
CCA: 48
CCM: 52
GIC: 23

Climate Action

LIFE 2015 Evaluation process: Integrated Projects (IP) and Technical Assistance (TA)



8 IP proposals received
5 IP proposals invited for full submission
2 TA proposals received
2 TA accepted

Climate Action

LIFE Financial Instruments: Natural Capital Financing Facility (NCFF)

- NCFF finances biodiversity conservation and ecosystem-based adaptation

- Financing through direct loans or financial intermediary, or an investment in an equity fund

- Financing of four project categories:

- **Payments for ecosystem services**
- **Green infrastructure projects**
- **Pro-biodiversity and pro-adaptation businesses**
- **Projects involving biodiversity offsets**

NCFF (continued)

- *Status: First two operations to be signed in the first half of 2016:*

  - ✓ Irish Sustainable Forestry fund (green infrastructure)
  - ✓ Rewilding Europe (NL) (biodiversity conservation)

- *Challenges in identifying projects that:*
  - Meet the adaptation and biodiversity objectives
  - Have a good business model (generate revenue and/or save costs)

- *EIB outreach focuses on:*
  - Sectors: marine-coastal-fisheries, green urban infrastructure;
  - Identifying recipients of LIFE grants looking for scaling-up funding
  - Banks and/or EIB intermediaries, consultancies, conservation organisations

More at: http://www.eib.org/products/blending/ncff/index.htm or
Email: NCF_Instrument@eib.org

Climate Action

Bundesministerium
für Umwelt, Naturschutz,
Bau und Reaktorsicherheit

First Progress Report of the German Strategy for Adaptation to Climate Change

Susanne Hempen,

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

German Adaptation Strategy

- **German Adaptation Strategy** adopted by Federal Cabinet under the lead responsibility of the Environment Ministry in 2008
- **Action Plan in 2011** adopted by Federal Cabinet
- **Progress report December 2015** adopted by Federal Cabinet
-

Reduction of vulnerabilty
Increase the adaptabilty of natural, social and economic systems

Bundesministerium
für Umwelt, Naturschutz,
Bau und Reaktorsicherheit

Elements of the Progress Report

Evaluation

- Implementation APA I
- Activities of the Federal States
- Activities of other stakeholders
- EU und international affairs

Action Plan II

- New findings from climate research
- Monitoring Report
- Vulnerability Study

Bundesministerium
für Umwelt, Naturschutz,
Bau und Reaktorsicherheit

Process towards the Action Plan

Assessment of Research and Programmes

Monitoring Report

- >100 experts developed a set of impact and response indicators for all fields of action (102)
- Only quality proved, available data sets were used
- Starting point for monitoring and vulnerability assessment

Vulnerability Assessment

- Network of 16 national agencies from 9 Ministries
- Based on climate and socio-economic scenarios
- Potential of future adaptation capacity is included
- Identified hot spots are the basis for priority action fields

Action Plan II

- 146 Adaptation measures and instruments across all actions field addressing the identified priorities

Bundesministerium
für Umwelt, Naturschutz,
Bau und Reaktorsicherheit

Action Plan II Measures and Instruments

Cluster	total	Infra structure	Legal	Education	Financial	Research Monitoring	Co-operation	PR Infor-mation	Other
Water	**16**	4	4	-	1	4	1	2	-
Infra-structure	**46**	33	6	-	-	2	1	4	-
Land	**32**	4	-	-	2	16	3	4	3
Health	**14**	-	-	1	1	8	1	2	1
Economy	**6**	-	2	-	-	1	-	1	2
Spatial Planning	**12**	-	1	1	-	2	1	6	1
Cross Sectoral	**20**	-	1	-	1	11	1	6	-
Total	**146**	41	14	2	5	44	8	25	7

Central Messages of the Progress Report

- Climate risks will increase in all sectors
- Adaptation to climate change will be a permanent task
- The adaptation process is ready to put into practise
- Mainstreaming is on its way
- The German Government agreed frequent reporting on adaptation monitoring (4 y), vulnerability assessments (5 -7 y). Progress Reports and Adaptation Action Plans are planned every 5 years.
- Development of an evaluation methodology, evaluation of the adaptation process by 2019

Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

DG CLIMA Working Group on Adaptation
Adaptation practices and insurance

Carmen Bell
Insurance Europe

Brussels, 2 February 2016

Agenda

Adaptation practices and insurance

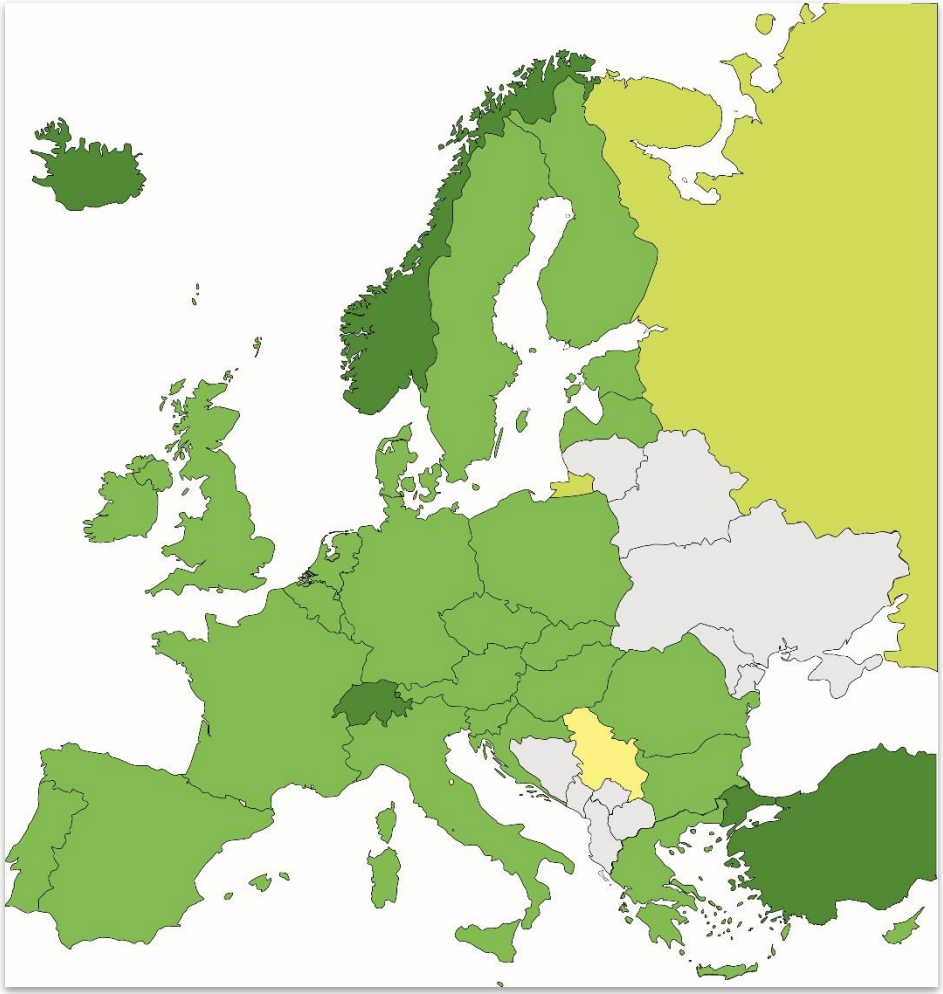
1. Insurance Europe
2. Insurance and adaptation
3. Access to data
4. No “one-size-fits-all”
5. National examples
6. Insurance Europe online interactive tool

Insurance Europe

Who?	▪ European insurance and reinsurance federation, founded in 1953
What?	▪ Represents around 95% of European insurance market by premium income
Why?	▪ Committed to creation of favourable regulatory and supervisory framework for insurers at European and international level.

insurance europe

Members



34 national associations

27 EU member states

5 non-EU markets

Switzerland, Iceland, Norway, Turkey, Liechtenstein

2 associate members

Serbia, San Marino

1 partner

Russia

insurance europe

Contribution to the economy

Insurance Europe represents more than 5 000 European (re)insurers, which in 2014:

- generated premium income of almost €1 170bn
- employed over one million people
- Have nearly €9 900bn invested in the economy

Insurance and adaptation

Overview

Expertise	▪ The insurance industry has been accumulating expertise on climate risks for many years.
Risk-management	▪ Assessing and managing these risks is part of its core business.
Cooperation	▪ Insurers share their expertise with the public authorities, which have the means to implement the required prevention and adaptation measures.
Insurability Affordability	▪ Insurers play a strong part in making weather-related risks insurable and enhance affordability.

insurance europe

The need for cooperation

- Adaptation measures are crucial for increasing sustainability

- These measures cannot be promoted by the insurance industry alone:
  - ***Insurers' role***
    - Risk financing
    - Risk management

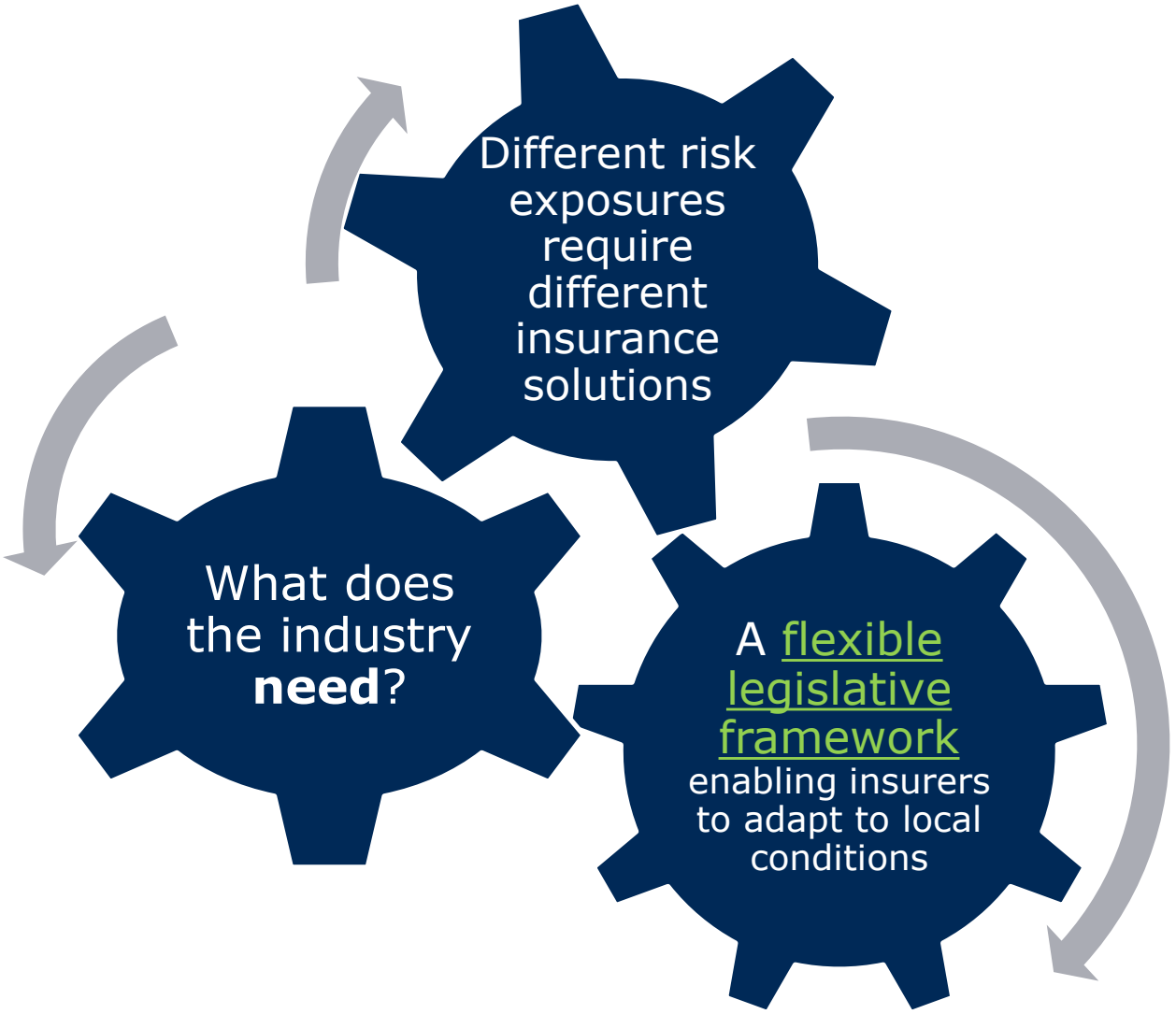
  - ***The role of public authorities***
    - Dialogue with insurers and other private sectors
    - Increase awareness, eg inform of national adaptation policies
    - Promote preventive behaviour
    - Invest in research and adaptation measures

Access to data is key to accurately predict risk

Data is key to estimate the likely frequency and severity of an event

- Free and ready access to data
  - Cost-neutral access to data for forward-looking multi-dimensional risk models
- Remove data protection barriers
  - Exception for scientific data
- Possible use of EU resources
  - Insurers alone cannot improve data collection and sharing

No "one-size-fits-all"



National examples

Cooperation with national authorities

Germany

- Active dialogue with politicians.
  - Joint federal government and state Working Group on Water.

Finland

- Representative at the national Flood Centre and in a flood risk coordination working group within the Ministry of Agriculture and Forestry
- Participation in the national programme for the mitigation of natural disasters, coordinated by the Ministry of the Interior

France

- National Observatory for National Risks (ONRN)
- Mission Risques Naturels
  - Participative governance of DRR

insurance europe

National examples

Helping policyholders prevent and adapt

- **Insurance Sweden** published a report on how homeowners can protect their houses from damage resulting from backflow in the sewage system

- *Kompass Naturgefahren* developed by **German insurers**:
  - Every citizen can check the degree to which their home is endangered by floods, lightning, earthquake or storms.

- *HORA*, a joint project between the **Austrian association** and the Austrian government:
  - allows the general public to identify whether their property is at risk by entering their address

insurance europe

National examples (II)

Informing policyholders

- **Swedish insurers** have developed VisAdapt, a tool designed to guide homeowners on how to decrease the risk of weather-related events affecting their houses

- Natural risk awareness raising campaigns in seven **German** federal states

- **British insurers** ensure that consumers are informed about climate risk and encourage the implementation of adaptation measures

National examples (III)

Mapping and analysing risks

- Maps of Floods and Risk in Climate Change Scenarios (CIRAC), developed by the **Portuguese Association** and the University of Lisbon

- In **Germany**, ZÜRS Geo provides an online risk assessment tool for the insurance industry to assess flood risk and offer risk-related premiums

- In Switzerland, **Climada** uses state of the art probabilistic modelling to estimate the expected economic damage arising from climate change

Insurance Europe online interactive tool

Here you can find more examples of adaptation-related measures undertaken by insurers

http://insuranceeurope.eu/target-two-degrees

Thank you for your attention

For more information

bell@insuranceeurope.eu
www.insuranceeurope.eu

CIRAC

Flood Risk and Vulnerability In Climate Change Scenarios

2 February 2016

www.siam.fc.ul.pt/cirac

FACULDADE · DE · CIÊNCIAS UNIVERSIDADE · DE · LISBOA

Faculdade Ciências Universidade

CCIAM

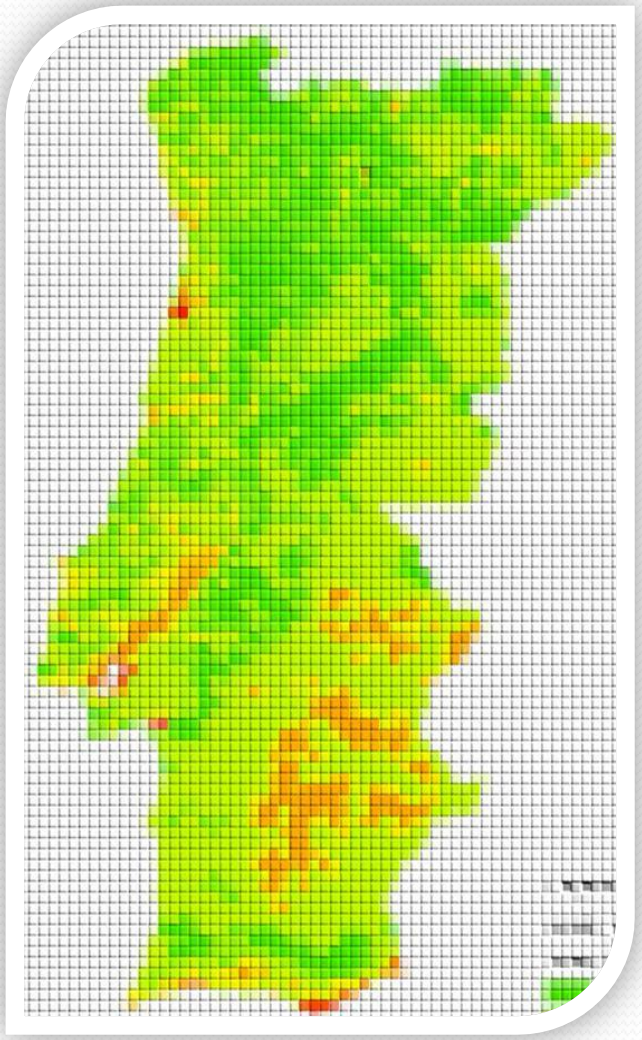
www.cciam.eu

associação portuguesa de seguradores aps

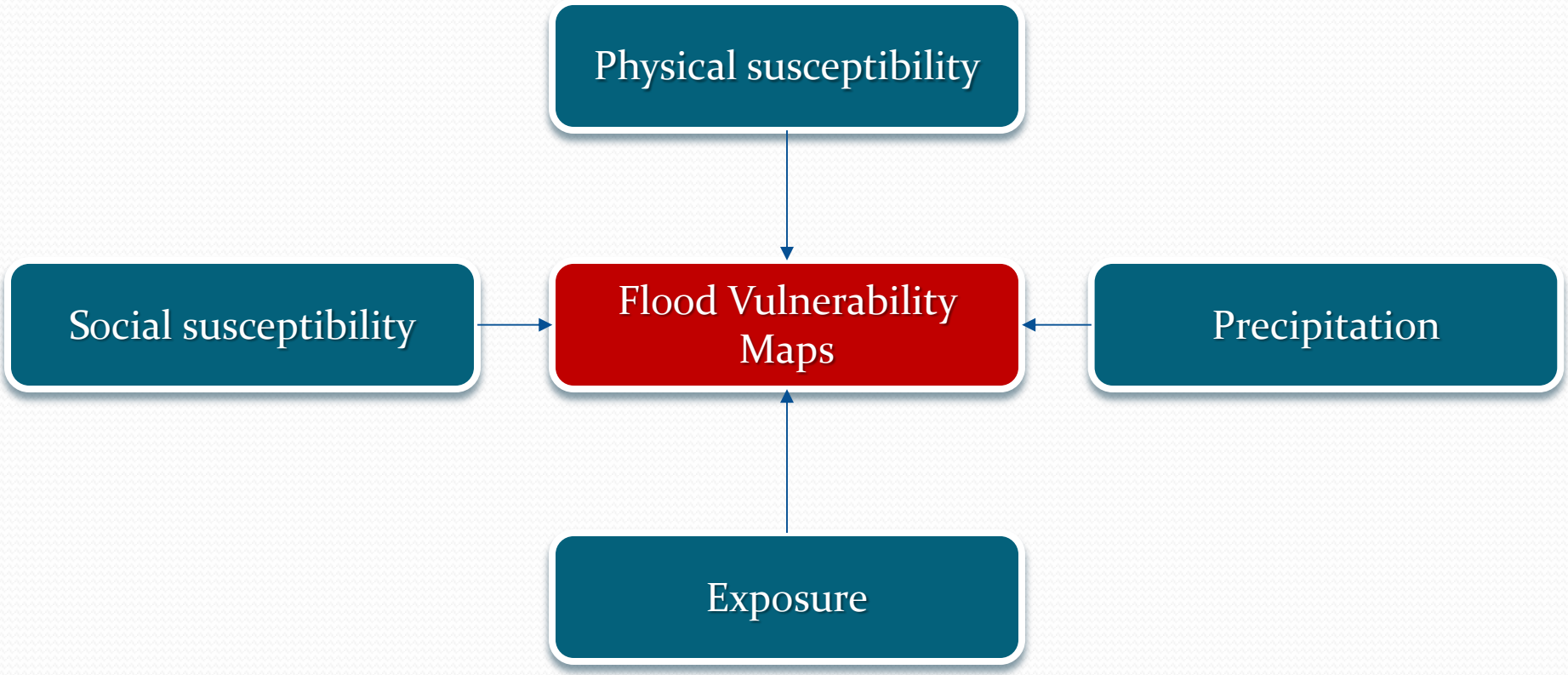
ACTION Modulers

Consultores de Segurança

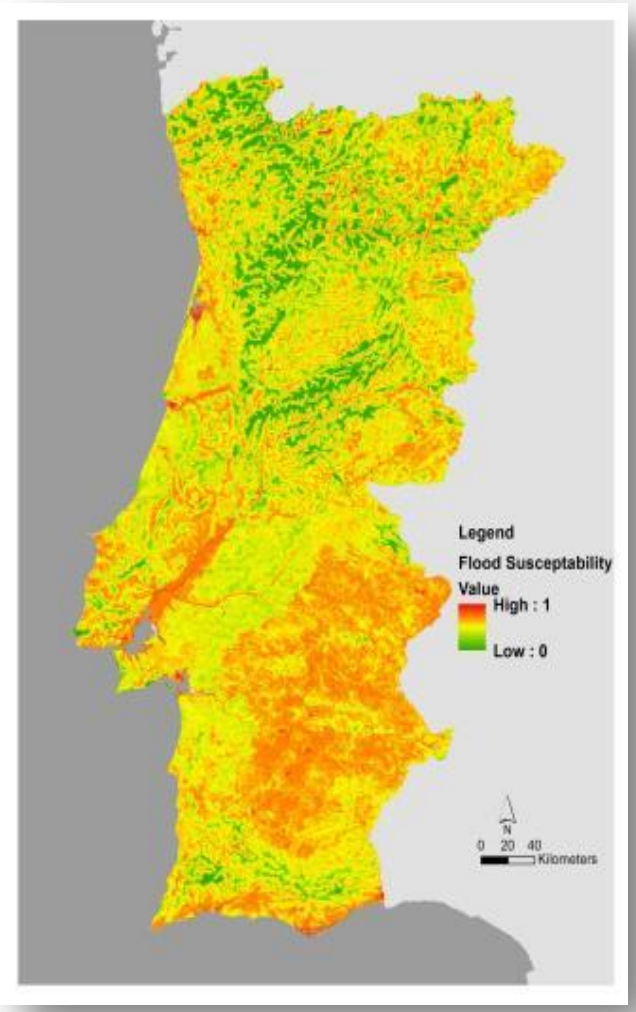
1. Vulnerability Analysis



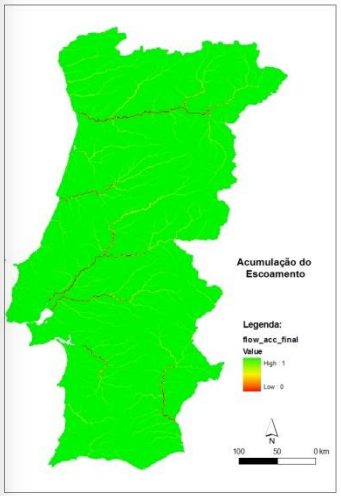
VULNERABILITY ASSESSMENT



Flood Vulnerability Index – Physical Susceptibility

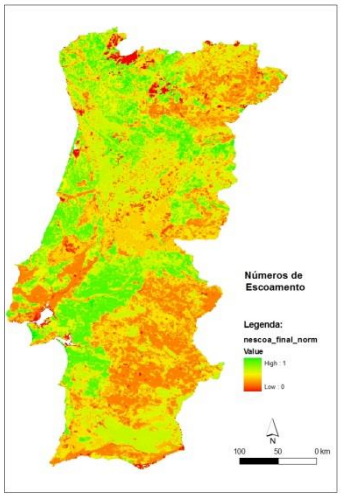


Where does the water go to?



