

COPING WITH VULNERABILITY TO CLIMATE CHANGE

Walk-through of the outputs of the Amsterdam data sprint 2014

EMAPS

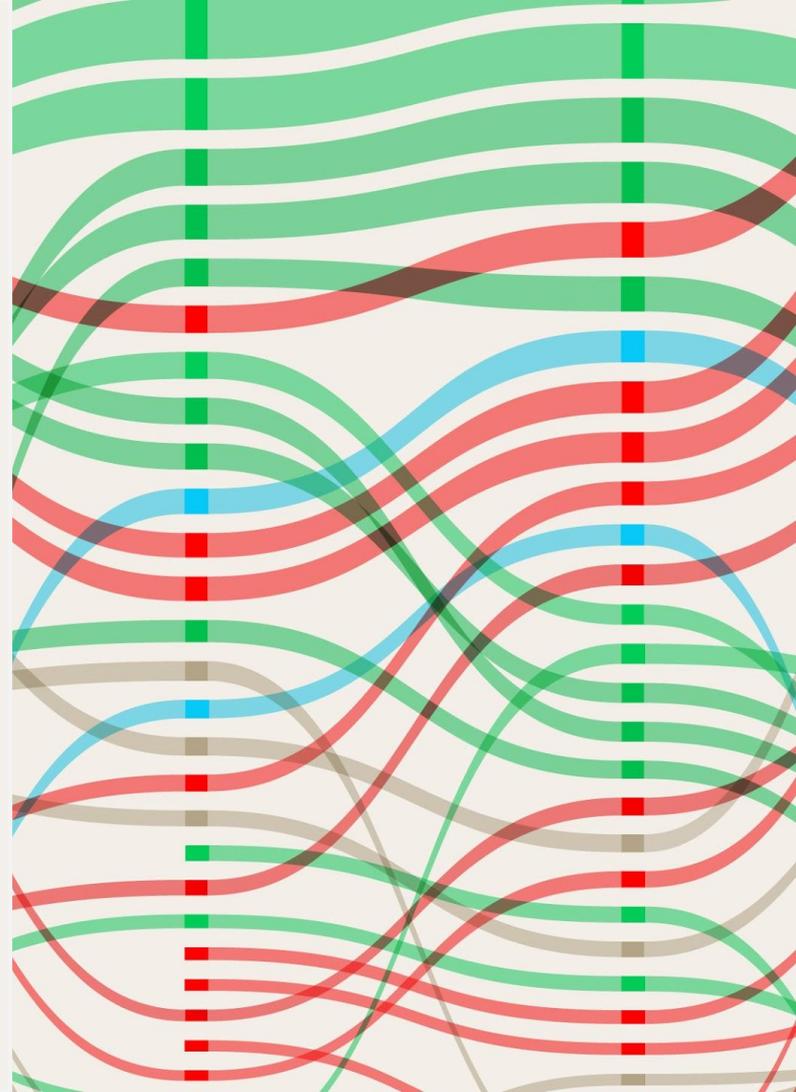
Electronic Maps to Assist Public Science

Sciences Po, University of Amsterdam, University of Dortmund, Barcelona
Media, DensityDesign, The Young Foundation

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1.0

THE ISSUEFICATION OF A PLACE: THE ISSUE DYNAMICS OF A MELTING ARCTIC

Research Questions

- 1) How is the Arctic being issuefied, in the sense of being made into a social issue?
- 2) What are the matters of concern a melting Arctic activates?
- 3) Which types of actors are bearing the issue, and how?

Method

The issuefication of the Arctic is explored within a variety of spaces: mainstream media, ministerial websites from countries bordering the Arctic, security think tanks, NGOs related to climate change, Twitter (hashtag arctic) and side events at the climate change summits. The first subproject is focuses on mainstream media; here the term 'arctic' is queried in Lexis Nexis, a database of major news sources ranging from 1980 to 2014. A second subproject maps the resonance of the Arctic in websites of the ministries of Defense, Energy, Foreign Affairs and Maritime Affairs or Transport of the countries that border the Arctic. Next, the resonance of the Arctic in combination with a variety of related issues is mapped with lists of websites - 65 security think tanks and 73 NGO websites related to climate change. The fourth subproject zooms in on the discourse surrounding the Arctic within the climate change Twitter space (query: [climate, climatechange, drought, flood, globalwarming]; subset query: arctic) through a co-hashtag network analysis of the hashtag 'arctic', visualized in Gephi. Additionally a co-hashtag analysis of a climate change security/military Twitter subset is analyzed to identify to what extent the Arctic is being recognized as an issue. The fifth subproject focuses on the Side Events of the COPs (6-9), which are extracted from the websites and queried for 'arctic' to map the resonance within the international negotiations space.