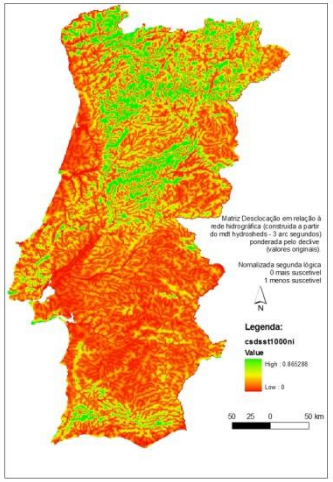
Accumulation flow - is a raster of accumulated flow to each cell, as determined by accumulating the weight for all cells that flow into each downslope cell.

Does it infiltrates or generates superficial runoff?



Runoff curve number - is an empirical parameter used in hydrology for predicting direct runoff or infiltration from rainfall excess.

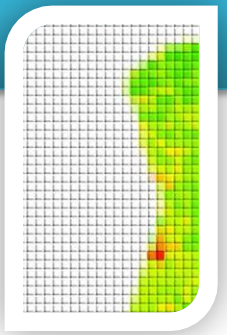
Exists conditions for accumulation?



OD cost matrix analysis - for representing a matrix of costs going from a set of origin locations to a set of destination locations

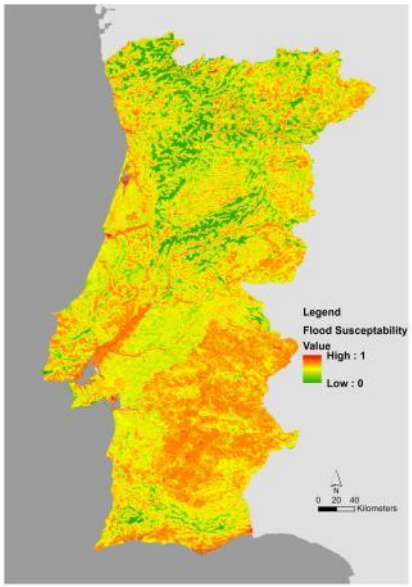
Jacinto, R., Grosso, N., Reis, E., Dias, L., Santos, F. D., and Garrett, P.: Continental Portuguese Territory Flood Susceptibility Index – contribution for a vulnerability index, Nat. Hazards Earth Syst. Sci. Discuss., 2, 7521-7552, doi:10.5194/nhessd-2-7521-2014, 2014.

Flood Vulnerability Index

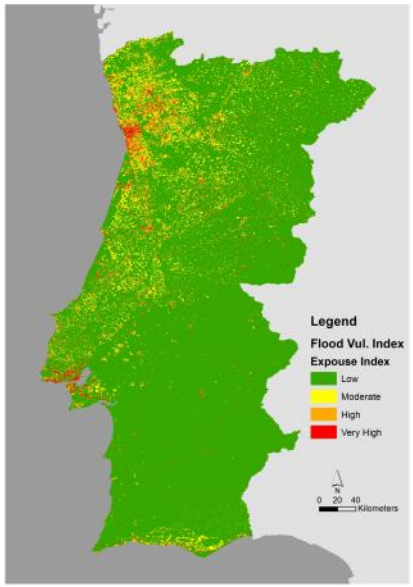


flood vulnerability “is the extent of harm, which can be expected under certain conditions of exposure, susceptibility and resilience”

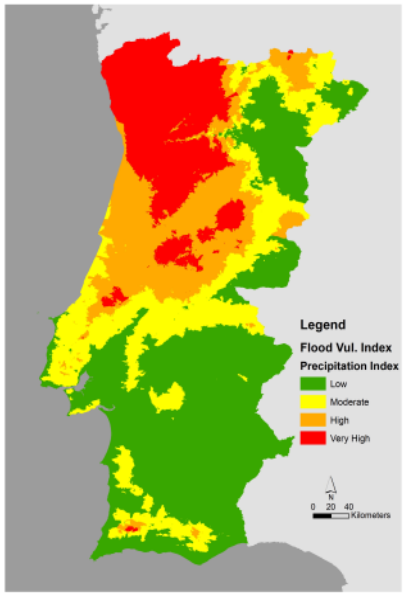
Vulnerability = Physical Susceptibility + Exposure + Precipitation + Social Susceptibility



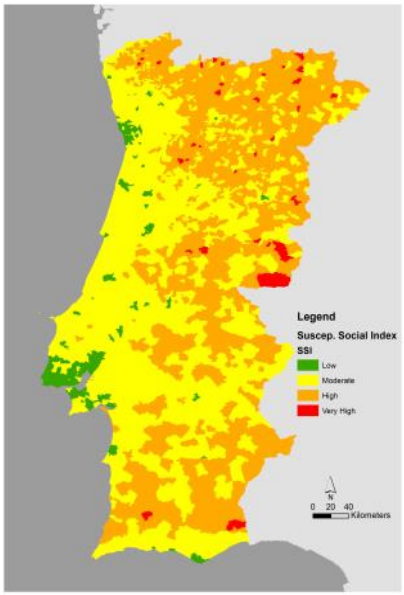
+



+



+



Buildings density

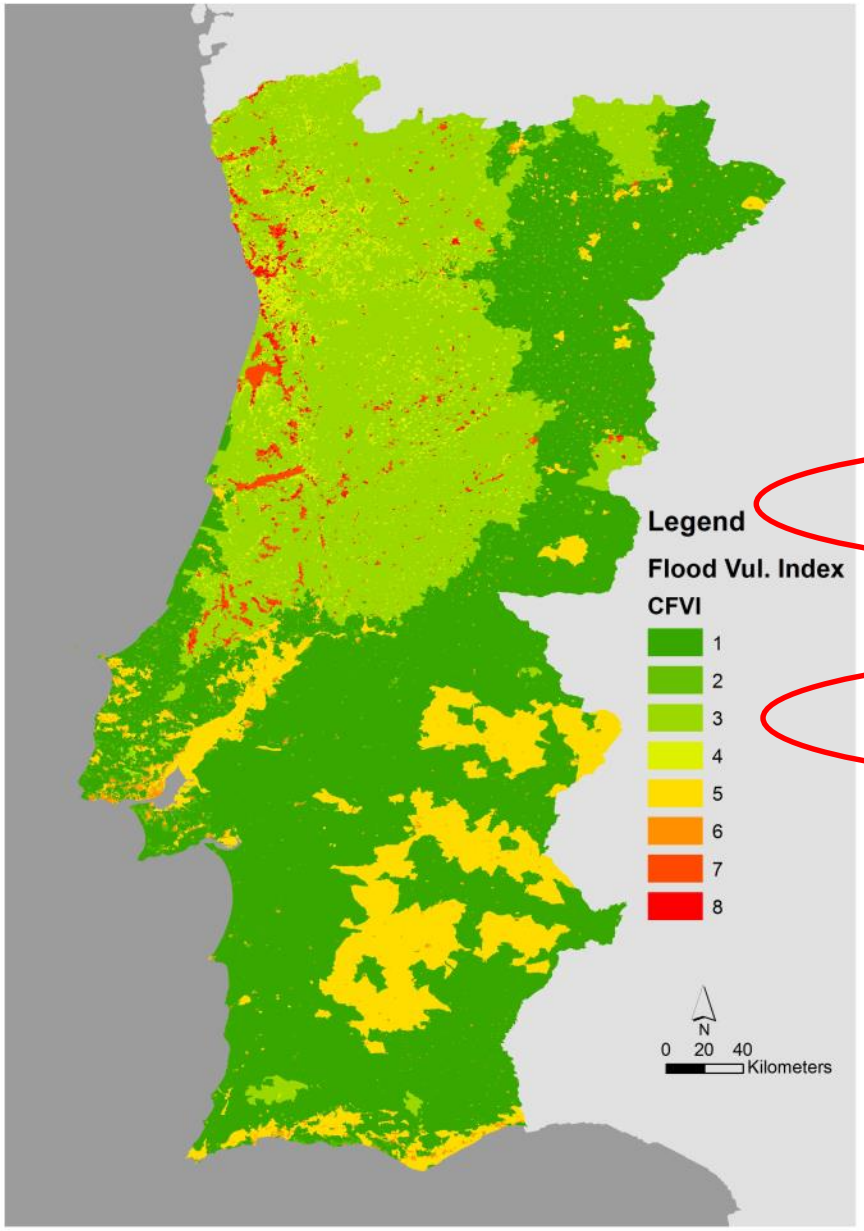
Terrain physical characteristics related with floods

Distribution of the different climatic regions

Capacity of recovering from damage

APS, 2014. Cartas de Inundação e Risco em cenários de alterações climáticas. ISBN: 978-972-98847-5-7

Combined Flood Vulnerability Index in Portugal

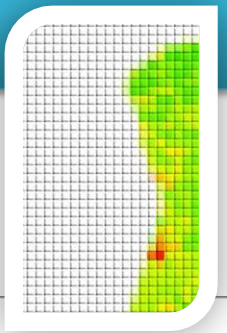


Combined Flood Vulnerability Index

CFVI	Description	PSI	E	P
8	High Physical Susceptibility, Exposure and Precipitation	[3,4]	[3,4]	[3,4]
7	High Physical Susceptibility and Precipitation and Low Exposure	[3,4]	[1,2]	[3,4]
6	High Physical Susceptibility and Exposure and Low Precipitation	[3,4]	[3,4]	[1,2]
5	High Physical Susceptibility and Low Exposure and Precipitation	[3,4]	[1,2]	[1,2]
4	Low Physical Susceptibility and High Exposure and Precipitation	[1,2]	[3,4]	[3,4]
3	Low Physical Susceptibility and Exposure and High Precipitation	[1,2]	[1,2]	[3,4]
2	Low Physical Susceptibility and Precipitation, High Exposure	[1,2]	[3,4]	[1,2]
1	Low Physical Susceptibility, Exposure and Precipitation	[1,2]	[1,2]	[1,2]

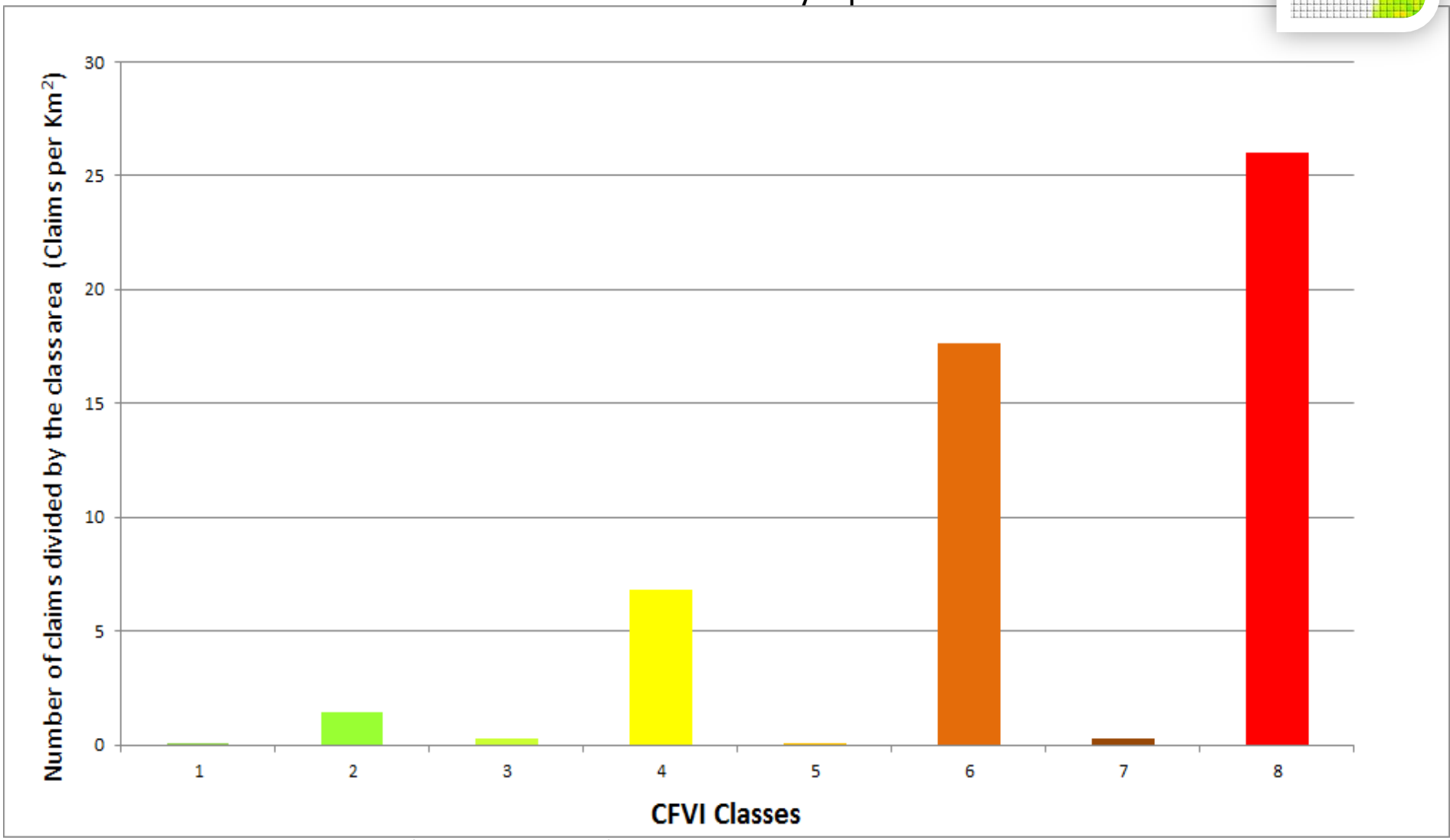
APS, 2014. Cartas de Inundação e Risco em cenários de alterações climáticas. ISBN: 978-972-98847-5-7

Flood Vulnerability Index in Portugal



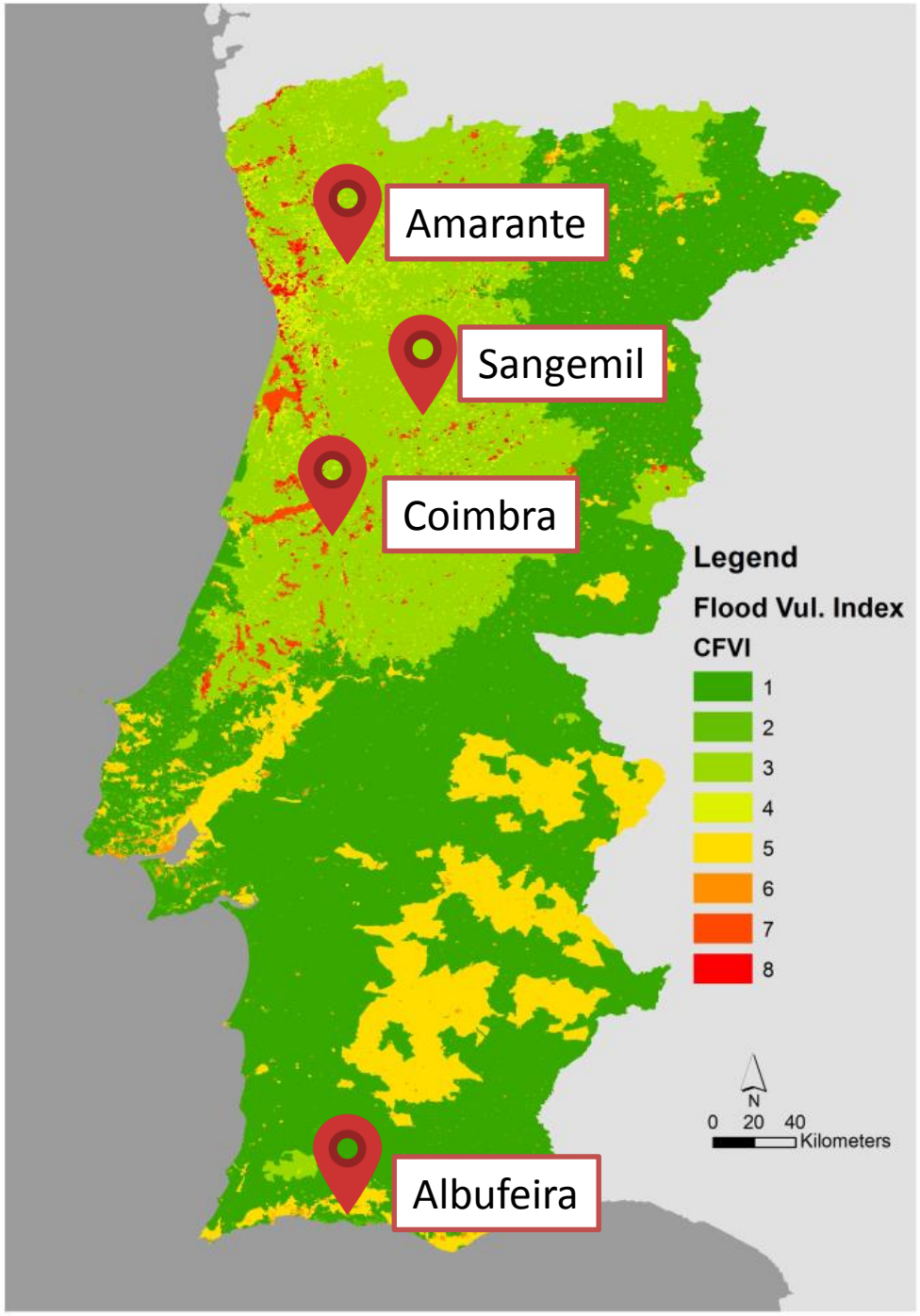
Density of claims related to flood events between 2000 - 2011

Combined FVI (CFVI= E+PSI+P), by Zip code



APS, 2014. Cartas de Inundação e Risco em cenários de alterações climáticas. ISBN: 978-972-98847-5-7

Most Recent Floods in Portugal

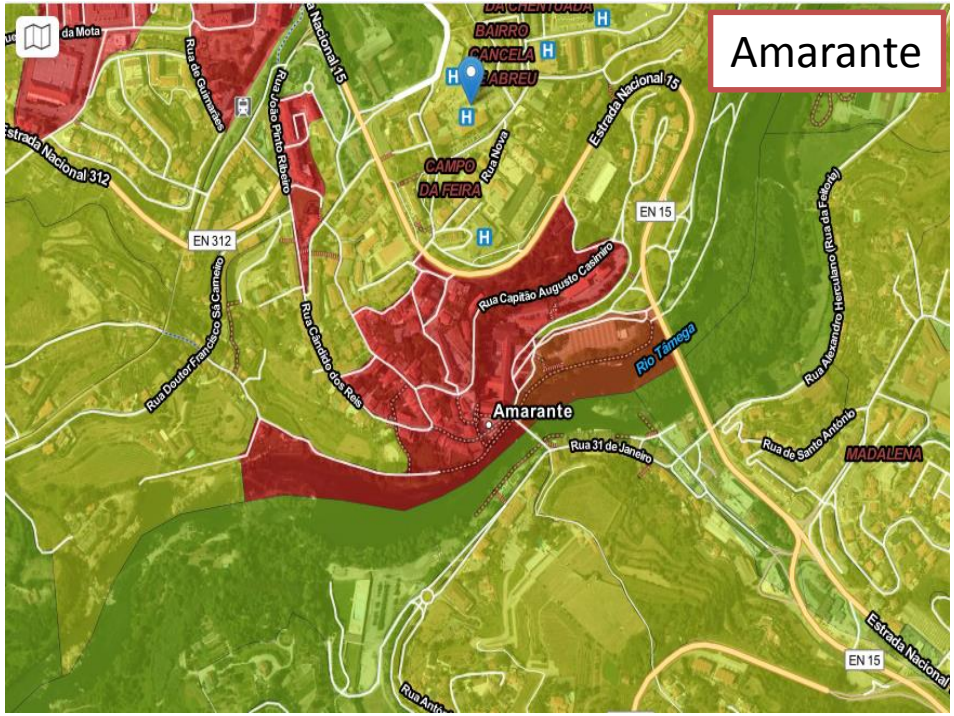


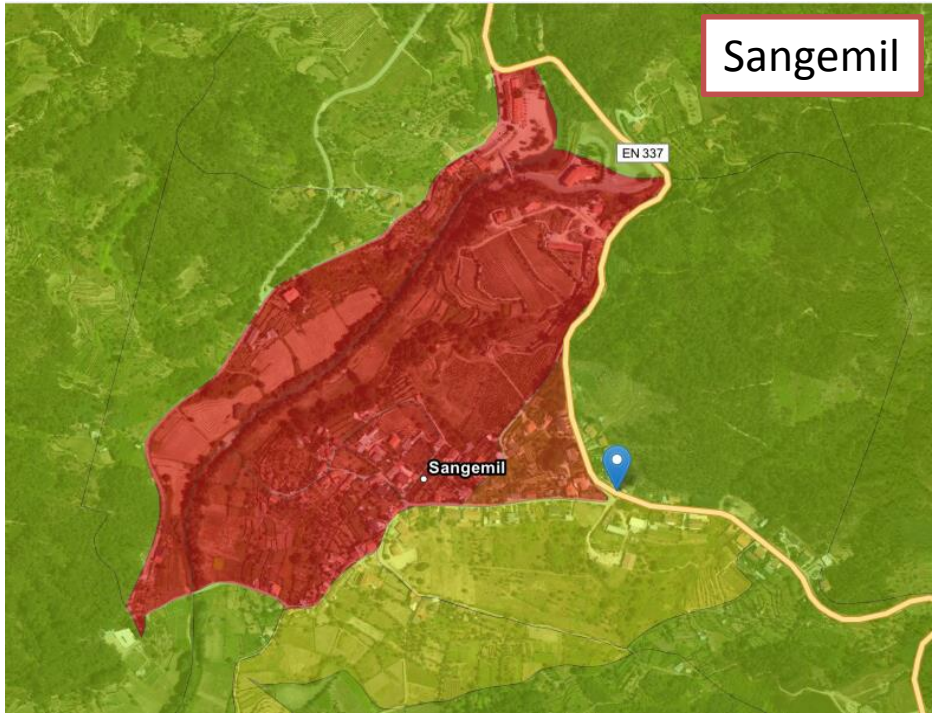
Amarante - 11 Jan. 2016

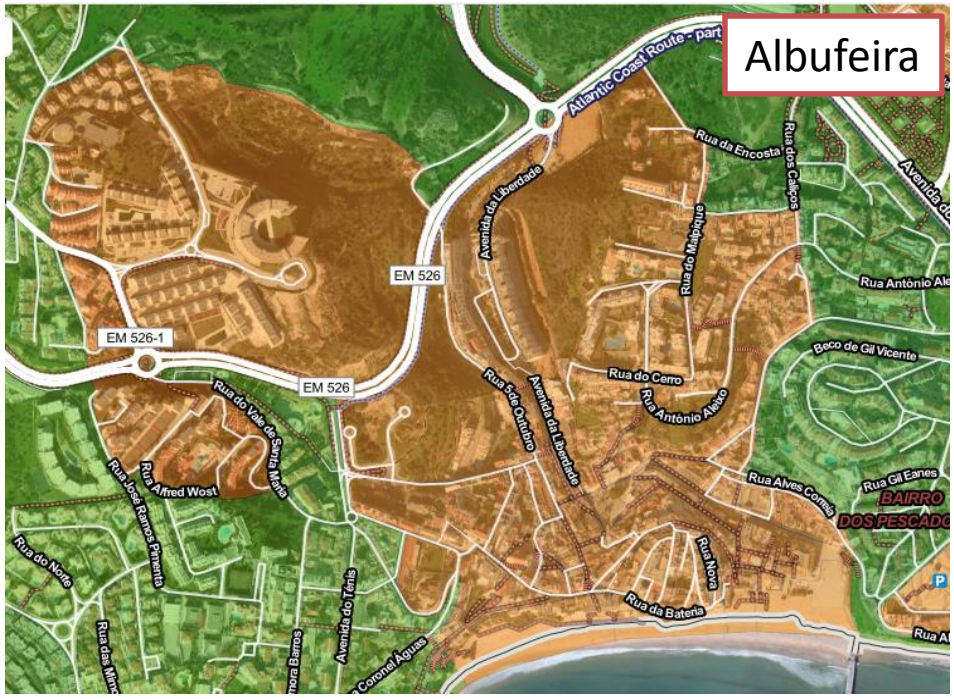
Sangemil – Jan. 2016

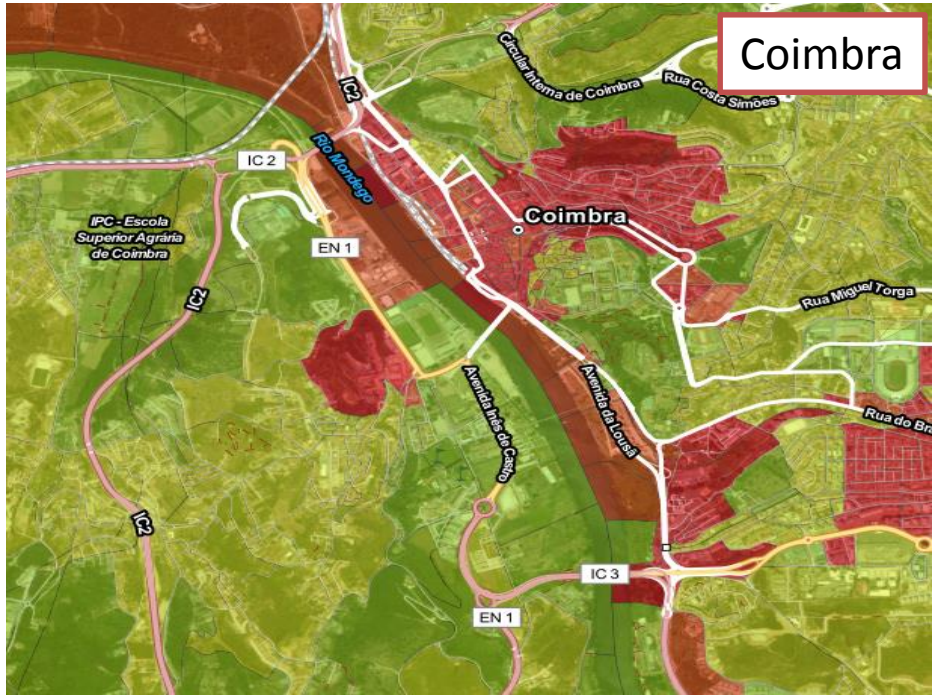
Coimbra – 6 Jan. 2016

Albufeira – 01 Nov. 2015


Amarante
BAIRRO
CANCELA
ABREU
CAMPO
DA FEIRA
Rua Nova
Estrada Nacional 15
EN 15
EN 312
Estrada Nacional 312
Rua Capitão Augusto Casimiro
Rua Cândido dos Reis
Rua Doutor Francisco Sá Carneiro
Rua João Pinto Ribeiro
Rua de Guimarães
Rio Tâmega
Amarante
Rua 31 de Janeiro
Rua de Santo António
MADALENA
Rua Alexandre Herculano (Rua da Feteira)
Estrada Nacional
Rua Antó


Sangemil
EN 337
Sangemil

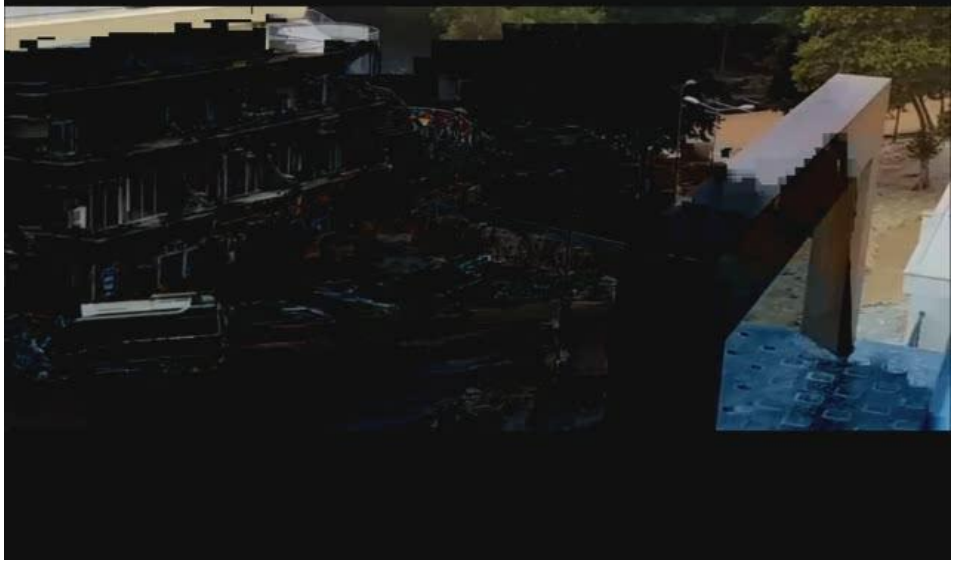

Albufeira
Atlantic Coast Route - part
Rua da Encosta
Rua dos Caiços
Avenida da Liberdade
Rua do Malpique
EM 526
EM 526-1
Rua António Ale
Beco de Gil Vicente
Rua do Cerro
Rua António Aleixo
Rua 5 de Outubro
Avenida da Liberdade
Rua do Vale de Santa Maria
Rua Alfred West
Rua José Ramos Pimenta
Rua Alves Correia
Rua Gil Eanes
BAIRRO
DOS PESCADO
Rua do Norte
Rua das Mi
Avenida do Trens
Rua Nova
Rua da Bateria
Coronel Águas


Coimbra
IC2
Circular Interna de Coimbra
Rua Costa Simões
IC 2
Rio Mondego
IPC - Escola
Superior Agrária
de Coimbra
EN 1
Coimbra
Rua Miguel Torga
Avenida Inês de Castro
Avenida da Lousã
IC 3
EN 1

Amarante 11 Jan 2016

Sangemil Jan 2016

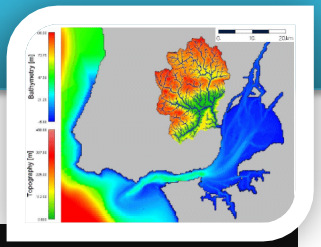
Albufeira 01-Nov-2015

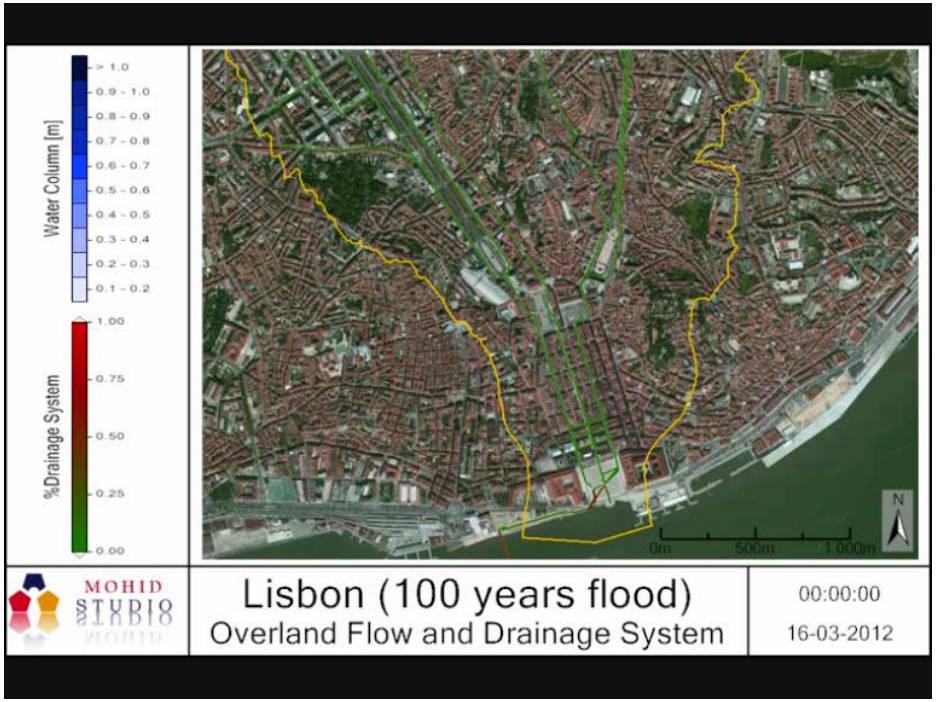


Coimbra 6 Jan 2016

2. Risk assessment and visualization

HYDROLOGICAL MODEL – MOHID & SWMM





Water height (m)

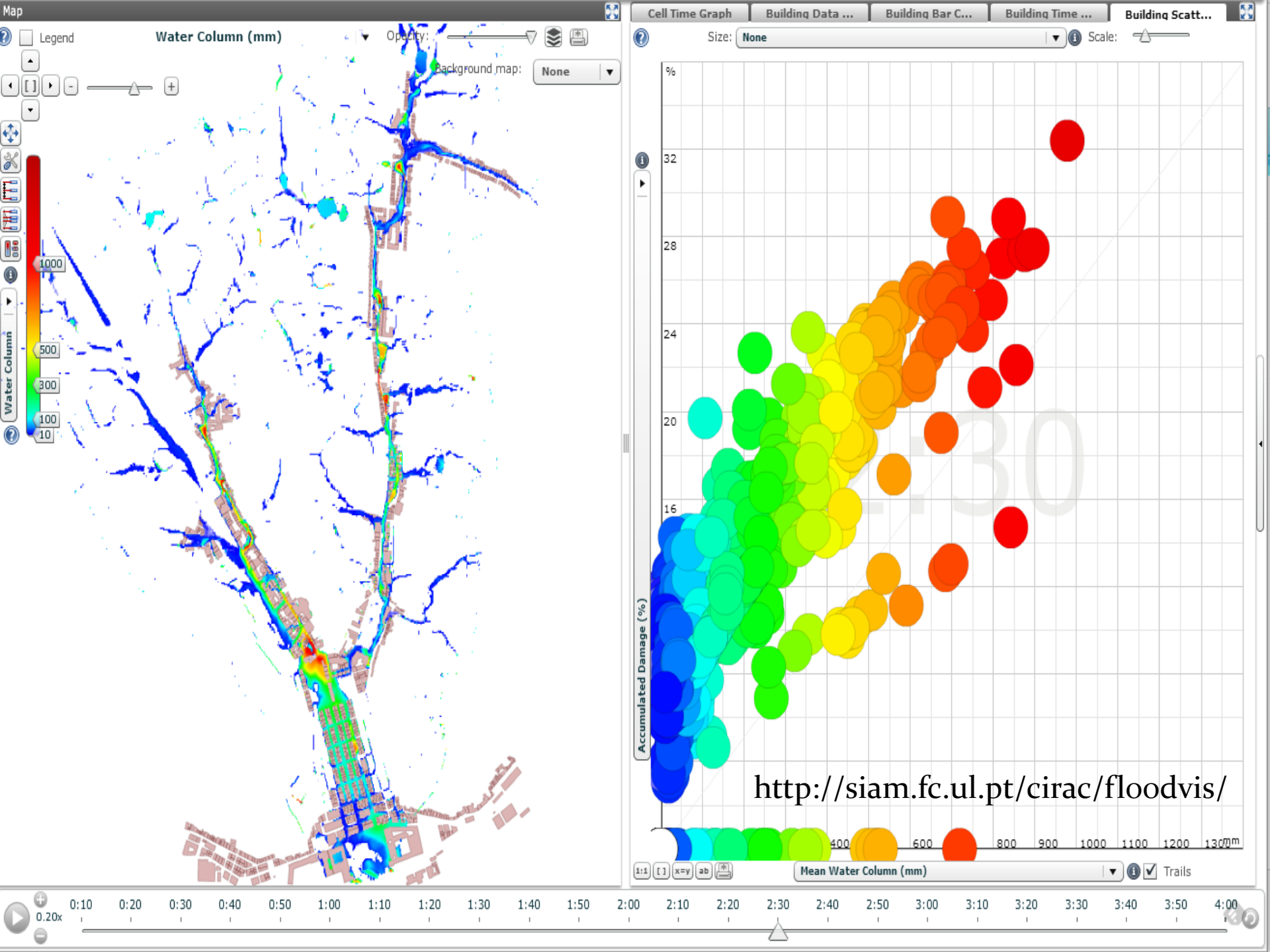
Drainage system(%)

100		> 1.0	
80 - 90		0.9 - 1.0	
70 - 80		0.8 - 0.9	
60 - 70		0.7 - 0.8	
50 - 60		0.6 - 0.7	
40 - 50		0.5 - 0.6	
30 - 40		0.4 - 0.5	
20 - 30		0.3 - 0.4	
10 - 20		0.2 - 0.3	
0 - 10		0.1 - 0.2	

ACTION Modulers
Consultores de Segurança

MOHID STUDIO

Luís Dias; Frank Braunschweig; Nuno Grosso; Hugo Costa; Pedro Garrett, 2014. Guia metodológico para a produção de cartografia de risco de inundações. Fundação da Faculdade de Ciências da Universidade de Lisboa. ISBN 978-989-20-0584


Map
Legend
Water Column (mm)
Opacity:
Background map:
None
1000
500
300
100
10
Water Column
Cell Time Graph
Building Data ...
Building Bar C...
Building Time ...
Building Scatt...
Size:
None
Scale:
%
32
28
24
20
16
Accumulated Damage (%)
400
600
800
900
1000
1100
1200
1300
mm
Mean Water Column (mm)
Trails
http://siam.fc.ul.pt/cirac/floodvis/
0.20x
0:10
0:20
0:30
0:40
0:50
1:00
1:10
1:20
1:30
1:40
1:50
2:00
2:10
2:20
2:30
2:40
2:50
3:00
3:10
3:20
3:30
3:40
3:50
4:00

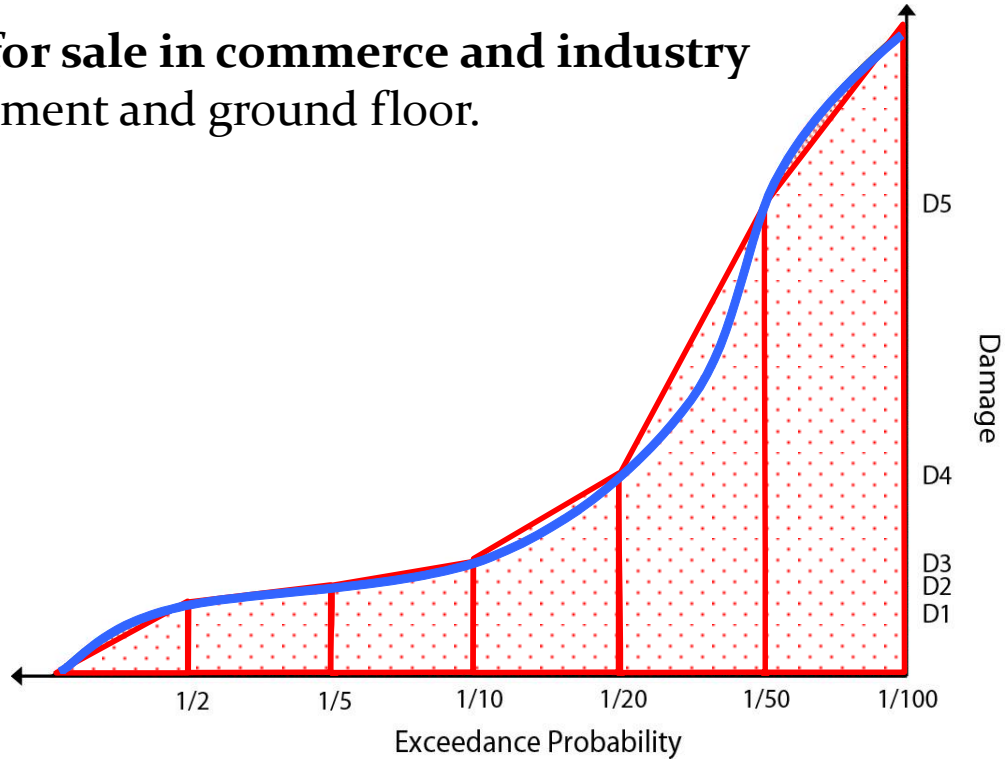
RISK ASSESSMENT – probability / damage functions

Building structure - damage in % on the **building structure** relative to the value of building.

Private inventory – damage in % of the contents (ex. **Electric equipment's, Furniture**, etc..) relative to the overall value in the basement and ground floor.

Fixed Assets – damage in % of the private property **in commerce and industry** relative to the overall value in the basement and ground floor.

Stock – damage in % of the **property for sale in commerce and industry** relative to the overall value for the basement and ground floor.



Source: Meyer, V., S. Scheuer, *[et al.]* (2009)

TECHNICAL TEAM

Pedro Garrett
Luís Dias
Rita Jacinto
Hugo Costa
Nuno Grosso
Frank Braunschweig
Rute Vieira






MONITORING COMMISSION

Tomé Pedroso - Companhia de Seguros Tranquilidade, S.A.
Rui Esteves - Fidelidade - Companhia de Seguros, S.A.
Carlos Ferreira Borges - Fidelidade - Companhia de Seguros, S.A.
João Barata - Companhia de Seguros Tranquilidade, S.A.
Pedro Castro Caldas – Ocidental – Companhia Portuguesa de Seguros, S.A.
António Teixeira – Companhia de Seguros Tranquilidade, S.A.
Olga Germano - Consultora
Miguel Guimarães - APS
Paulo Baptista - APS
José Maria Lima – APS

CIRAC

Thank you for your attention
Obrigado

Pedro Garrett
pmagarrett@fc.ul.pt

Insuring climate-related natural catastrophes in Spain:

The *Consorcio de Compensación de Seguros* and the Extraordinary Risks Insurance Scheme

CCS Department for Studies and International Relations

EC WG6 Meeting Workshop
Brussels, 2 February 2016

Outline

1. Introduction
2. *Consorcio de Compensación de Seguros*
3. Extraordinary Risks Insurance Scheme in Spain
4. Climate change and insurance: the Spanish perspective

1. Introduction

- In Spain extraordinary risks (both natural and anthropogenic) are covered through a scheme which main features are:
  - Legal:
    - Compulsory coverage applied to most property, life and personal accident policies
    - Variety of risks covered, implying compensation
  - Institutional:
    - Model of private-public partnership
    - Scheme managed by the *Consorcio de Compensación de Seguros* (Insurance Compensation Consortium), public tool at the service of the whole Spanish insurance sector, and fully integrated in it

2. CCS

- The Consorcio de Compensación de Seguros (CCS) is a public business institution attached to the Ministry of Economy and Competitiveness
- Performs several roles as a backup of the Spanish Insurance Sector, namely:
  - Insurance of Extraordinary Risks
  - Winding-up activity in the event of bankruptcy of an Insurance Company
  - Complementary role in auto, environmental, nuclear, agricultural and other insurance lines

2. CCS

- The *Consorcio* originates in the aftermath of the Spanish Civil War (1941)
- A series of disasters in the post-war years show the validity of the arrangement to cope with extraordinary losses and, finally, the CCS is established by Law in 1954

2. CCS

Consorcio de Compensación de Seguros

CCS Legal Statutes (1991)

- Own legal nature → **Public business institution** attached to the Ministry of Economy and Competitiveness
- Full operational capability → Subject to laws regulating private insurance companies
- Board of Administration → Equal private-public composition
- Own assets independent from those of the State → Premiums, Surcharges and investment returns
- Multi-functions → Managing several insurance solutions
- Complementary role → Cooperation with the market → **Private-public partnership**
- Flexibility and adaptability
- Decentralized operation → 18 regional offices

2. CCS

Consorcio de Compensación de Seguros

ORGANIZATION

MINISTRY OF ECONOMY AND COMPETITIVENESS

CCS BOARD OF ADMINISTRATION

Chairperson:
Head, DG for Insurance and Pension Funds

14 MEMBERS appointed by the Minister of Economy and Competitiveness

7 MEMBERS FROM PRIVATE INSURANCE COMPANIES

7 MEMBERS FROM THE PUBLIC ADMINISTRATION

2. CCS

Consorcio de Compensación de Seguros

STRUCTURE

PRESIDENT
Head, DG for Insurance and Pension Funds

General Manager

18 regional offices

Directorates

- **Operations**
- **Financial**
- **Winding-up Activity**
- **Systems and IT**
- **General Secretary**

- Internal Audit Service
- Compliance Service
- Customer Service
- Agricultural Insurance Dpt.