1.0

THE ISSUEFICATION OF A PLACE: THE ISSUE DYNAMICS OF A MELTING ARCTIC

Findings

The first subproject reveals that the Arctic is increasingly being framed as an issue of National Security, Government and Public Administration, International Relations and Defense Ministries in the mainstream media (using Lexis Nexis categories), especially during the past 10 years. This is also reflected in the resonance of the Arctic in the policy spaces of the bordering countries, where Foreign Affairs, Defense and Maritime Affairs ministries appear to pay most attention to the issue of the Arctic. Furthermore, the security think tanks the Hoover Institution, the Center for American Progress, the Brookings Institution and the Stockholm International Peace Research Institute mention the Arctic most, further showing that the most prominent issues related to the Arctic are military, gas and oil. In the international climate change NGO space, the Arctic seems to be mostly related to gas, oil and indigenous people. In contrast, the climate change Twitter sphere reveals little connection to military formations, as mostly environmental hashtags seem to co-occur with 'arctic', sometimes prompted by controversies such as the Keystone XL pipeline or the drill barge Kulluk. In the climate change security/military Twitter subset mentionings of the Arctic are largely missing. Lastly, the documentation of Side Events for COPs 6 to 19 also barely mention the Arctic as an issue.

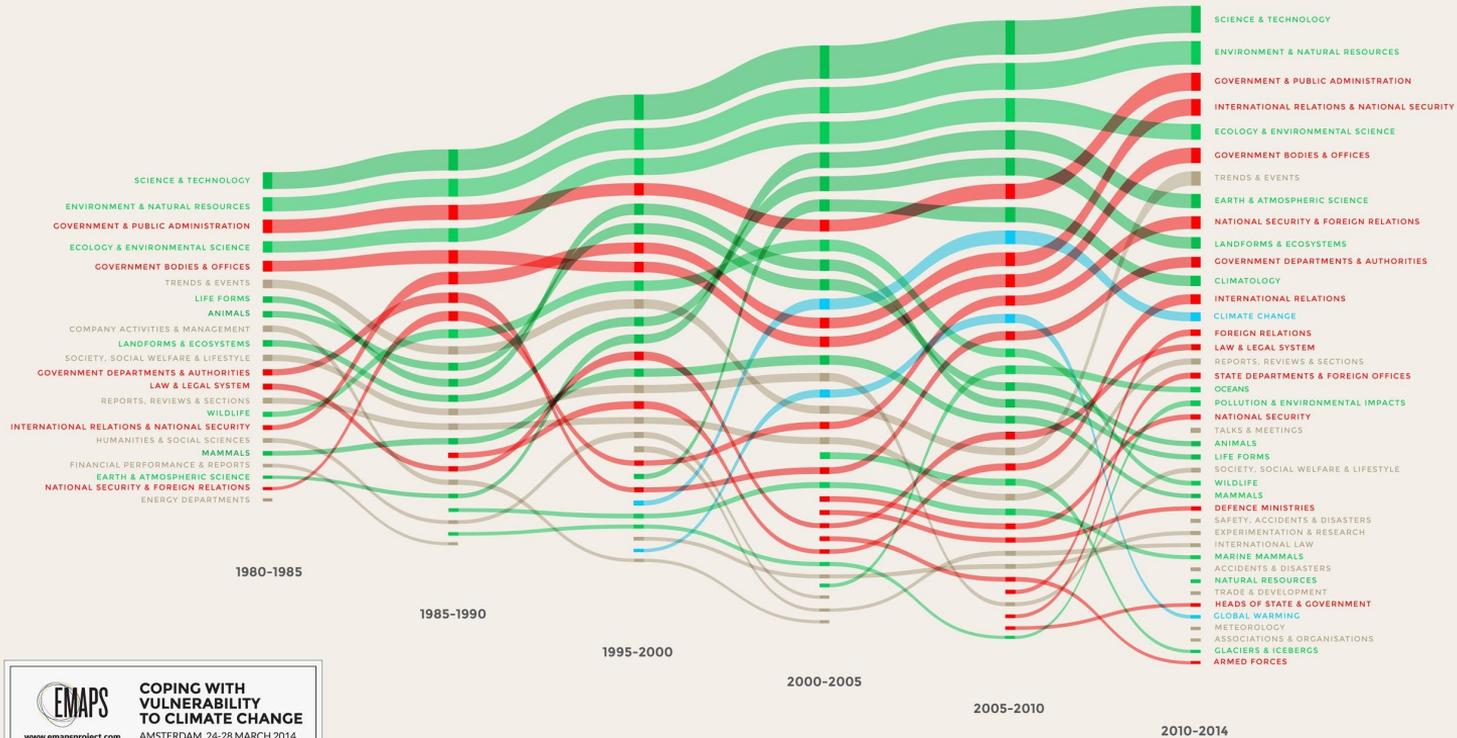
In sum, the examination of the resonance and formatting of the Arctic as an issue in six relevant information and policy spaces shows the decline of the Arctic as an environmental issue and the rise of the melting Arctic as a military issue and as an opportunity in a number of areas such as resource extraction.