Staff as of 31.12.15: 312

3. Extraordinary Risks Scheme

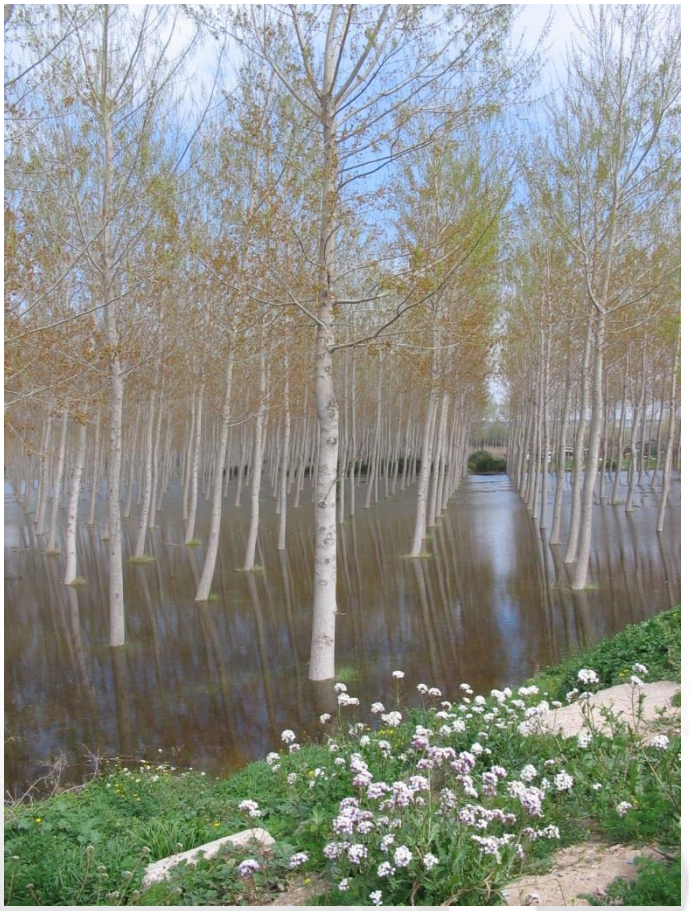
Consorcio de Compensación de Seguros

- Main principles:
  - Compensation
    - Geographical
    - Among risks
    - In time (inter annual)
  - Universality → compulsory nature, avoids adverse selection
  - Partnership with the private sector
  - Affordability

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

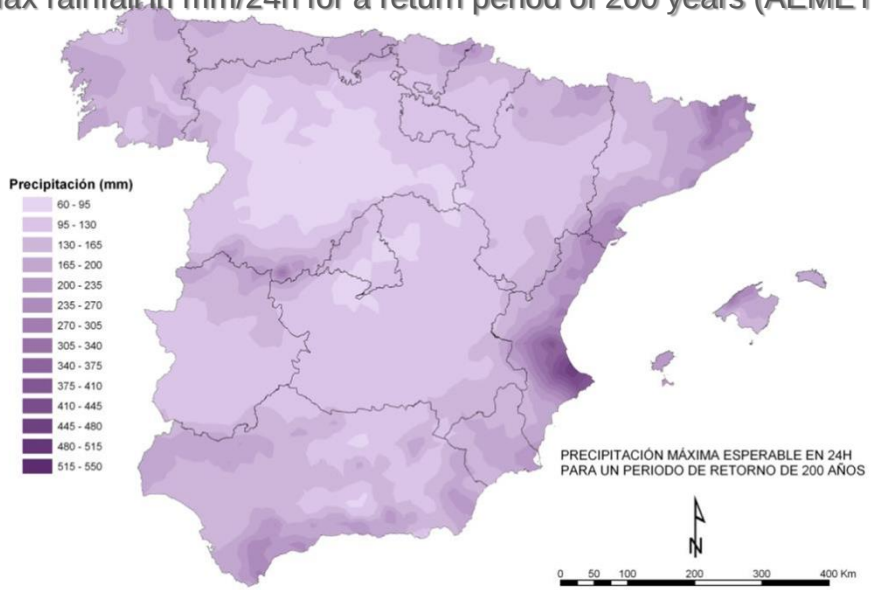
- Risks covered
  - Natural
    - **Flood (riverine and coastal)**
    - **Winds > 120 Km/h**
    - **Tornado**
    - Earthquake and tsunami
    - Volcanic eruption
    - Meteorites
  - Anthropogenic
    - Terrorism
    - Rebellion, insurrection, riots and civil commotion
    - Actions of armed forces in peacetime



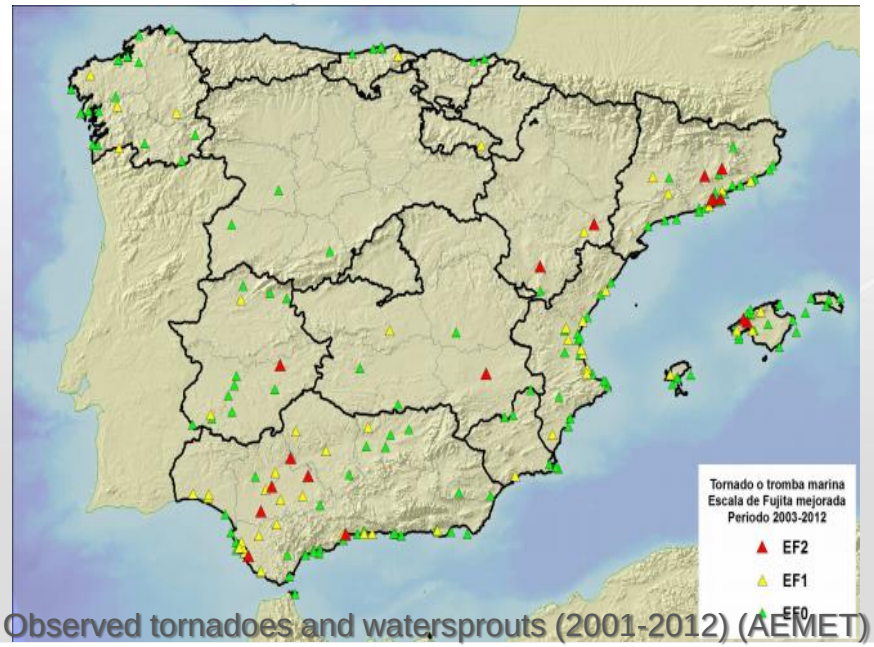
3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

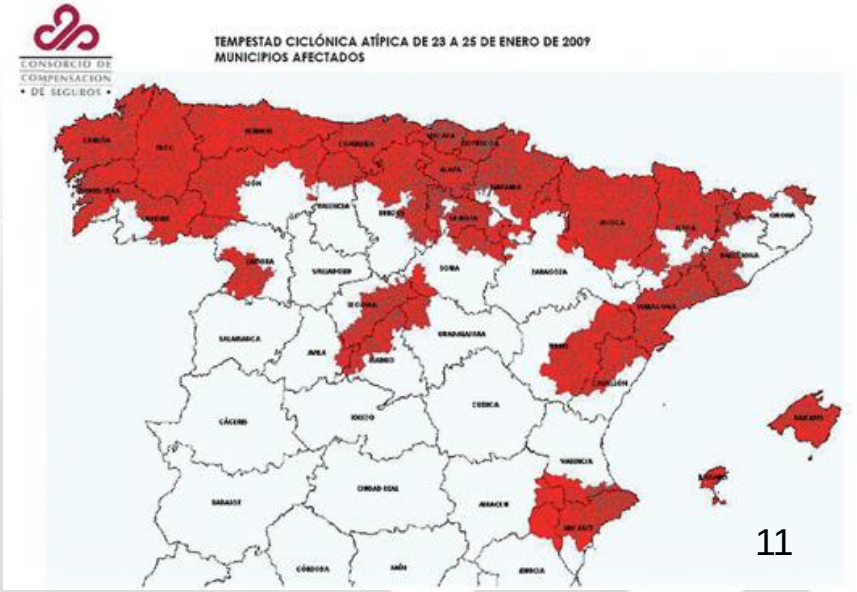
Max rainfall in mm/24h for a return period of 200 years (AEMET)



Areas of Potentially Significant Flood Risk (DG Water)



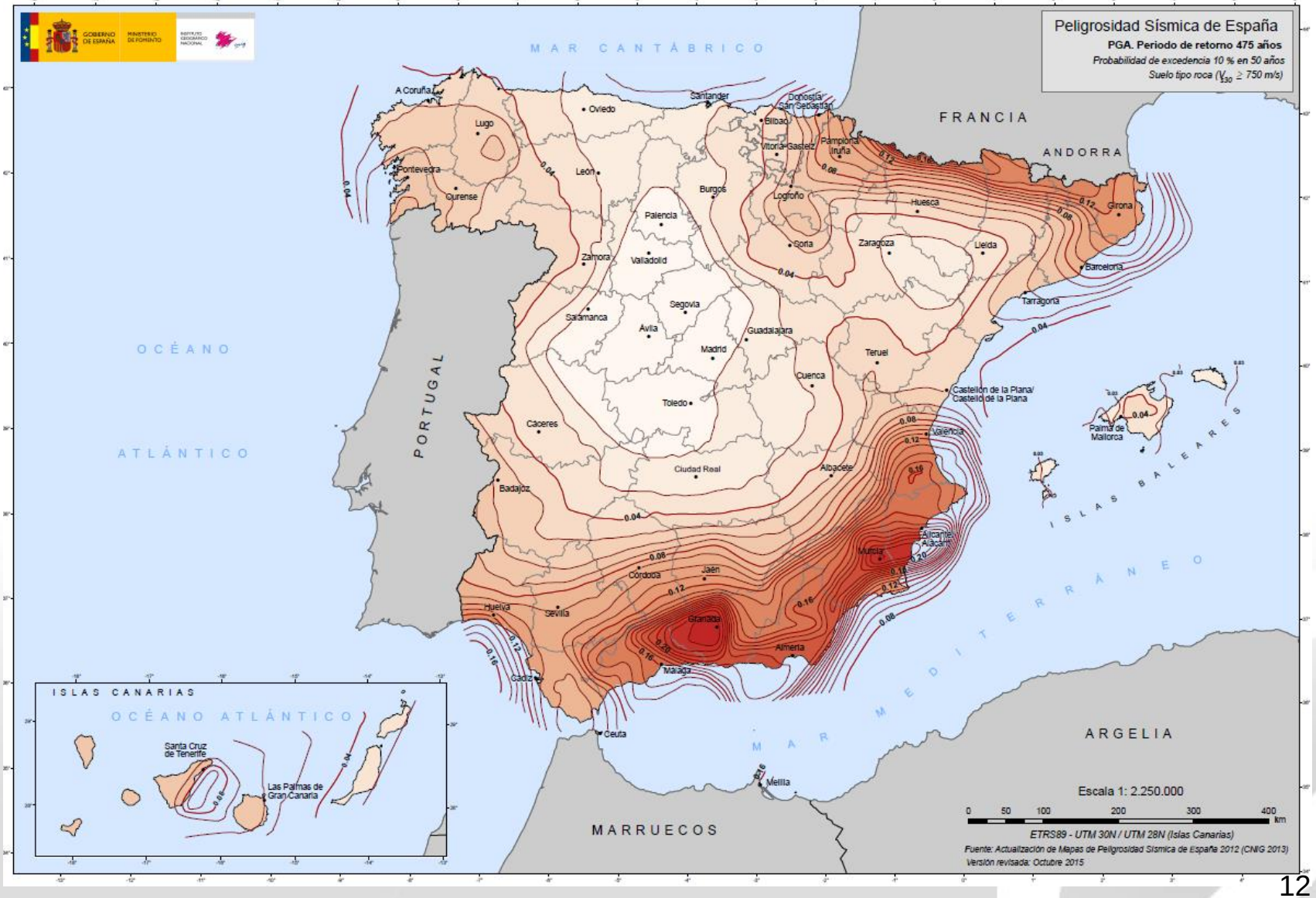
Observed tornadoes and watersprouts (2001-2012) (AEMET)



Areas with winds > 120 Km/h after winter storm Klaus, 2009 (CCS)

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros



Seismic hazard in Spain (National Geographic Institute)

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

HOW DOES CONTRACTING WORK?

INSURANCE POLICY → Issued by insurance companies

In lines of
- Damage to property
- Life and/or personal accidents

→ Coverage clause covering Extraordinary Risks has to be compulsorily included in policies of these lines

2 simultaneous contracts into the same policy

ORDINARY RISKS (fire, theft, etc.,)	EXTRAORDINARY RISKS (flood, terrorism, etc.,)
⇩	⇩
Private insurer (free tariff)	Consorcio de Compensación de Seguros
⇩	⇩
Premium	Compulsory surcharge

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

HOW IS THE COVERAGE FINANCED?

COMPULSORY SURCHARGE IN FAVOUR OF THE CCS

- Rate applied on the amount insured of the ordinary policy
- Insurance companies collect the surcharges together with their premiums
- Companies pay the surcharges to the CCS on a monthly basis
- Collecting commission retained by the companies is 5%

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

THE SURCHARGE TARIFF

- Property insurance

A - Direct material damages

Housing: 0.08 per thousand

Offices: 0.12 per thousand

Shops, shopping centres, other simple risks: 0.18 per thousand

Industrial risks: 0.21 per thousand

Motor vehicles: depending on type (i.e., 3.5 € for a car)

Civil works: rates range from 0.28 to 1.63 per thousand

B - Business interruption

Housing: 0.005 per thousand (on the amount insured for material damages)

Other risks: 0.25 per thousand (on the amount insured for business interruption)

- Accidents and Life insurance → 0.005 per thousand

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

WHAT LOSSES DOES THE CCS COMPENSATE FOR?

PROPERTY

- Direct property damages
  (repair or replacement)
- Supplementary expenses
  (mud extraction; demolition and removal; rubble disposal and transport to landfill)
- Business interruption

ACCIDENTS AND LIFE

- Death
- Permanent disability
- Temporary disability

Only losses from events occurred in Spain
+
personal injuries from events occurred abroad

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

WHAT ARE THE COMPENSATION TERMS?

References

- The same property or persons
- The same sum insured
- The same compensation conditions

} Established in the ordinary policy

DEDUCTIBLES:

Property damage (direct material damage)	→	7% of the indemnification amount, none for cars and housing
Business interruption	→	The same deductible established in the ordinary policy
Personal injuries	→	No deductibles

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

LOSS ADJUSTMENT

This task is made by experts designed by CCS

They are professionals whose services are taken on in the market

Number of experts designed: depending on the volume of the damage

Experts are not part of CCS staff

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

COVERAGE FEATURES

- **DEFINED BY LAW** → **Legal security for customers**
- **QUALITATIVE BUT NOT QUANTITATIVE**

CCS compensates the losses to the policyholders regardless:

- The amount of total losses
- The number of insureds affected
- The size of the affected area

- **AUTOMATIC COVERAGE** → **A previous official declaration about the catastrophic nature of the events is NOT required**

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

EQUALIZATION RESERVE AND STATE GUARANTEE

EQUALIZATION RESERVE

- A real “Catastrophe Fund”
- Endowed with annual profit after taxes

  € 7.3 Bn (as for 31.12.15)

RISK IS NOT TRANSFERED TO THE REINSURANCE MARKET (although it could be)

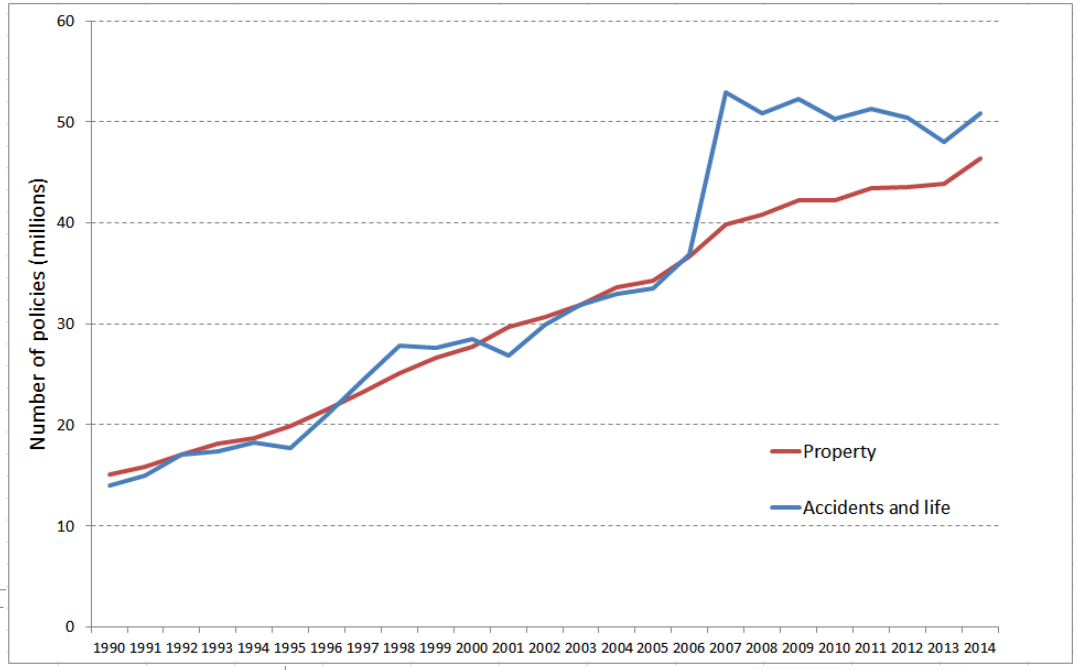
STATE GUARANTEE → Never used

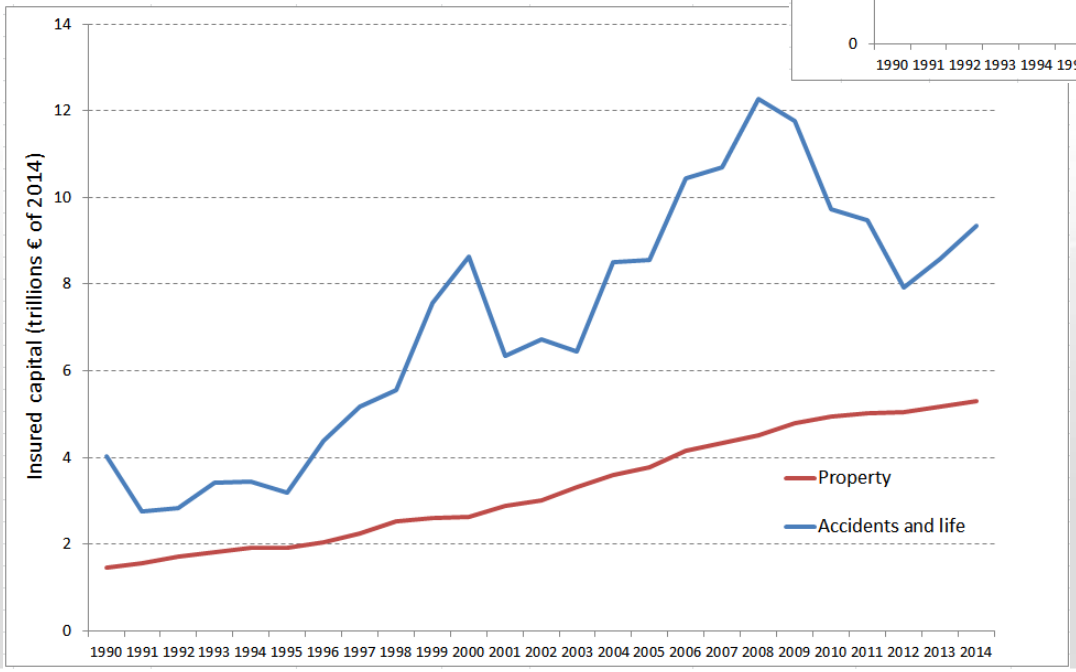
3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

Number of policies
and insured capital
subject to coverage by CCS

(Source: CCS Statistics of Extraordinary Risks)

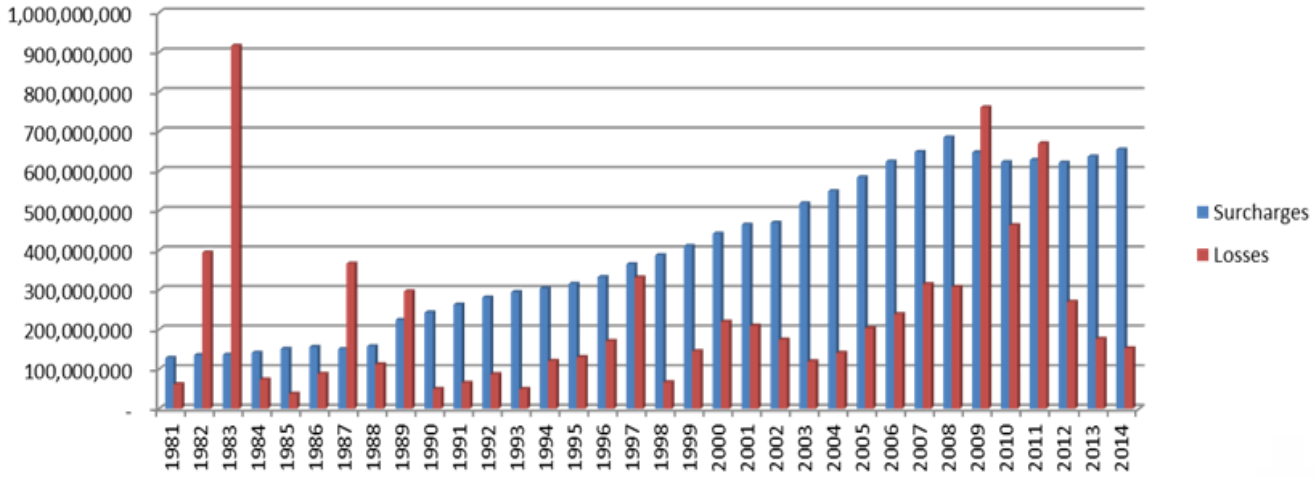


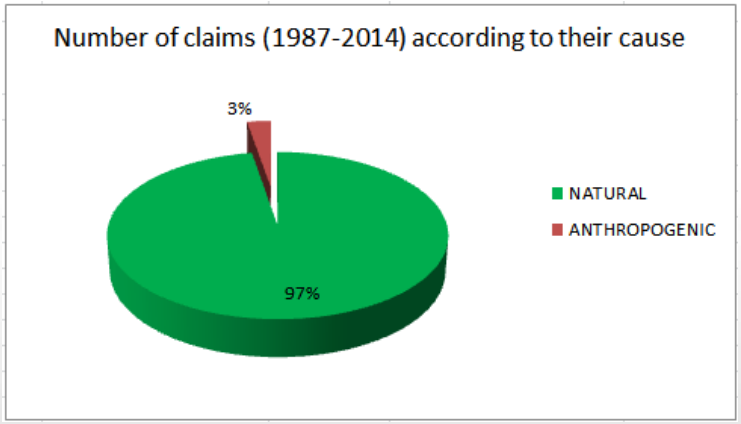


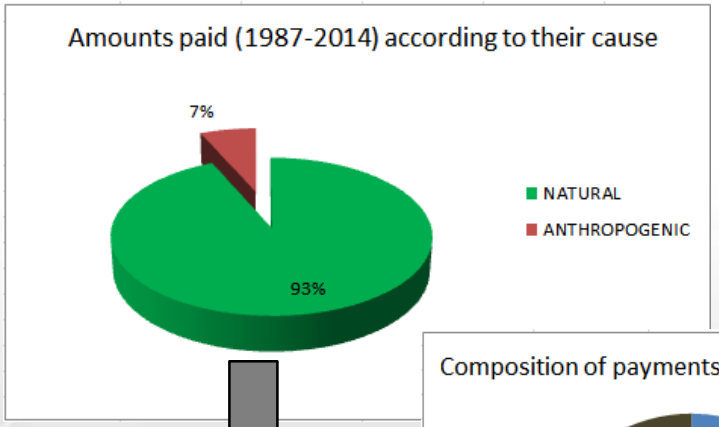
CCS coverage to the life line
was incorporated in 2007

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros

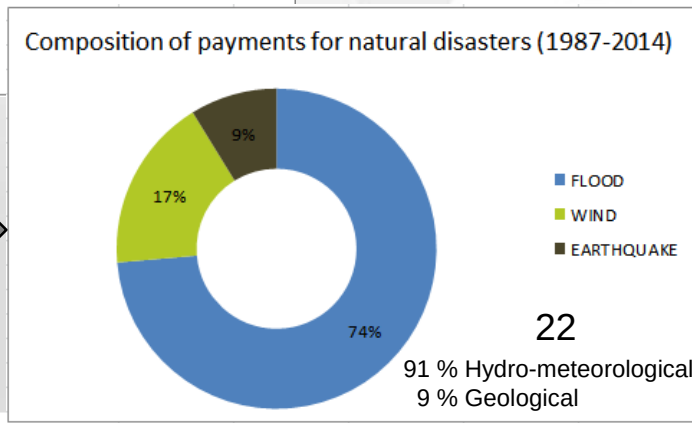






From 1987-2014:
> 1 million claims have been transacted
> 6,4 billion € have been paid in compensations

(Source: CCS Statistics of Extraordinary Risks)

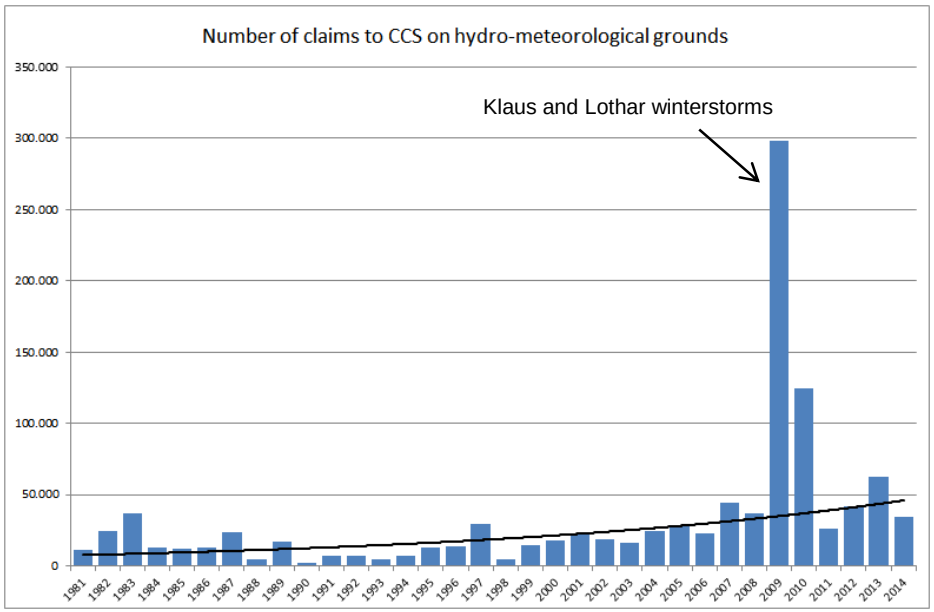


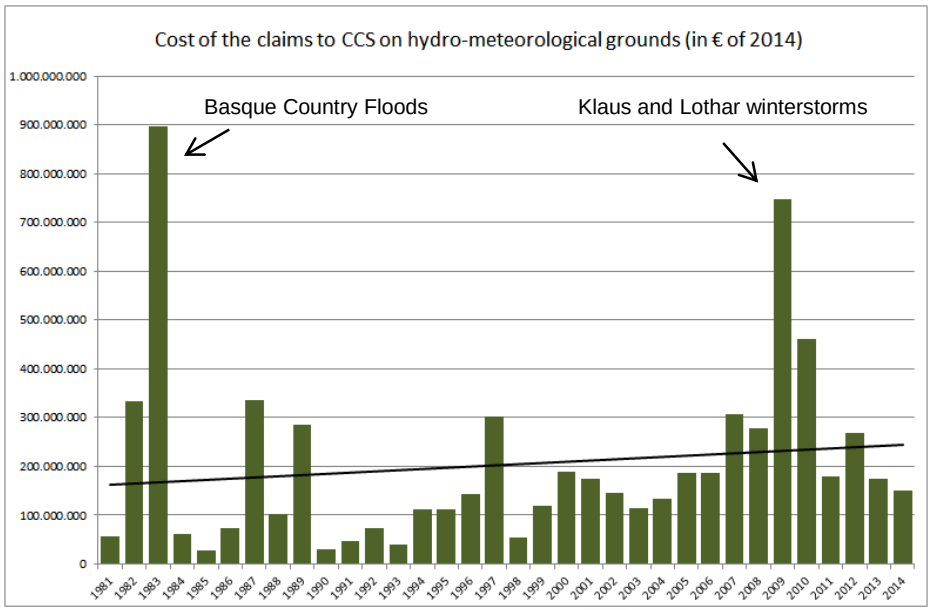
22

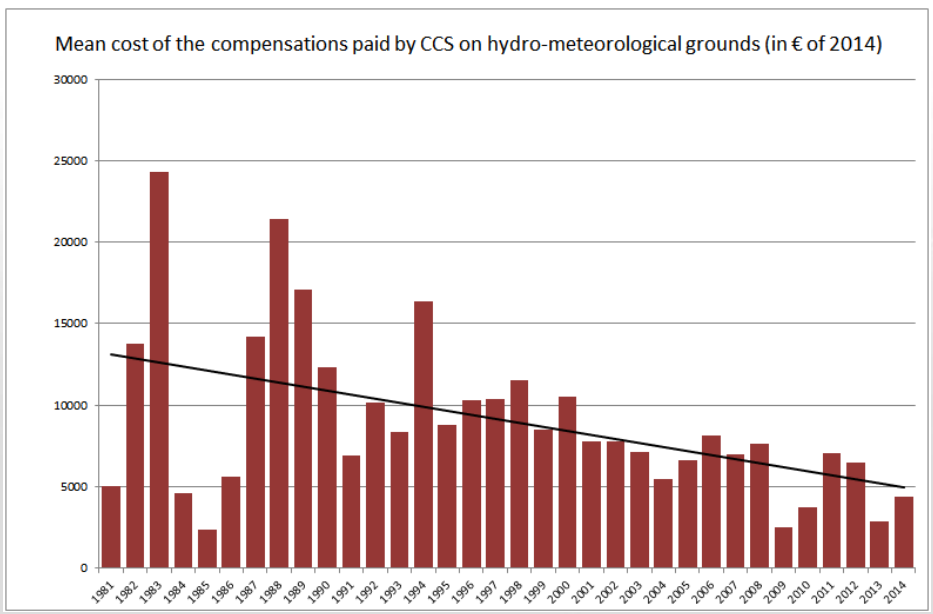
91 % Hydro-meteorological
9 % Geological

3. Extraordinary Risks Scheme

Consorcio de Compensación de Seguros







Besides, the agricultural insurance “Agroseguro” compensates a mean of 346.4 M€/year (2001-2014)

(Source: CCS Statistics of Extraordinary Risks)

4. CC and insurance: Spain

Consorcio de Compensación de Seguros

- Finance and insurance issues are contemplated at the Spanish National Climate Adaptation Plan (PNACC)
- CCS cooperates with several Spanish institutions on researching the possible evolution of hazards due to CC effects:
  - Spanish Bureau for Climate Change (OECC)
  - Spanish State Meteorological Agency (AEMET)
  - General Directorate for Water (DGA)
  - National Geographical Institute (IGN)
  - Spanish Institute for Geology and Mining (IGME)
  - General Directorate for Civil Protection and Emergencies (DGPCE)
  - Spanish Association of Insurance and Reinsurance Institutions (UNESPA)
  - Spanish Association of Risk Management and Insurance (AGE(R)S)
  - Several Universities and Research Institutions
- CCS is part of the World Forum on Catastrophe Programmes and actively participates in other fora, such as OECD
- CCS took part in a relevant side-event of COP21

4. CC and insurance: Spain

Consorcio de Compensación de Seguros

INSURANCE COVERAGE OF CLIMATE-RELATED HAZARDS IN SPAIN

HAZARDS COVERED BY THE CURRENT COVERAGE SCHEMES

HAZARDS	INSURANCE COVERAGE
NATURAL HAZARDS POTENTIALLY HARMFUL TO PROPERTIES AND INDIVIDUALS FLOOD COASTAL FLOOD STRONG WIND AND TORNADO	CCS EXTRAORDINARY RISK INSURANCE Coverage system based on public-private partnership: *Consorcio de Compensación de Seguros* and the Spanish insurance industry
NATURAL HAZARDS POTENTIALLY HARMFUL TO AGRICULTURE AND LIVESTOCK FLOOD DROUGHT STRONG WIND FROST	COVERAGE THROUGH COMBINED AGRICULTURAL INSURANCE • Coverage system based in a co-insurance pool of private insurance companies (AGROSEGURO) with CCS as reinsurer. • Insureds (farmers and ranchers) benefit from public subsidies (from national and regional budgets) to help them pay premiums.

4. CC and insurance: Spain

Consorcio de Compensación de Seguros

INSURANCE COVERAGE OF CLIMATE CHANGE-RELATED HAZARDS IN SPAIN

EMERGENT HAZARDS AS A RESULT OF CLIMATE CHANGE

HAZARDS

OTHER HAZARDS DERIVED FROM CLIMATE CHANGE DIFFERENT TO THOSE ALREADY COVERED BY THE SYSTEMS CURRENTLY IN OPERATION

- HEAT WAVE
- PANDEMIC
- DROUGHT
- OTHER NATURAL DISASTERS

INSURANCE COVERAGE

POTENTIALLY HAZARDOUS FOR PROPERTIES AND INDIVIDUALS

ALTERNATIVES

- COVERAGE BY THE PRIVATE INSURANCE INDUSTRY
- COVERAGE BY THE PRIVATE INSURANCE INDUSTRY WITH CCS PARTICIPATING AS CO-INSURER OR RE-INSURER (Temporary solution)
- COVERAGE BY THE EXTRAORDINARY RISK INSURANCE OF CCS (Extended)

POTENTIALLY HAZARDOUS FOR AGRICULTURE AND LIVESTOCK

ALTERNATIVES

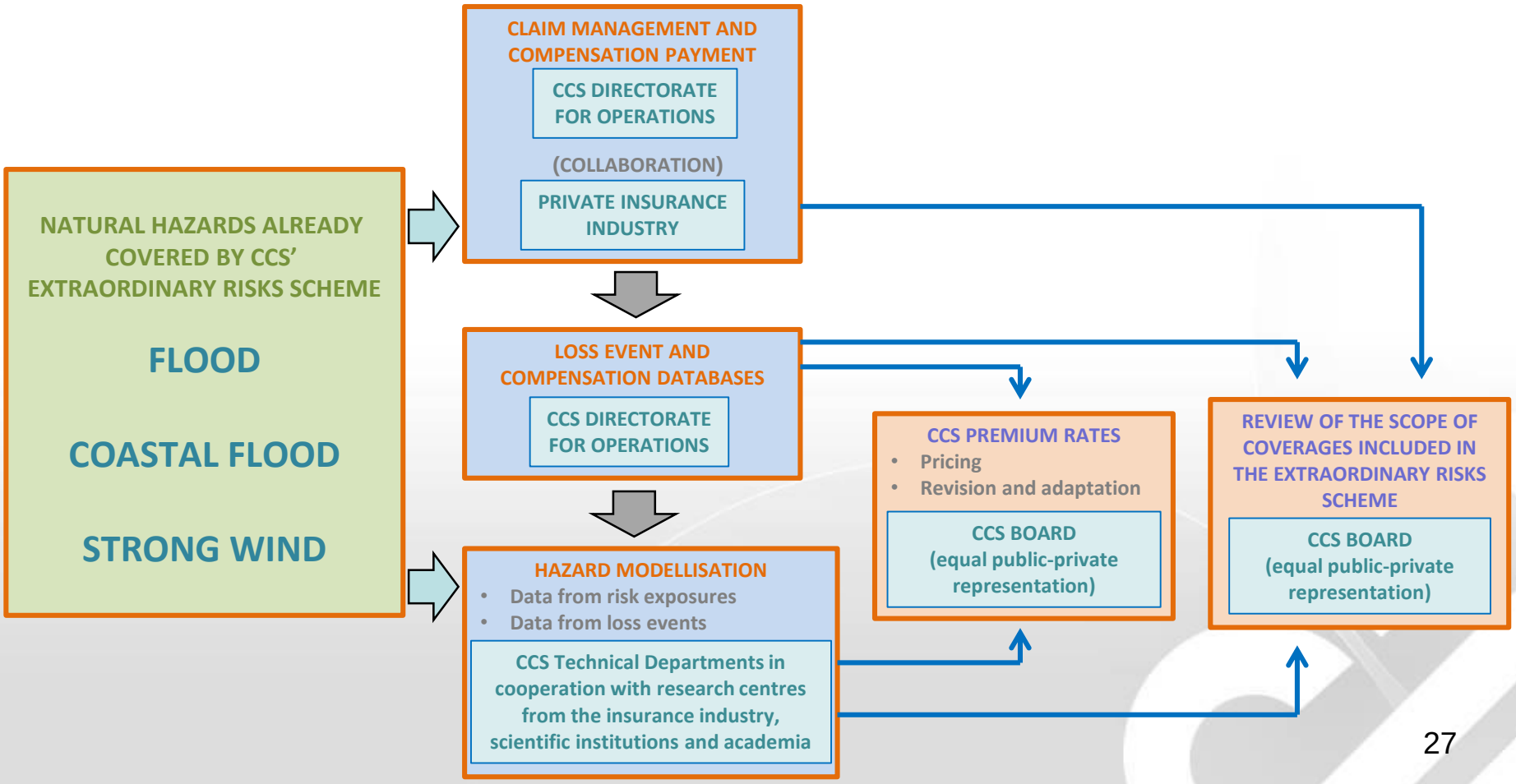
- COMBINED AGRICULTURAL INSURANCE (viable lines): less public support to premiums and less participation from CCS
- COMBINED AGRICULTURAL INSURANCE (experimental lines): more public support to premiums and more participation of CCS

4. CC and insurance: Spain

Consorcio de Compensación de Seguros

CLIMATE-RELATED HAZARDS COVERED BY THE CCS EXTRAORDINARY RISK INSURANCE

WORKING ARRANGEMENT – DYNAMIC PERSPECTIVE



4. CC and insurance: Spain

Consorcio de Compensación de Seguros

CLIMATE CHANGE-RELATED HAZARDS NON COVERED BY THE CCS EXTRAORDINARY RISK INSURANCE: EMERGENT HAZARDS

ALTERNATIVES FOR THEIR INSURANCE COVERAGE

OTHER HAZARDS DERIVED FROM CLIMATE CHANGE DIFFERENT TO THOSE COVERED BY THE CURRENT SCHEME

- HEAT WAVE
- PANDEMIC
- DROUGHT
- OTHER NATURAL DISASTERS

RESEARCH AND MODELLISATION OF HAZARDS

CCS Technical Departments in cooperation with research centres from the insurance industry, scientific institutions and academia

OPTION 1: PRIVATE MARKET HAS CAPACITY TO OFFER SUFFICIENT AND APPROPIATE COVERAGE

WHOLE COVERAGE BY PRIVATE COMPANIES (Insurers and re-insurers)

Modelling of the loss events

Design of coverage and premium calculation

OPTION 2: PRIVATE MARKET REQUIRES TEMPORARY SUPPORT

COVERAGE BY PRIVATE COMPANIES WITH SUPPORT FROM CCS THROUGH CO-INSURANCE OR REINSURANCE

REQUIREMENTS:

- Request from the private market
- Circumstances justifying it
- Agreement by 2/3 majority at the CCS Board of Administration

OPTION 3: PRIVATE MARKET CONDITIONS DON'T ALLOW IT TO TAKE OVER COVERAGE

ADDITION OF HAZARDS TO CCS' SCHEME OF EXTRAORDINARY RISKS

REQUIREMENTS:

- Request from the private market
- Permanent circumstances justifying it
- Agreement from the CCS Board of Administration
- Revision of CCS Legal Bylaw

THANKS FOR YOUR ATTENTION

http://www.consorseguros.es

"Consorseguros"
The digital magazine of the Consorcio
www.consorsegurosdigital.com

How can insurance loss data increase resilience

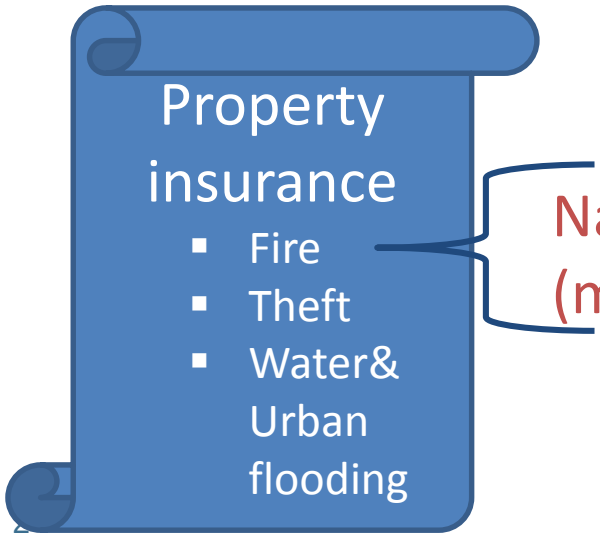
Mia Ebeltoft

DG Clima: Workshop on insurance and climate related natural disasters
Brussels 2. February, 2016

Finance Norway

Norwegian natcat insurance

- "Act of God"- not risk-based
- Solidarity system- "no one`s fault"
- Urban flooding not an "Act of God"
- Included in property insurance
- Almost 100 % penetration