Issuefication of the Arctic on mainstream media during time

*Lexis Nexis database

MAIN ISSUES:

- ENVIRONMENTAL ISSUES
- SECURITY ISSUES
- CLIMATE CHANGE & GLOBAL WARMING
- OTHERS



Resonance of the Arctic in relevant policy spaces in the countries that have borders on the Arctic

Name of the Ministry

N. OF RESULTS FOR THE QUERY "ARCTIC"

- FINLAND
- CANADA
- ICELAND
- RUSSIA
- NORWAY
- EU
- SWEDEN
- USA
- DENMARK

COUNTRIES WITH NO RESULTS



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Resonance of the Arctic in the security think tanks space around the world

hoover.org (567)

americanprogress.org (556)

brookings.edu (521) sipri.org (511)

carnegieendowment.org (499)

atlanticcouncil.org (492) csis.org (389)

cfr.org (373) heritage.org (372) https://www.iiss.org (255)

chathamhouse.org (209) wilsoncenter.org (203) gmfus.org (195) cms.polsci.ku.dk (189)

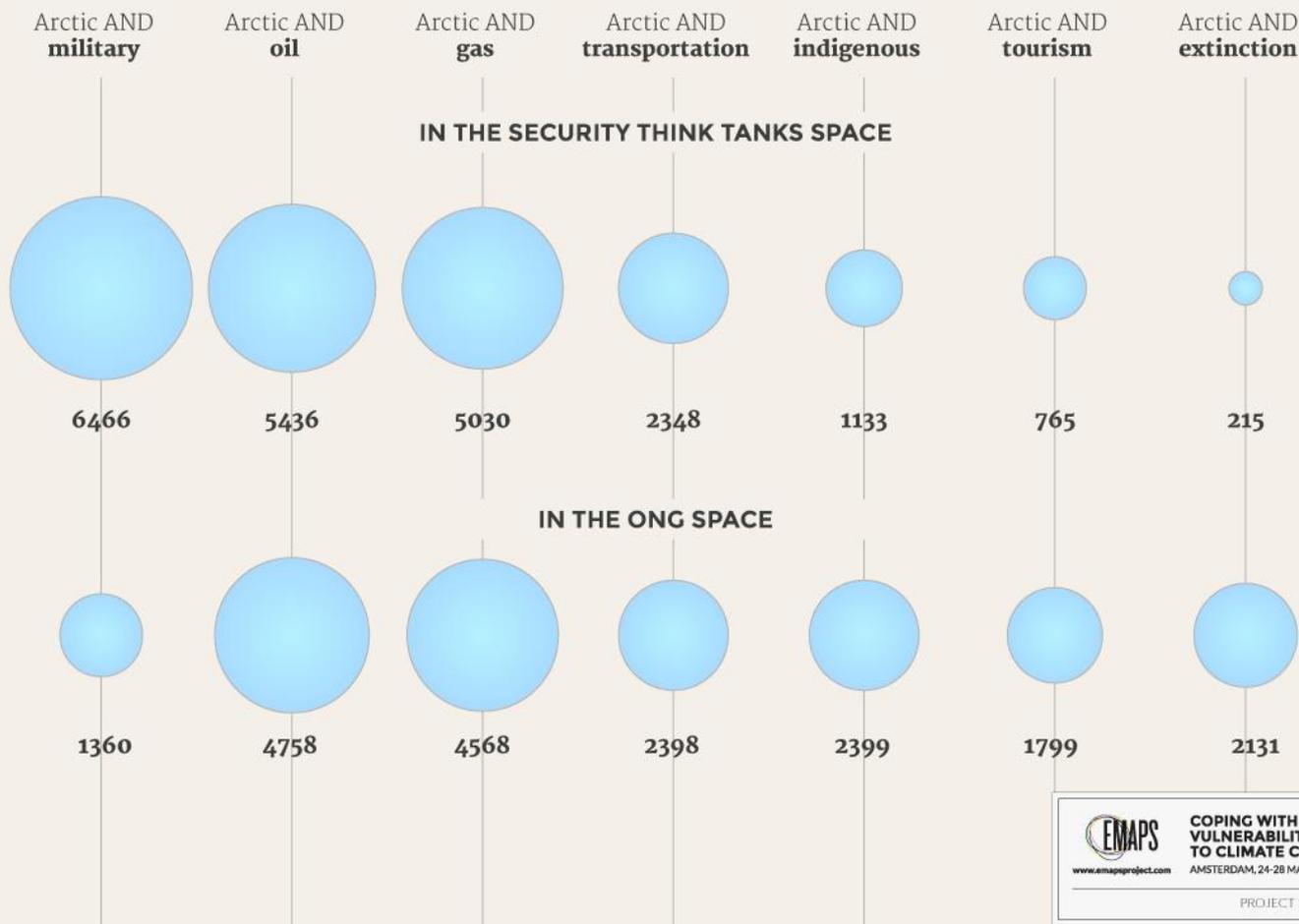
cato.org (183) idsa.in (178) rand.org (171) https://www.rusi.org (167) cnas.org (158)

aei.org (147) prio.no (141) usip.org (125) stimson.org (120) iss.europa.eu (118) swp-berlin.org (118)

orfonline.org (114) ifri.org (106) imemo.ru (92) belfercenter.ksg.harvard.edu (76) clingendael.nl (75) hudson.org (71)

america-russia.net (67) hsfk.de (62) eiu.com (60) ~~www.iss.org (59)~~ egmontinstitute.be (33) thechicagocouncil.org (31) dcaf.ch (24) ~~iss.org (19)~~ https://www.aspi.org.au (16)

Arctic-related issues for all sources



2.0

STORMTALK: SITUATING ADAPTATION AND VULNERABILITY WITH SOCIAL MEDIA

Research Questions

Do extreme weather events put climate change on the agenda in France?

- 1) How is climate change 'localised' during the 2014 municipality elections in France?
- 2) How are people's responses to extreme weather events influenced by their proximity to the events?
- 3) What are the differences in language usage between climate change discussions and those on extreme weather events?
- 4) To what extent are discussions on climate change triggered by specific events?

Method

First, the climate change discourse employed by politicians during the 2014 municipality elections in France is measured by examining the words used by the candidates when talking about climate change. These are extracted from interviews conducted by Réseau Action Climat, and subsequently compiled into city-specific lists. Furthermore, comments made by users on Facebook pages of selected French newspapers, extracted by means of the NetVizz tool, are analyzed in combination with data on natural catastrophes that have taken place in France (GASPAR database).