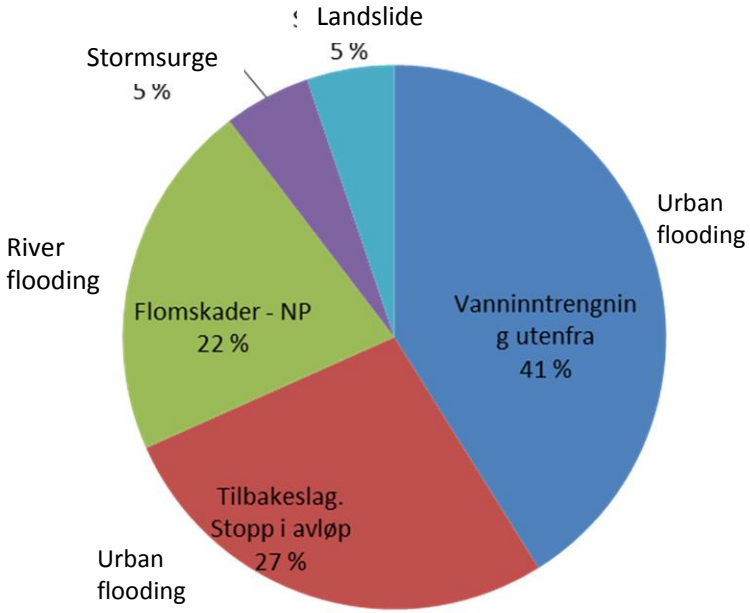


Natcat coverage automatic included (mandatory) under the "fire" insurance

Finance Norway

Urban flooding: 70 % of insurance loss

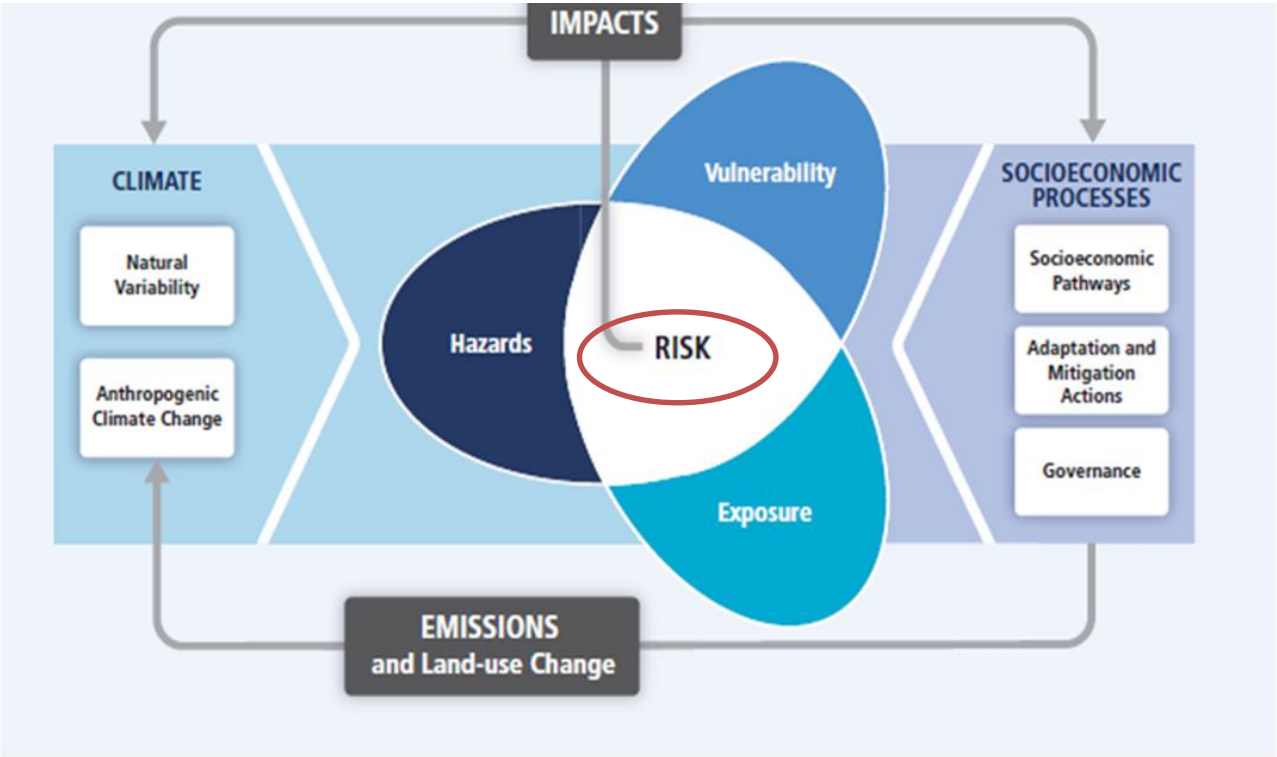
Insurance pay outs 2008 - 2014



Blue+red
= Urban
flooding

Finance Norway

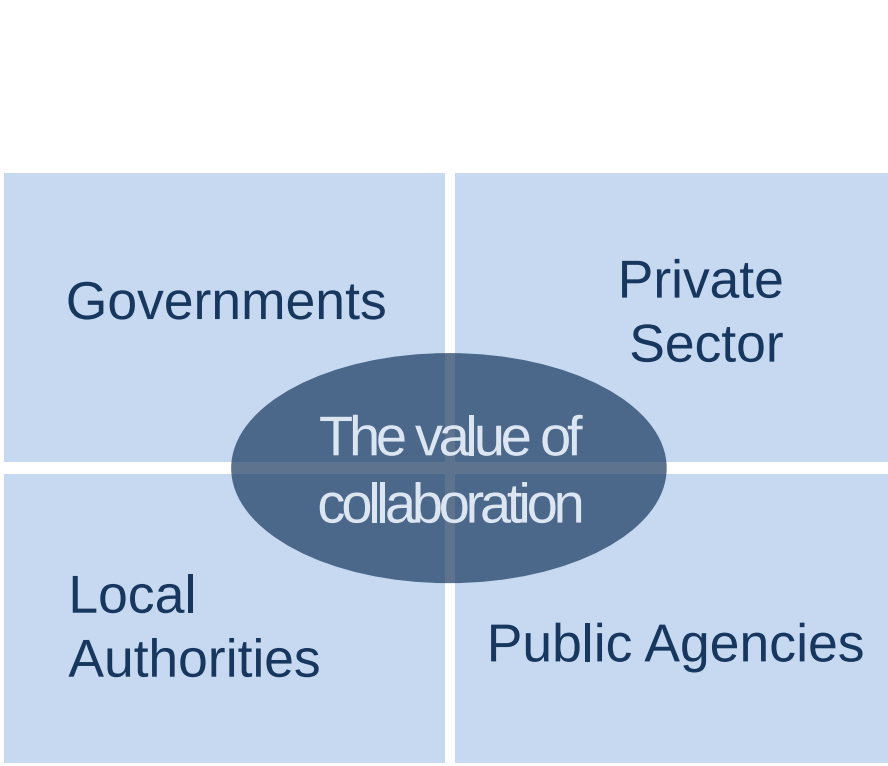
Insurance loss data help authorities (mitigators) understand risk



Source: IPCC

Finance Norway

Holistic risk picture: You need collaboration cross sectors



Insurance Industry

- Risk management
  - Assessment
  - Quantify & Calculate
  - Risk transfer products
- Collects local disaster loss data
- Compensate, don't mitigate

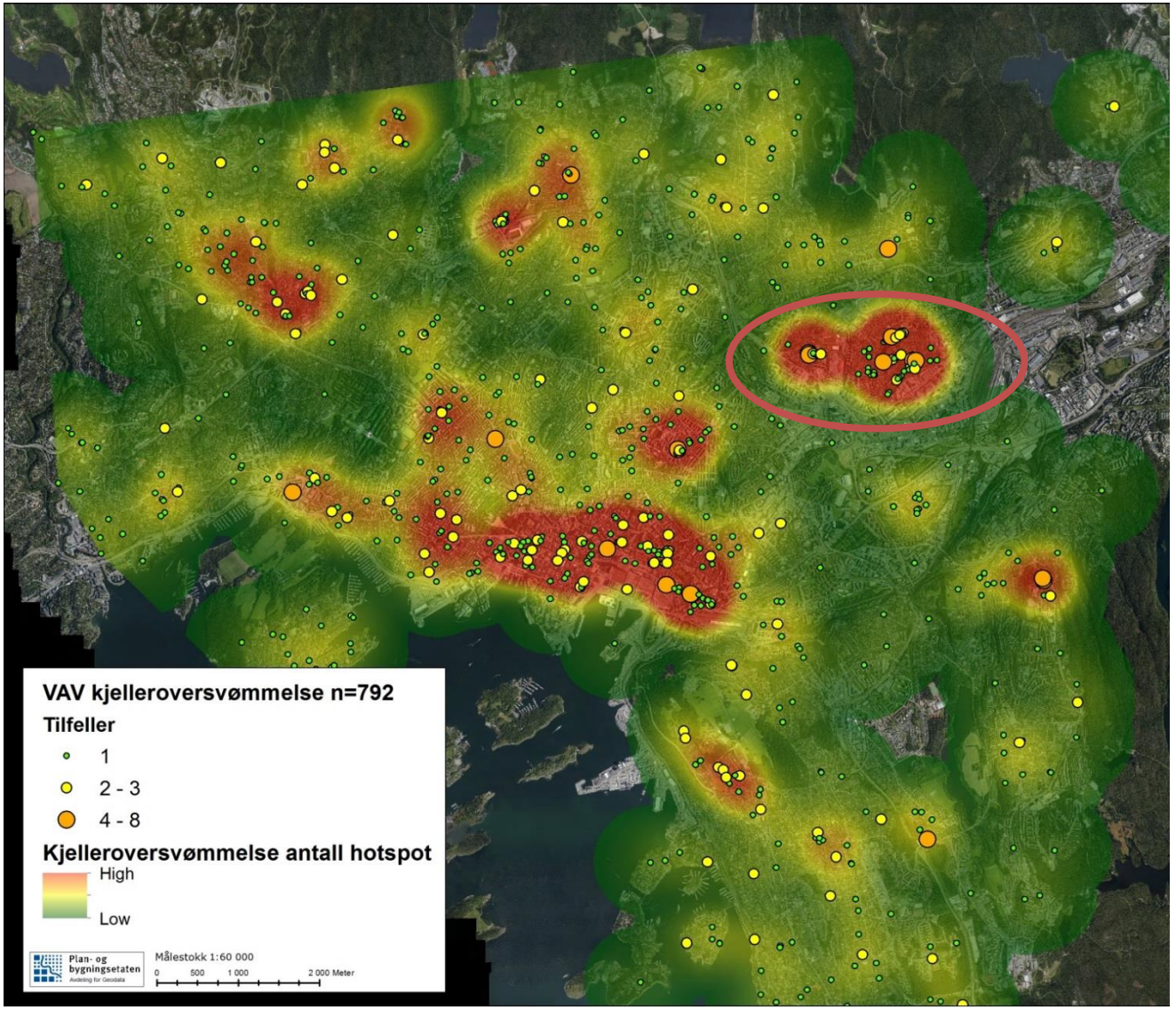
Finance Norway

How can insurance loss data help increase resilience

- Municipalities have the responsibility to reduce vulnerability
- Municipalities have very limited loss data
- Insurance loss data is complete and precise on vulnerable areas
- Local loss data enables informed decision-making

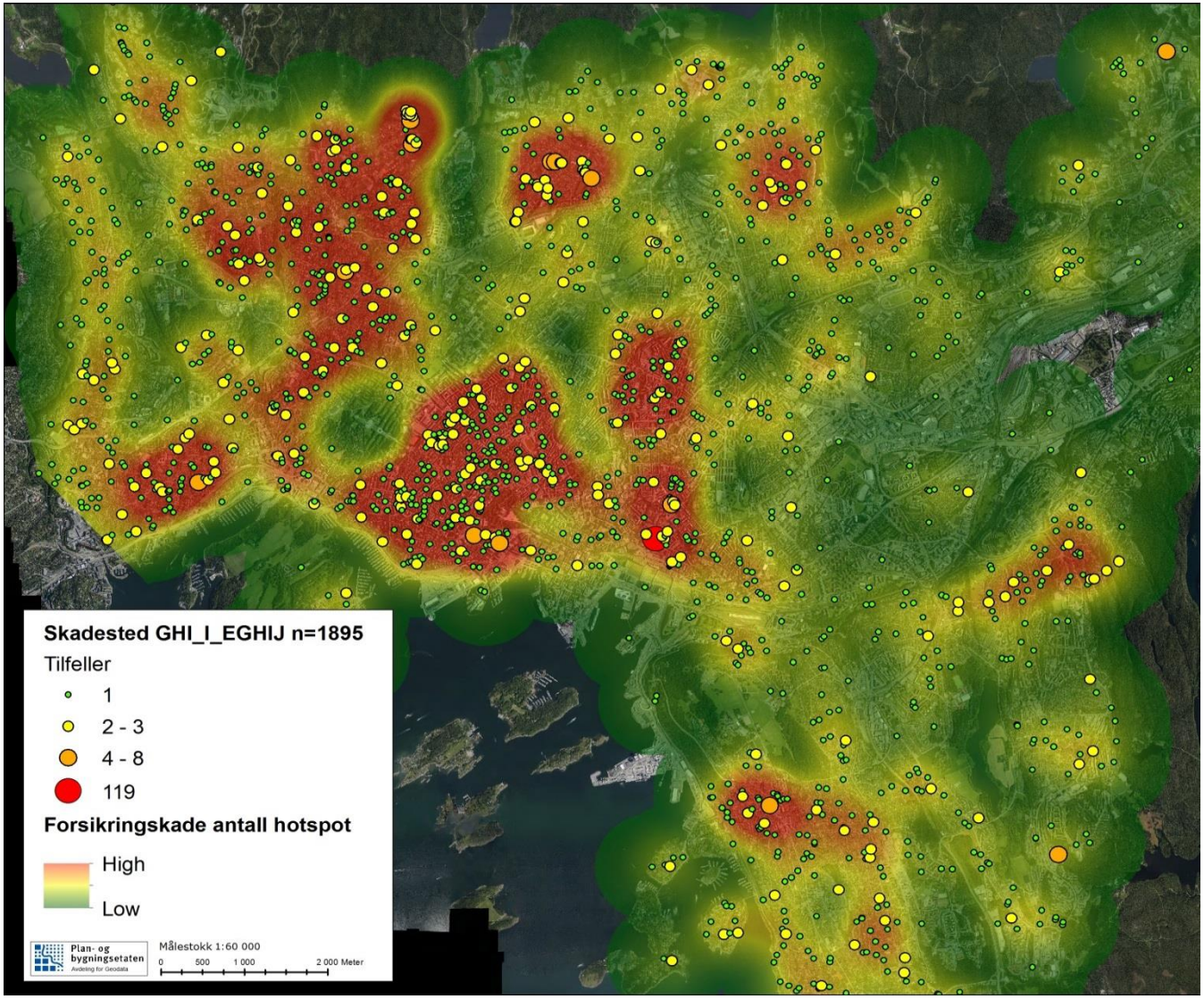
Finance Norway

Oslo city's own loss data



Finance Norway

Insurance urban flooding loss data



Finance Norway

Prevention measures against natural catastrophes and impacts of climate change more and more necessary and also cost efficient

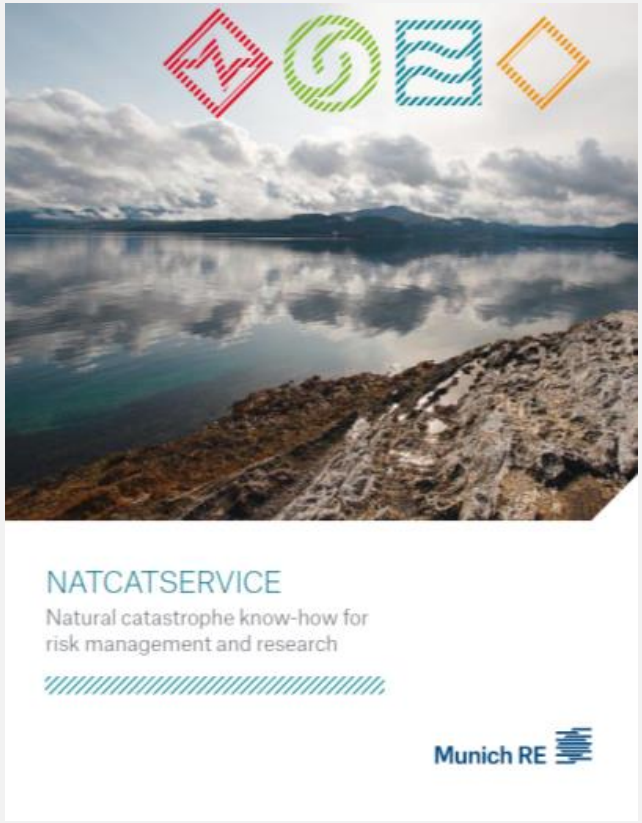
Prof. Dr. Peter Hoeppe,
Head Geo Risks Research/Corporate Climate Centre,
Munich Re

Workshop on insurance and climate related natural disasters, 02-02-2016, Brussels

Munich RE

Munich Re NatCat*SERVICE*

The world‘s most comprehensive database on natural catastrophes

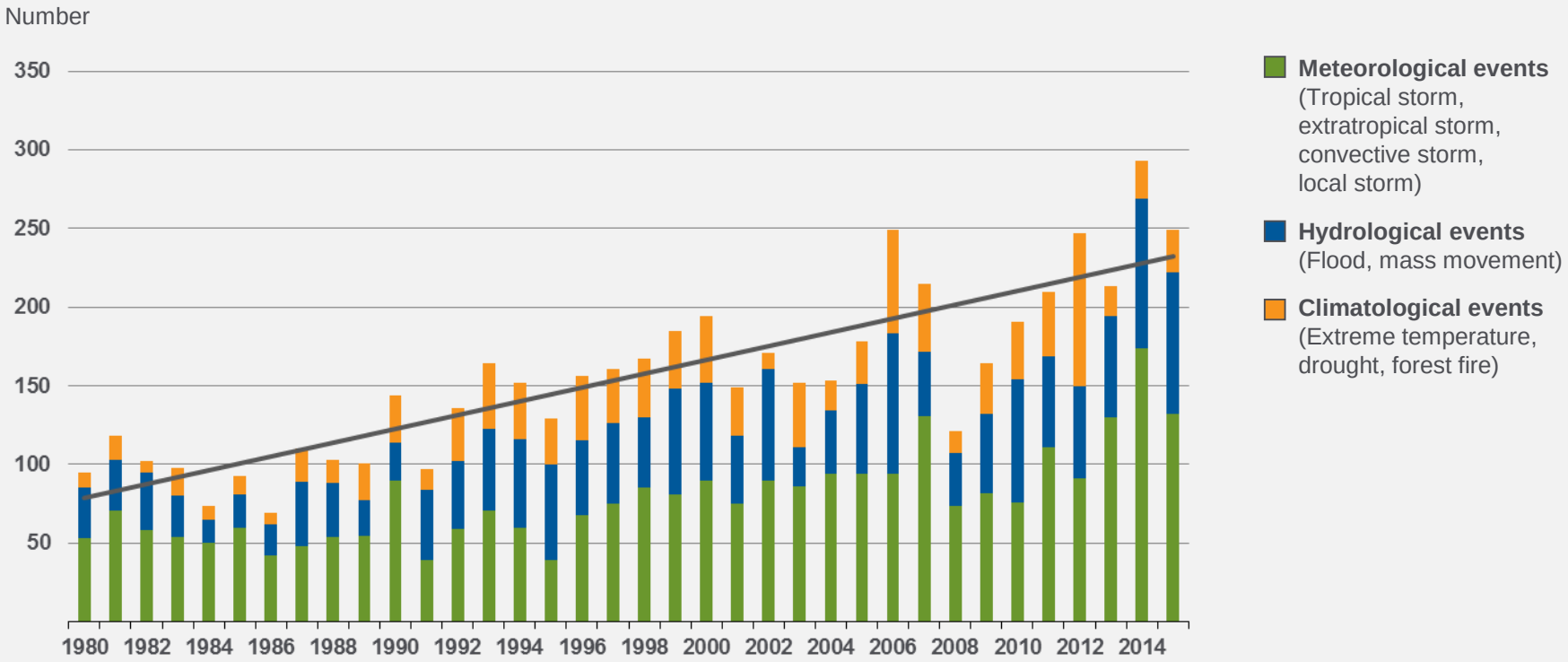


The Database Today

- From 1980 until today all loss events; for USA and selected countries in Europe all loss events since 1970.
- Retrospectively, all great disasters since 1950.
- In addition, all major historical events starting from 79 AD – eruption of Mt. Vesuvius (3,000 historical data sets).
- **Currently more than 37,000 data sets**

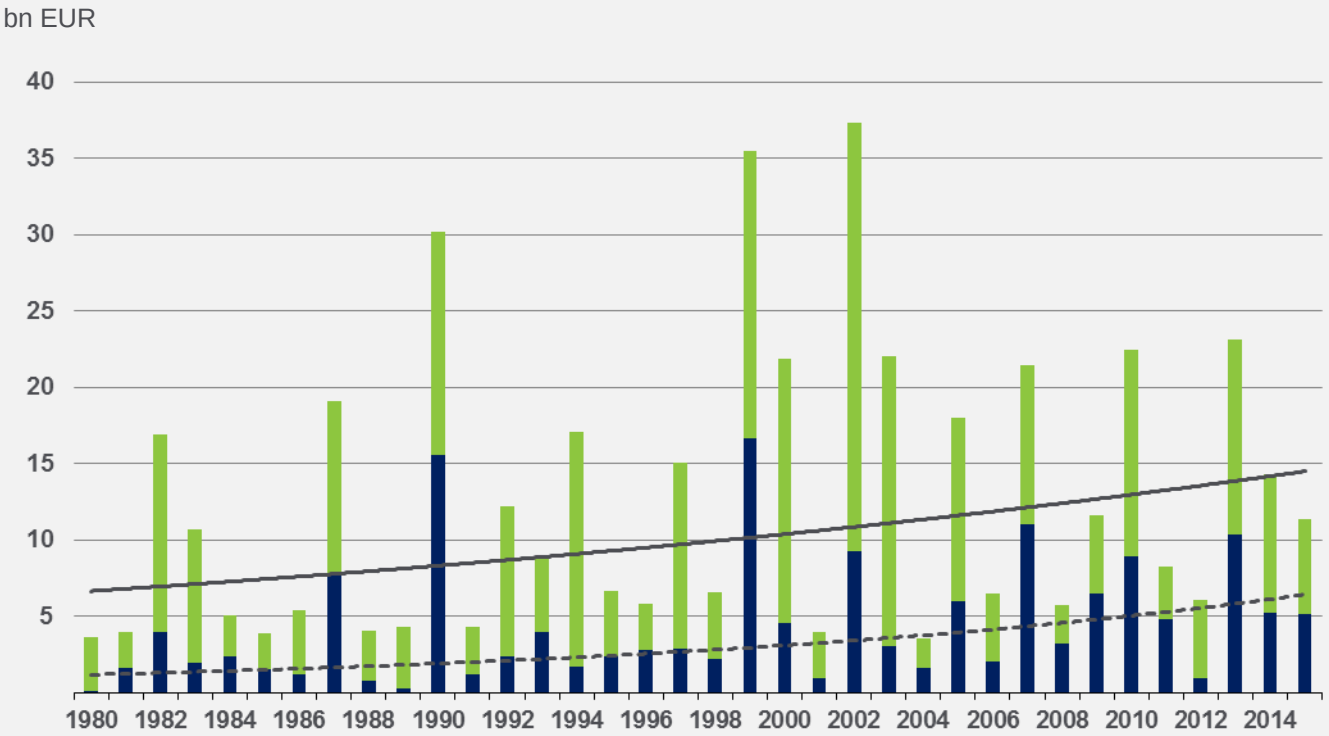
Weather-related loss events in Europe 1980 – 2015
Number of events

Munich RE



Weather-related loss events in Europe 1980 – 2015
Overall and insured losses

Munich RE



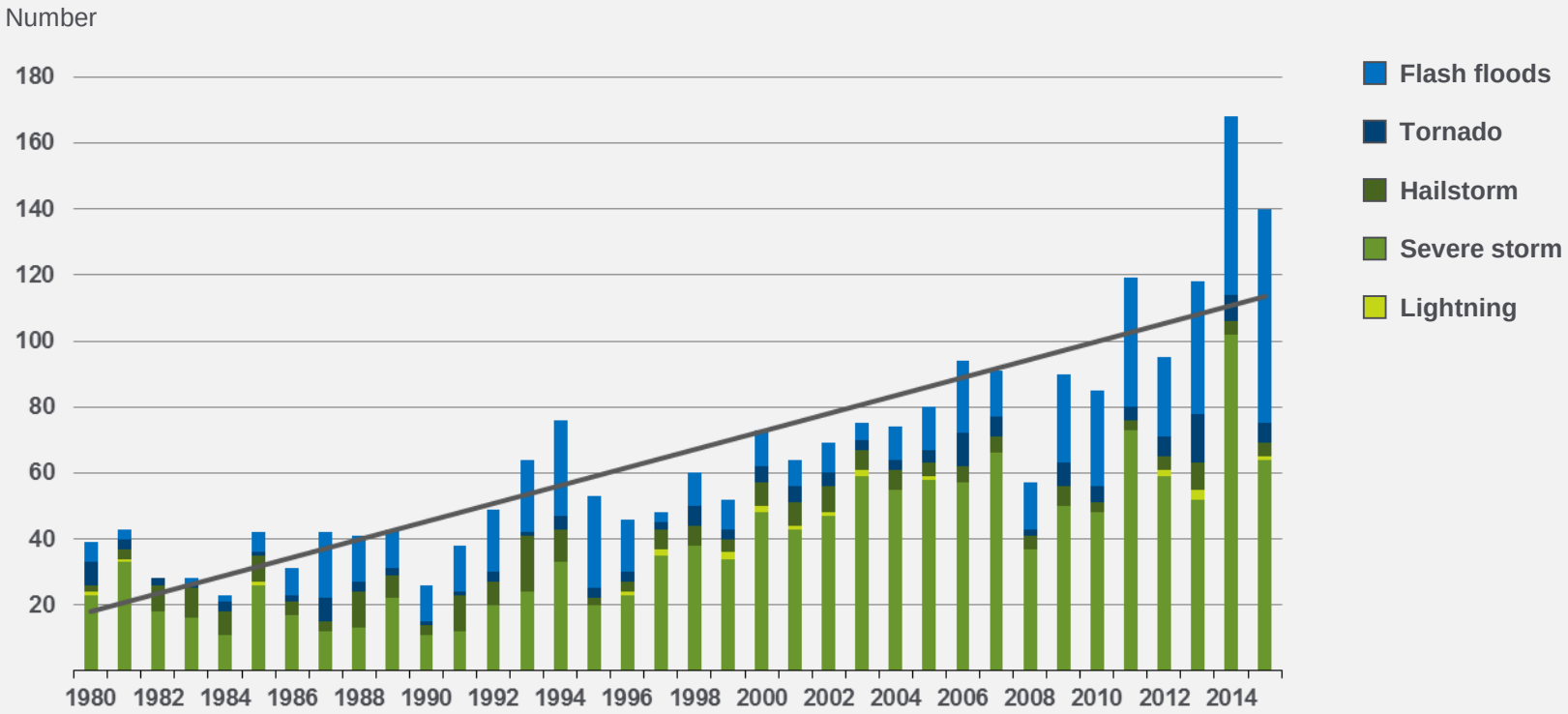
Overall losses (in 2015 values)

Insured losses (in 2015 values)

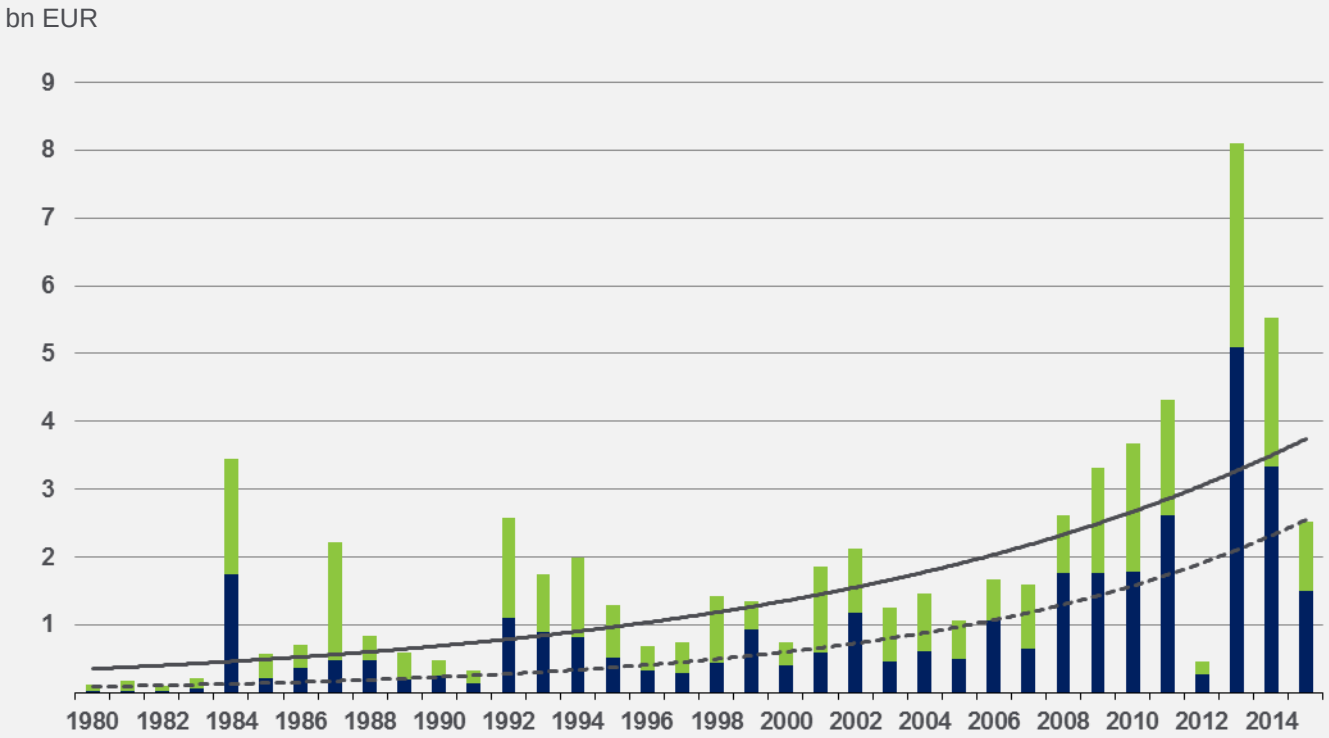
*Losses adjusted to inflation using country-specific consumer price indexes (CPI) under consideration of currency exchange rates.

Convective storms in Europe 1980 – 2015
Number of events

Munich RE



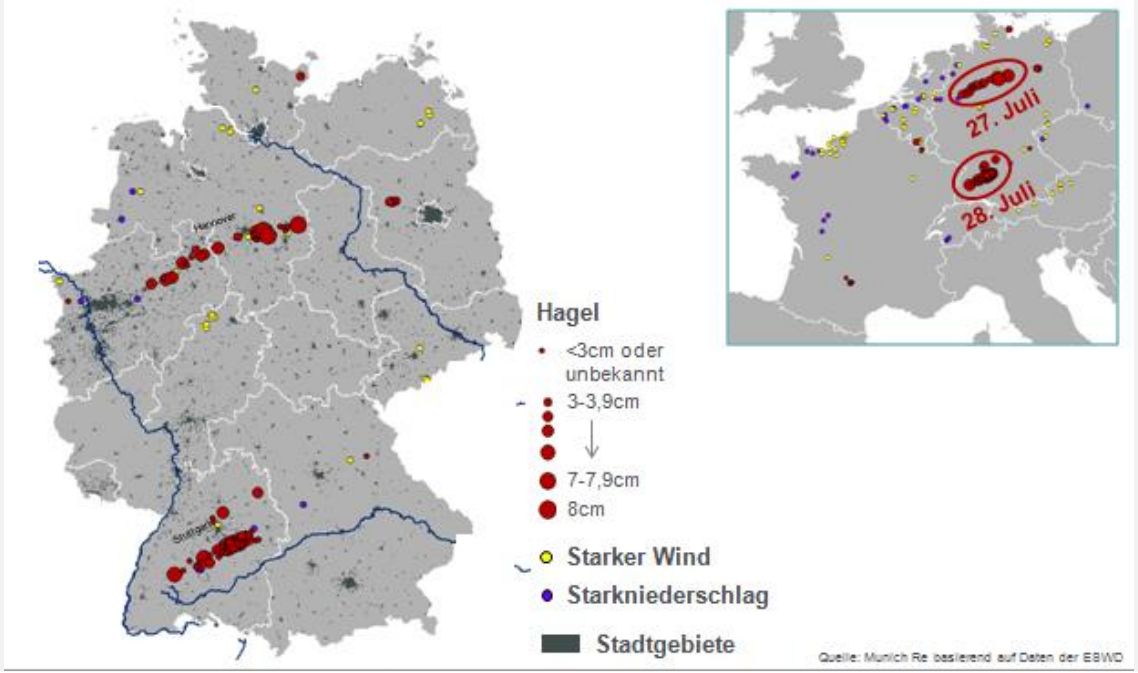
Convective storms in Europe 1980 – 2015
Overall and insured losses



*Losses adjusted to inflation using country-specific consumer price indexes (CPI) under consideration of currency exchange rates.

Hail Event on July 27/28, 2013 in Germany
Most expensive hail event

Hail stones with
diameters up to
11 cm (tennis ball ≈ 7 cm)



Region	Overall losses	Insured losses	Fatalities
Baden-Württemberg, NRW, Niedersachsen	€ 3.6 bn	€ 2.8 bn	1

Loss prevention measures are part of the solution!

Example of successful flood protection – storm surges in Hamburg

Munich RE

Storm surge (max. water level) and loss

- Feb. 1962 (5.70 m) €1,563m
- Jan. 1976 (6.45 m)
- Nov. 1981 (5.81 m)
- Feb. 1990 (5.75 m)
- Jan. 1993 (5.76 m)
- Jan. 1994 (6.03 m)
- Jan. 1995 (6.03 m)
- Feb. 1999 (5.74 m)
- Dec. 1999 (5.95 m)
- **Dec 2013 (6.09 m)**

Source: Bundesamt für Seeschifffahrt und Hydrographie

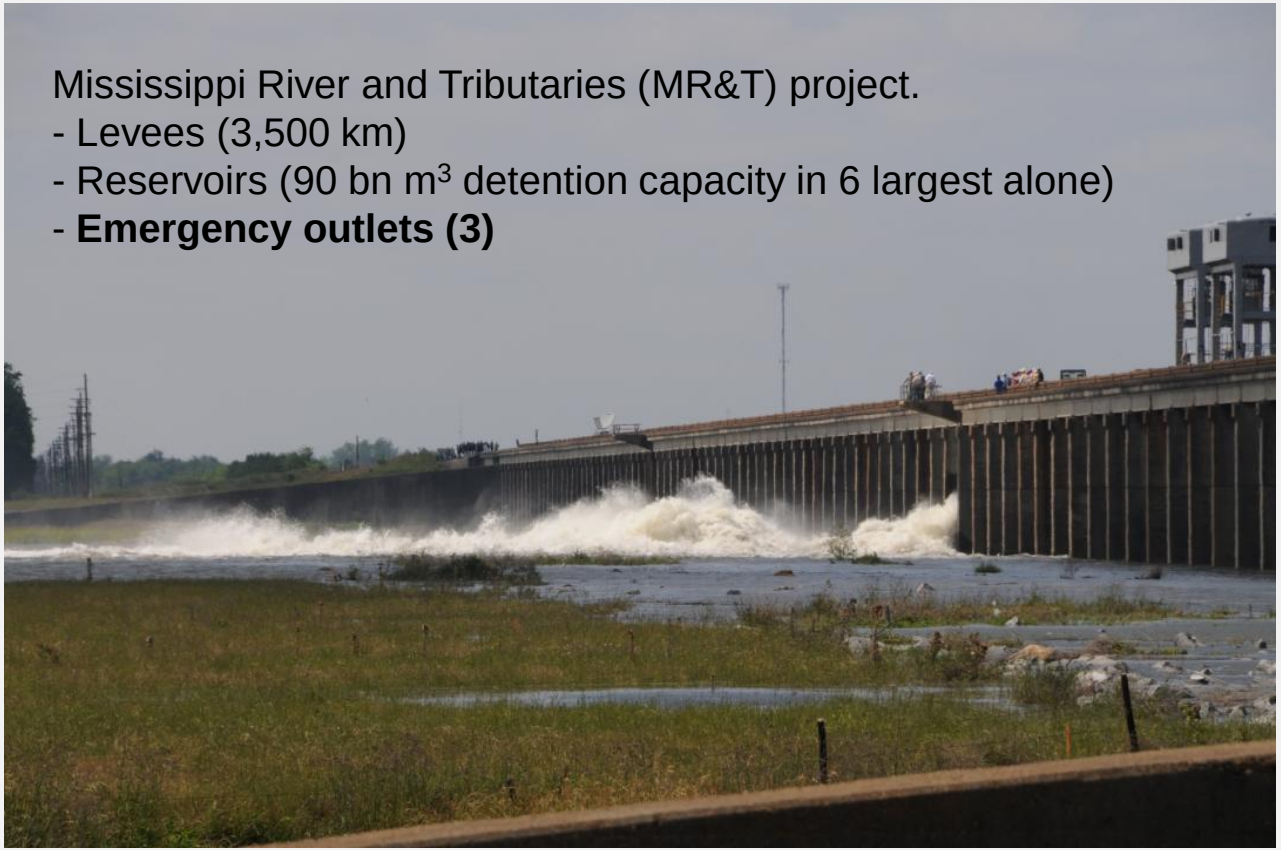
Flood protection in Hamburg

Although the 1962 water level was significantly exceeded nine times, the city has not suffered any major loss since 1962.
Investment of € 2.2 bn has avoided losses of more than € 20 bn

Mississippi flood 2011: Record flood levels

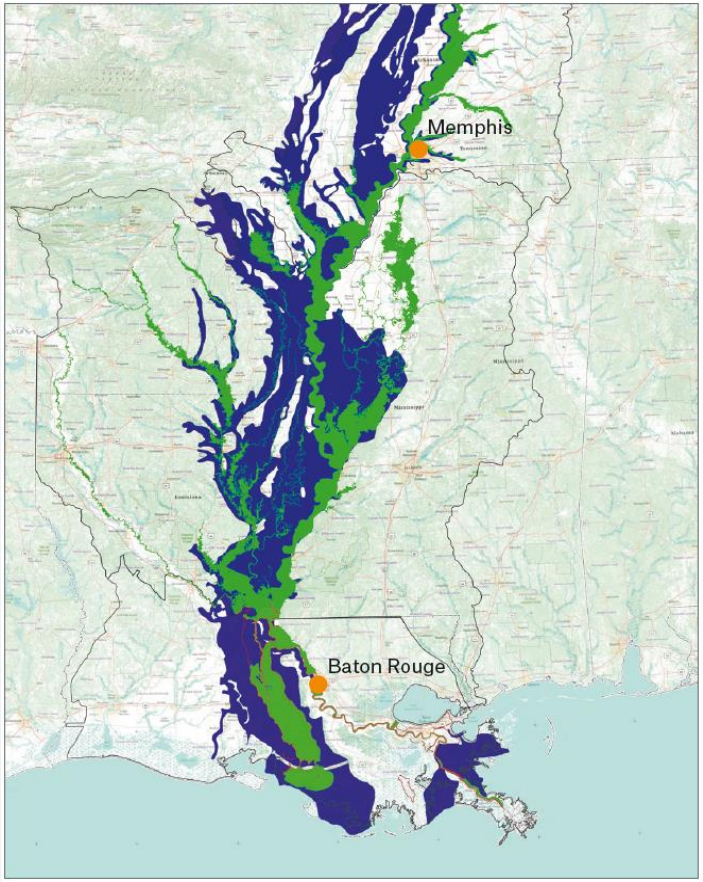
- Gauge with new record; level above previous record

Mississippi flood 2011: Prevention measures of MR&T



Morganza Spillway

Mississippi flood 2011: Flooded areas compared to 1927



1927: 67,000 km^2

2011: 17,500 km^2

Source: Mississippi Valley Division, U.S. Army Corps of Engineers

Mississippi flood 2011: Damage, losses and prevented losses

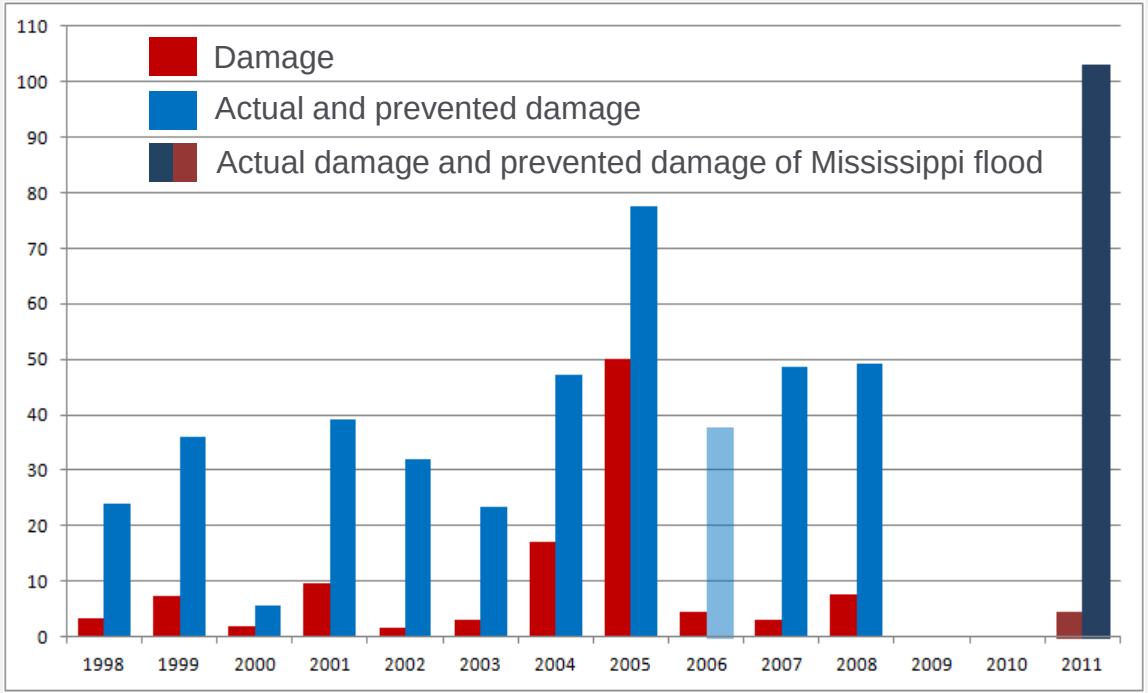
Munich RE

	Property Damage (US$ m)	Agriculture Damage (US$ m)	Repair of dykes, etc. (US$ m)
Actual damage	1,700	900	2,000
Potential damage without the MR&T project	102,400	8,200	-
Prevented by the MR&T project	100,700	7,300	-

Note: **It was the MR&T project that made it possible for such high values to exist in the flood-prone region.**

Source: Mississippi Valley Division, U.S. Army Corps of Engineers

Flood damage in the USA
Actual damage and damage prevented by USACE structures



values in US$ bn adjusted for inflation (in values of 2009); 2006 estimated

MR&T project has cost US$ 14bn (in original values)
Prevented losses US$ 480bn (34 times sum invested)

Source: US Army Corps of Engineers, National Weather Service

Work-stream 7: Insurance

Connection to 4 of 7 Sendai Framework Targets:

- Reduce direct disaster economic losses
- Increase number of countries with national and local disaster risk reduction strategies
- Enhance International cooperation to developing countries
- Substantially increase availability of, and access to, multi-hazard early warning systems

UNISDR
The United Nations Office for Disaster Risk Reduction

Commitments of partners in the workstream

1. Provision of nat cat data
2. Provision of vulnerability data
3. Sharing expert knowledge on loss prevention
4. A certain percentage of investments go to risk reducing activities

UNISDR
The United Nations Office for Disaster Risk Reduction

Priorities for action

Priority 1: Understanding disaster risk.

Priority 2: Strengthening disaster risk governance to manage disaster risk.

Priority 3: Investing in disaster risk reduction for resilience.

Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.

Better Building Standards Reduce Damages

Munich RE

Insurance industry is the main sponsor of IBHS research institute

Insurance Institute for Business & Home Safety®

Better Building Standards Reduce Damages

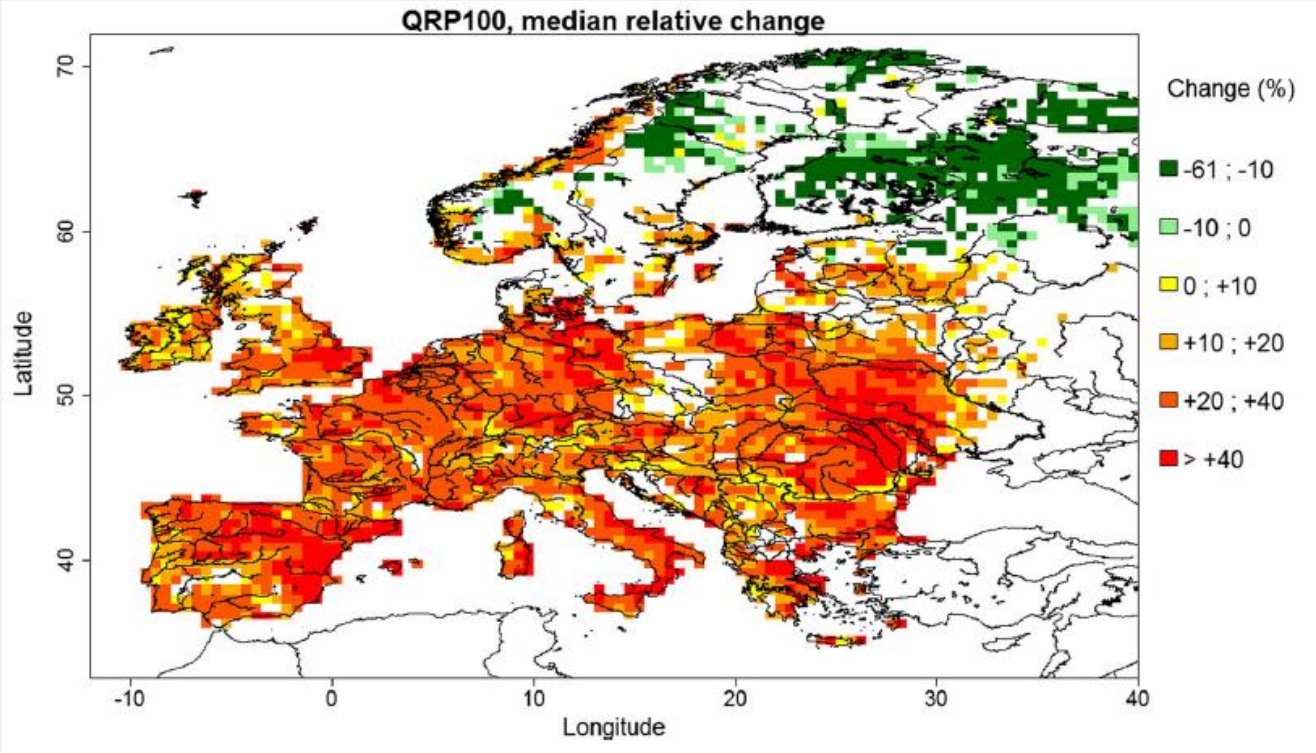
Tests to compare and contrast the high-wind (160 km/h) performance of structures using common construction practices with using stronger, safer wind-resistant elements.

The components used to make the resilient building stronger and safer cost less than 5% of the total cost of the entire structure.