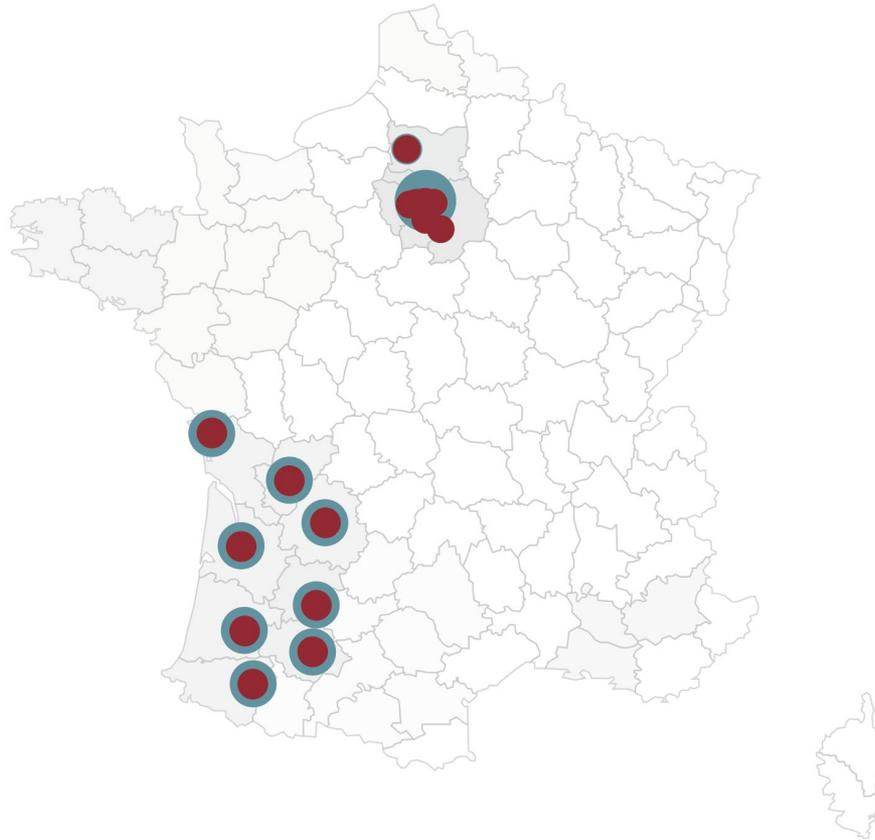
2.0

STORM TALK: SITUATING ADAPTATION AND VULNERABILITY WITH SOCIAL MEDIA

Findings

The language employed by politicians suggests that they tend to focus on concrete plans to counter climate change. This is reflected in the discourse around places, organisations and political action rather than more abstract discourse categories such as milieu and concepts. The usage of the words ‘development’, ‘ecologique’, and ‘ville’ are shared among most cities.

The comments on the Facebook pages reveal that the relationship between mentions of storms and climate change differ greatly between national and local newspapers. In national newspapers the two seem to be linked. Furthermore, climate talk is most prominent in the region around Paris and the more western and southern departments. In the months of February and March 2010, when extreme weather events peaked, regions close to the impacts of the storms were dominated by storm talk. However, comments on climate change did not appear to differ in storm-heavy months compared to quiet months. Language usage does differ between climate talk and storm talk, as words related to large, abstract concepts (international politics) are used more often in climate talk while more personal, local and weather-related words are employed more often in storm talk. The discussions on climate change do not appear to be triggered by specific events.



Localization of “storm-talk” and “climate-talk” in February 2010

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry’s standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

LEGEND

Total amount of comments per departments



- Percentage of comments related to Climate Change
- Percentage of comments related to Storms



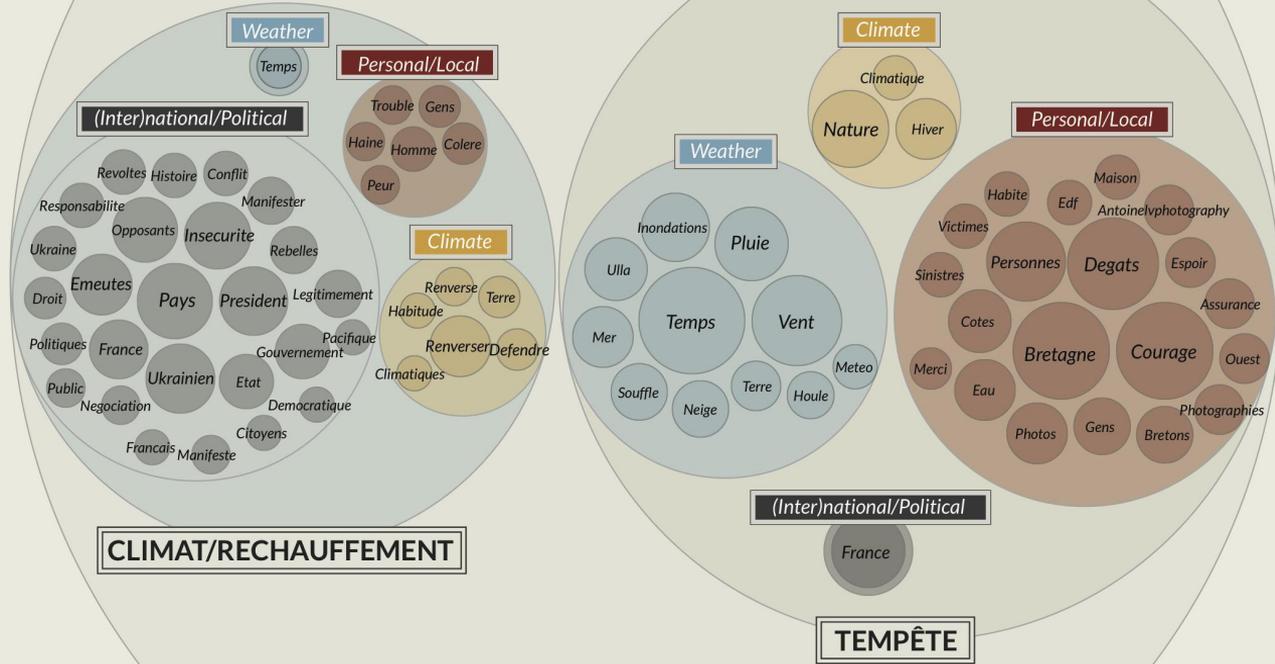
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MAPPERS:

Name, Surname, Institution	Name, Surname, Institution
Name, Surname, Institution	Name, Surname, Institution
Name, Surname, Institution	Name, Surname, Institution
Name, Surname, Institution	Name, Surname, Institution

PROJECT 1 PAGE 44



STORMTALK VS. CLIMATETALK

3.0

ONLINE RESONANCE OF THE GLOBAL CLIMATE CHANGE ISSUE AGENDA

Research Questions

- 1) Which issue areas of the leading NGOs are prioritized in the climate change space?
- 2) To what extent do the issues 'food security' and 'migration' resonate within the global issue agenda of NGOs related to climate change?
- 3) May one ascertain a geographical distribution of the matters of concern?

Method

A list of 74 unique NGO websites related to climate change is made by triangulating the members or affiliates of the leading NGO umbrella organizations, Climate Action Network and TckTckTck. Each NGO's website is examined for its missions and prominent issues, resulting in a list of 279 issues. In particular, the focus is on the resonance of the vulnerability related issues food security and migration to explore whether the perceived audience of the vulnerability indexes (NGOs) recognize these issues in relation to climate change. The Google Scraper tool is used to query the websites for the selected issues. Geographical tags and descriptions of the list of NGOs are then used to examine: a) the issues addressed by NGOs based on the continent where they are located, and b) the continents with accompanied issues addressed by international NGOs. Finally, a network of the relations between issues and NGOs is visualised in Gephi, revealing the main actors and the issues they address.

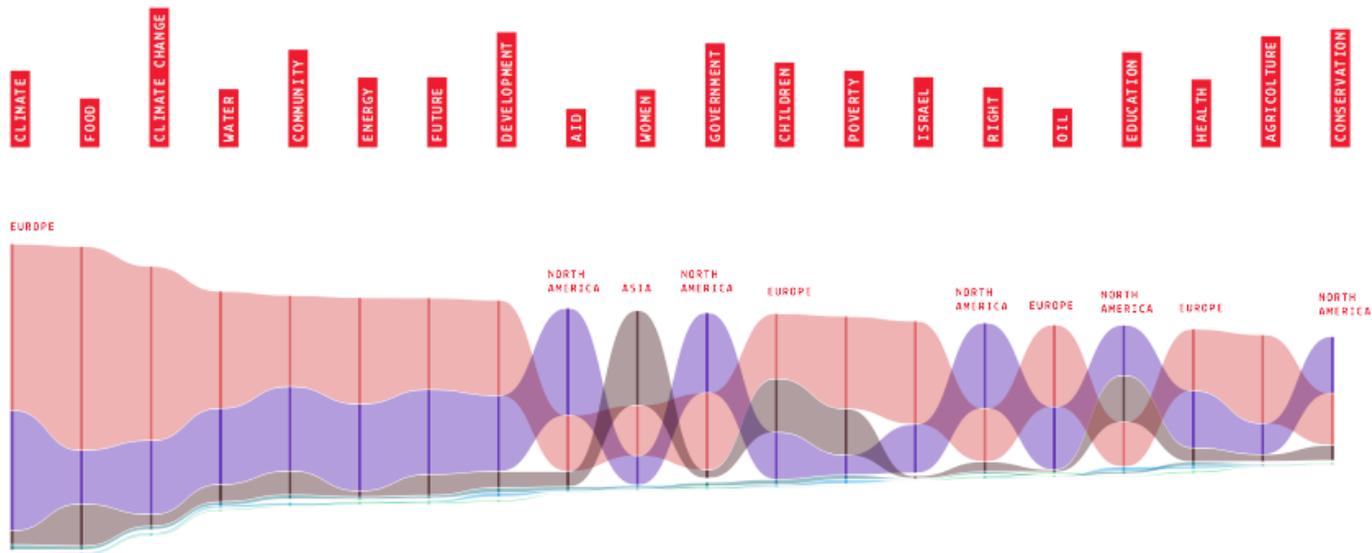
3.0

ONLINE RESONANCE OF THE GLOBAL CLIMATE CHANGE ISSUE AGENDA

Findings

The issues 'climate', 'food' and 'climate change' are the top three issues in the online climate change NGO sphere. Further, three main focal points can be distinguished: Environmental issues related to climate change (water, oil, agriculture, conservation), humanitarian issues related to climate change (food, community, women, children, poverty, israel, right, education, health), and future-oriented issues (energy, development, aid, government). Zooming in on the emerging issues, it appears that food security resonates more than migration on the NGO climate change issue agenda. Both food security and migration are thus being recognized on the global climate change issue agenda, and from a vulnerability index perspective, this means that the issues food security and migration could be adopted as possible measures in relation to climate change vulnerability.