Wind tunnel simulation

Projections of future floods in Europe under a +2°C global warming
Relative changes of floods with 100 year return period

Munich RE



Source: Roudier et al., Climatic Change, 2015

Conclusions

Munich RE

- Weather related natural disasters are increasing in number and magnitude
- There is more and more scientific evidence for causal links between global warming and increasing frequencies and intensities of natural catastrophes
- While hazards have increased already and will even more in the future, loss prevention measures can avoid similar increases in losses, even may decrease losses
- Especially floods loss prevention measures are economically highly efficient
- The insurance industry is willing to support climate change mitigation and adaptation by providing new insurance solutions for climate friendly technologies, investments into clean energy and energy efficiency projects and the provision of know how on disaster prevention

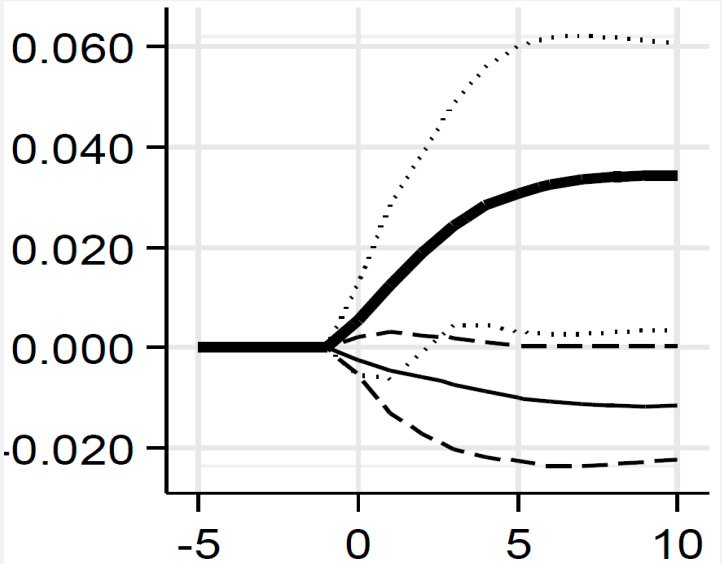
Thank you for your interest!

Munich RE

Countries with low insurance penetration levels show decreases in GDP after weather related catastrophes

GDP p.c. development in countries with different levels of insurance penetration

x 100% trend deviation after a weather related catastrophe



Source: Melecky M et Raddatz C.(2011) „How Do Governements Respond after Catastrophes?“ World Bank;

Swiss Re

Climate Change Adaptation

- What role does insurance play?

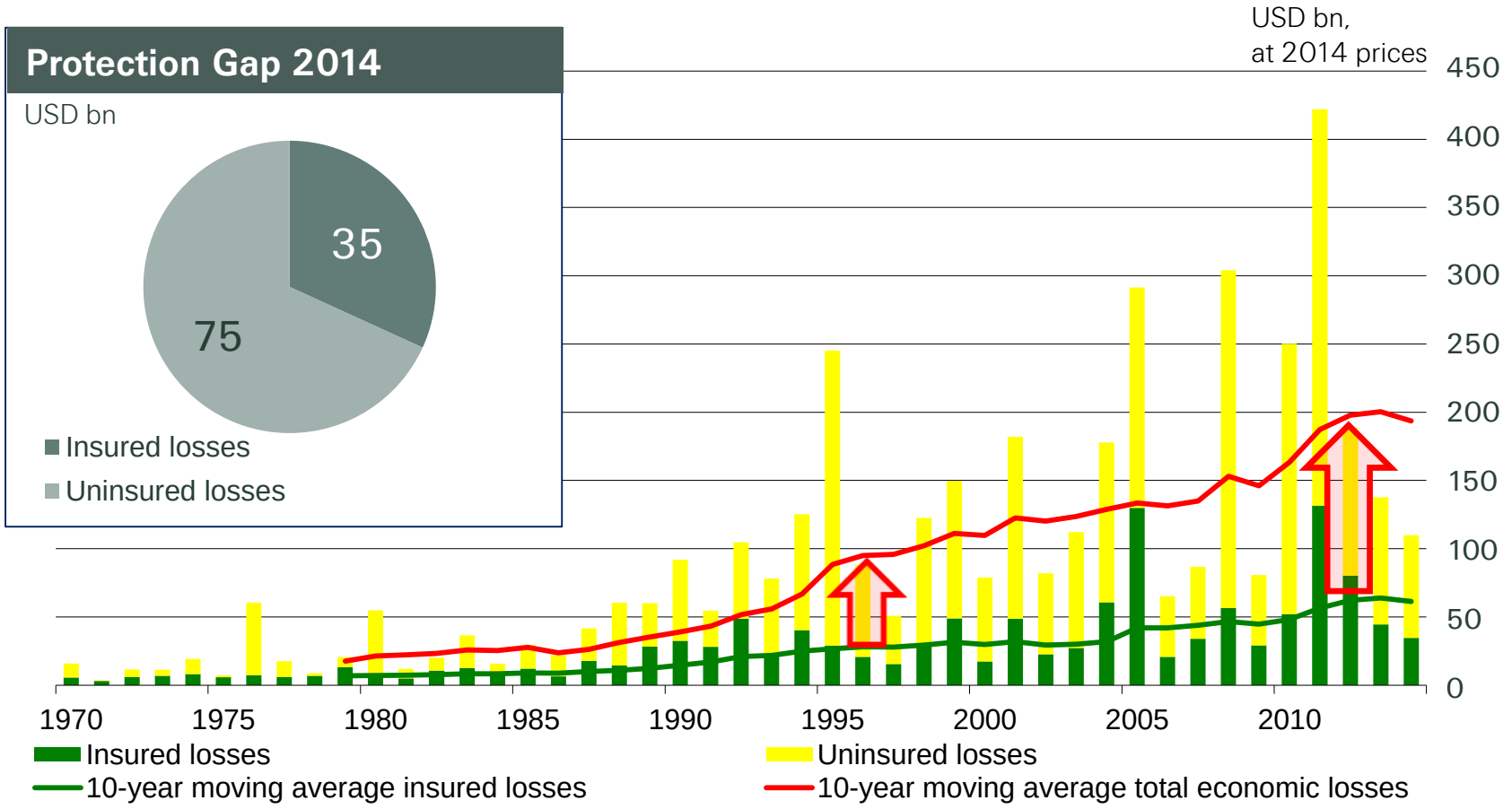
Charlotte Paterson, Head Governmental Affairs Europe, Swiss Re

Working Group on Climate Adaptation
Brussels, 2 February 2016

Agenda

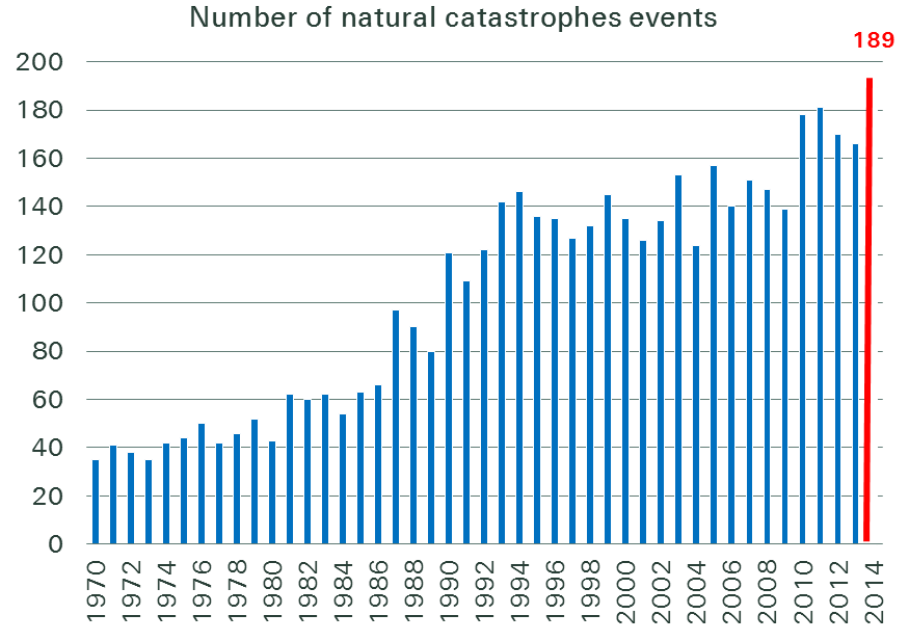
- Why is adaptation to climate change important?
- What role can insurers play in supporting adaptation?
- How can public private partnership help?
- How should climate risk be managed?

Adaptation is important because the protection gap is widening



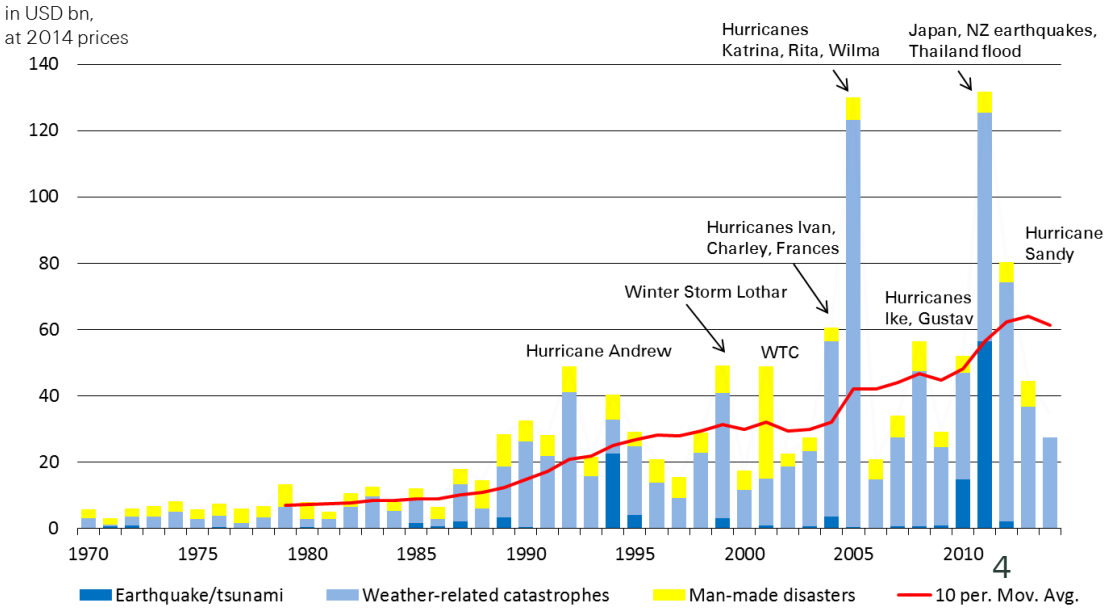
- Adaptation is crucial in reducing economic losses and the human cost of natural disasters.
- Growth in exposed economic values, especially in urban areas, is causing the protection gap to widen.

This impact is aggravated by climate change



- Climate change is unequivocal.
- Extreme events are increasing in frequency and/or severity in recent decades (depending on the region and peril).
- 2014 was a record year in terms of number of extreme events.

- We expect property natural catastrophe exposure and concentration to continue to increase.
- By 2030 risk will almost double in many places if action is not taken.



What role do insurers play?

Risk analysis

- Experts in quantifying and putting a price tag on climate risk
- Help policymakers compare the cost of doing nothing with pre-emptive action

Business solutions

- Promote risk transfer as a way of becoming more resilient
- Risk modelling expertise and financial capacity to absorb climate change risk

Risk dialogue

- Raise awareness, actively disseminate knowledge
- Advocate a long-term, market-based policy framework

Leading by example

- Pledge $10 bn to support 50 countries, sovereign and cities to improve risk bearing capacity
- Swiss Re is greenhouse neutral

- Insurers need to play a leading role in public discussions on climate change.
- Swiss Re advocates a pre-emptive risk management approach to reduce the protection gaps.

Governments and private institutions joining forces will have the biggest impact

Existing natural catastrophe schemes introduced by governments

Public Assets	Private Assets *Public Insurance Programs*	Private Assets *Reinsurance Programs*
 ***Mexico:*** *FONDEN fund for natural disasters*	 ***Spain:*** *Consorcio*	 ***UK:*** *Flood Re national flood pool*
 ***Caribbean:*** *Caribbean and Central American Catastrophe Risk Insurance Facility*	 ***Turkey:*** *Turkish Catastrophe Insurance Pool*	 ***Switzerland:*** *Intercantonal Reinsurance Union and Swiss Insurance Association Pool*

- Research from Standard & Poors shows that climate risk can harm sovereign ratings[1].
- Cost of climate change could increase to around 20% GDP by 2030 in some regions.
- Managing the risk in a forward looking way will be more cost effective in the long-run.

1. The Heat Is On: How Climate Change Can Impact Sovereign Ratings (25.11.2015)

Public Private Partnerships to shape climate-resilient development

- The custodians of economies need to prioritize adaptation measures to make societies more resilient to the impacts of climate change.
- The Economics of Climate Adaptation (ECA)[1] methodology provides decision makers with the facts to systematically identify cost effective investments.
- The ECA allows decision-makers to integrate adaptation with economic development and sustainable growth.
- The insurance industry's experience in risk management and modelling and in developing insurance solutions makes it an important partner in future adaptation plans.

1. Economics of Climate Adaptation (ECA) Working Group, a partnership between the Global Environment Facility, McKinsey & Company, Swiss Re, the Rockefeller Foundation, ClimateWorks Foundation, the European Commission, and Standard Chartered Bank.

www.swissre.com/eca
http://media.swissre.com/documents/Economics_of_Climate_Adaptation_focus_infrastructure.pdf
http://media.swissre.com/documents/pub_closing_the_financial_gap_W1.pdf

Climate-resilient development needs to **assess** and **address** total climate risk

Objectives

- **Facts and methods** for decision makers to design and execute a climate adaptation strategy
- **Information** to insurers and potential funders to unlock risk prevention funding and deepen global risk transfer markets

Methodology – Economics of Climate Adaptation (ECA)

1. Rigorous risk management approach to **assess** the sum of:
    - today's climate risk;
    - the economic development paths that might put greater population and value at risk; and
    - the additional risks presented by climate change.

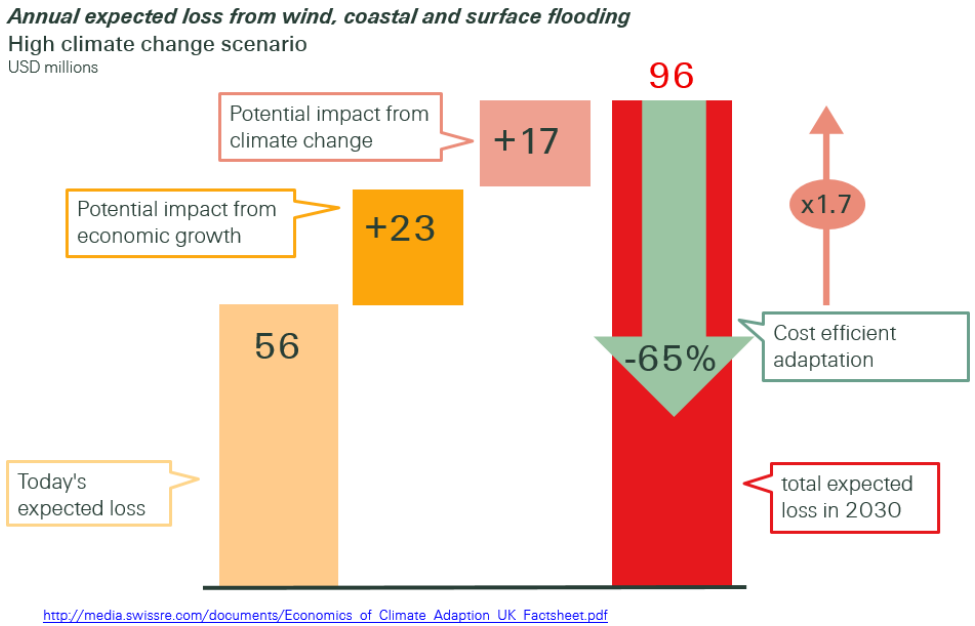
    } **Total climate risk**
2. Propose and prioritize a basket of adaptation measures to **address** total climate risk on an economic basis.

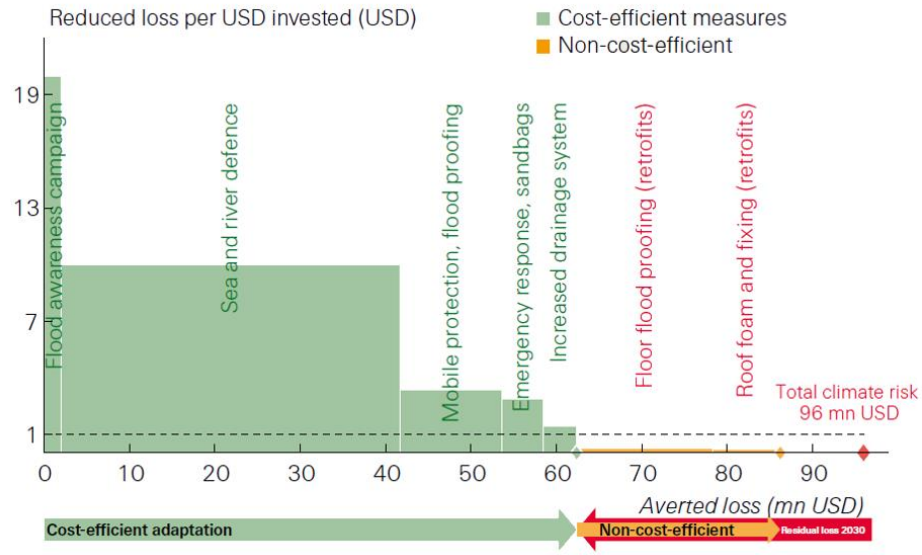
How does it work in practice?

Case Study: City of Hull, UK

Key Steps

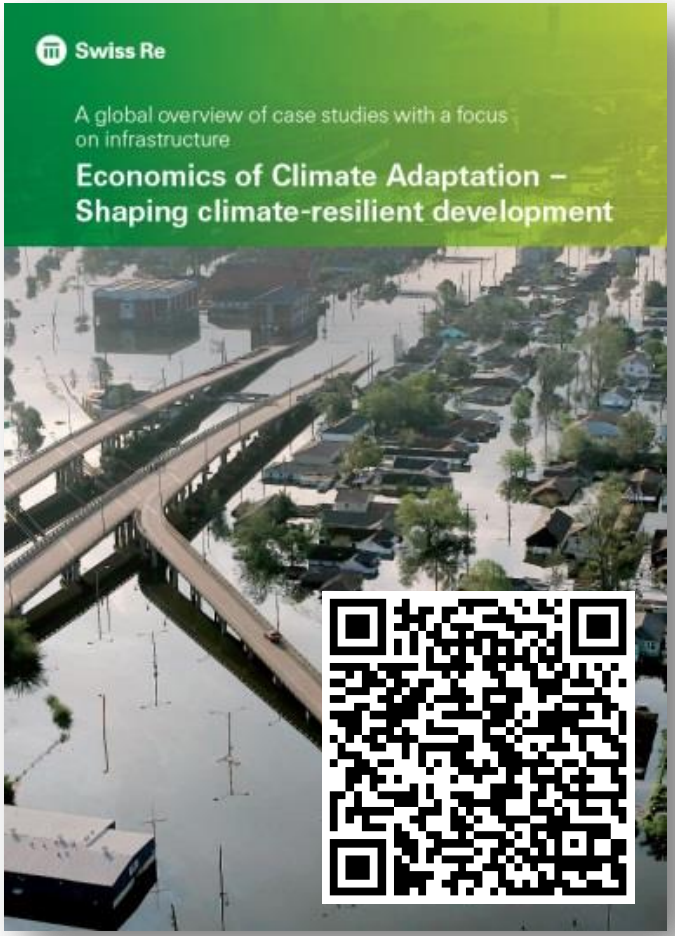
1) Identify most relevant hazards and analyse historic events.
2) Estimate expected economic loss, incremental increase from economic growth and further incremental increase from climate change.
3) Develop a portfolio of adaptation measures.
4) Assess the loss aversion potential and cost benefit ratio for each adaptation.
5) Develop a balanced portfolio of prevention, intervention and insurance measures.

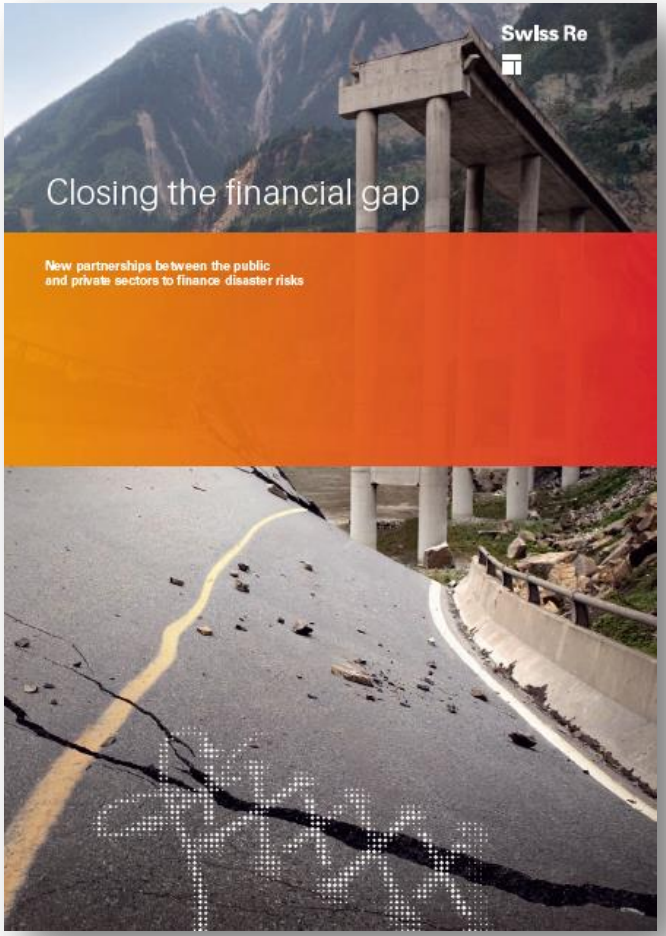




Further information

Publicly available documentation





http://media.swissre.com/documents/Economics_of_Climate_Adaptation_focus_infrastructure.pdf
http://media.swissre.com/documents/pub_closing_the_financial_gap_W1.pdf

Explore Economics of Climate Adaptation in the Swiss Re Flood App

1) **Analyze** the total climate risk

2) **Adapt** cost-efficiently to the risk

www.swissre.com/floodriskapp

Legal notice

The information and opinions contained in the presentation are provided as at the date of the presentation and are subject to change without notice. Although the information used was taken from reliable sources, Swiss Re does not accept any responsibility for the accuracy or comprehensiveness of the details given. All liability for the accuracy and completeness thereof or for any damage or loss resulting from the use of the information contained in this presentation is expressly excluded. Under no circumstances shall Swiss Re or its Group companies be liable for any financial or consequential loss relating to this presentation.