The geographical maps show that North America is mainly involved with environmental and future-oriented issues ('aid', 'government', 'right', 'education', 'conservation'), while Europe cultivates a humanitarian approach ('children', 'poverty', 'israel', 'health', 'agriculture'). Asia has a minor presence with a high resonance of the issue 'women', while Africa and South America are absent. In turn, the continents Asia, Africa and South America are mainly addressed on the NGO climate change issue agenda, followed by North America, the Poles and Europe. The two main actors in the network appear to be Greenpeace and Oxfam.



ISSUES PER NGO'S FROM ORIGINATING CONTINENTS

LEGENDA



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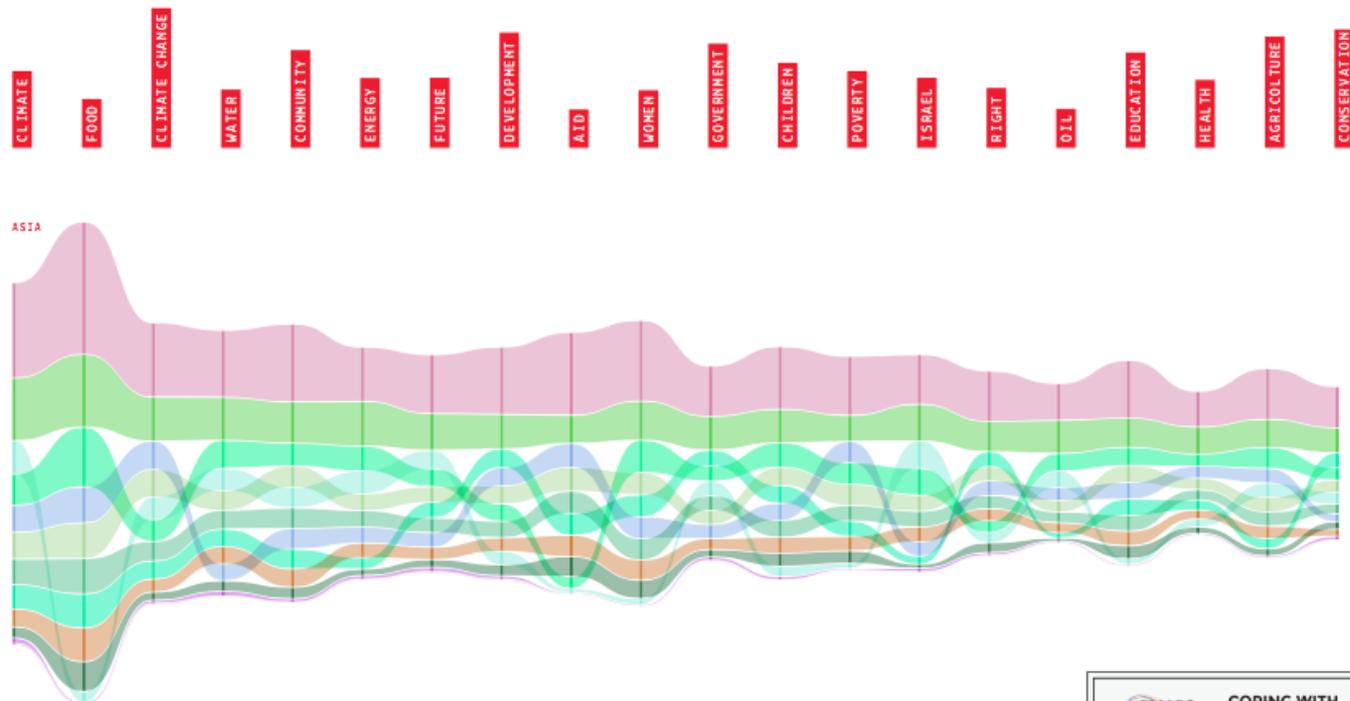
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A list of 74 NGO websites was created based on shared members between the Climate Action Network and TCCTCKTCK. Searching manually through the NGO's missions and agendas delivered 279 issues. By using the resonance of the issues, an issue agenda with main issues, sub-issues and main actors was created. This map shows where the main issues resonance most based on the originating continents of the NGO's.

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 Kristina John, USA
 Niklas Jonasson, USA

PROJECT 3



ISSUES PER NGO'S TARGETED CONTINENTS

LEGENDA

■ ASIA	■ NORTH AMERICA	■ AUSTRALIA/ASIA	■ THE POLES	■ AFRICA
■ EUROPE	■ EUROPE/ASIA	■ AFRICA/ASIA	■ SOUTH AMERICA	■ NORTH & SOUTH AMERICA



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A list of 74 NGO websites was created based on shared members between the Climate Action Network and TCKTC/KTC-C. Searching manually through the NGO's missions and agendas delivered 279 issues. By testing the resonance of the issues, an issue agenda with main issues, sub-issues and main actors was created. This map shows where the main issues resonate most based on the targeted continents by the NGOs.

MAPPERS:

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Kishna John, IWA
Niklas Johannes, IWA

4.0

USERS AND USES OF VULNERABILITY INDEXES

Research Question

Which particular climate change vulnerability indexes and/or indicators that are relevant in the selected decision-making contexts are ‘competing’ and where can we locate this ‘competition’?

Method

To map the use of the vulnerability indexes five different datasets are studied: adaptation funding programmes, a Web corpus (725 climate change websites), scientific literature, the UNFCCC National Communications documents, and news media. For the first subproject, data from the multilateral and bilateral adaptation funding spreadsheets from the Paris sprint are plotted against data on vulnerability from selected vulnerability indexes (HDI, ND-GAIN, DARA and Germanwatch). The second subproject queries a general corpus and a climate change specific corpus of the selected vulnerability indexes, accounting for differences in French and Spanish language usage of the indexes. The Web corpus of 725 climate change websites are then loaded into several tools on the Sciences Po Medialab website (e.g. Top N-gram) to query and map the data in real-time. For the third subproject, a total of 492 National Communication documents are extracted (1994-2014) using the DMI’s Link Ripper tool and ‘Down Them All’ Firefox plug-in, which are queried for the expanded list of indexes using Grep. The fourth subproject queries the indexes on Google Scholar using Publish or Perish, retrieving the number of citations over time, which were then linked to the different journals. The fifth and final subproject focuses on the news media sphere, querying the LexisNexis database (1968-2014) for the general index corpus, retrieving the number of times each index is cited within the news media, including all English, Spanish and French news.

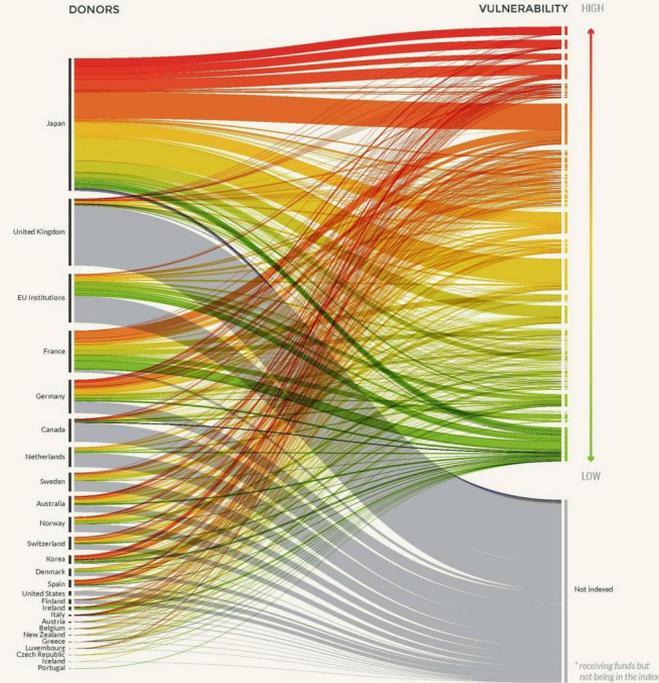
4.0

USERS AND USES OF VULNERABILITY INDEXES

Findings

The main finding appears to be that the different categories of indexes (vulnerability, economic and others) are not competing with each other in the same space. No significant mention of the different indexes within the same context is found. An examination of the adaptation funding programmes reveals that fundings are allocated to the most vulnerable countries, often the least developed. Furthermore, most countries providing bilateral aid have a fairly balanced approach. However, in some cases (e.g., Japan), the granting of funding appears to relate to the geopolitical interest of the donor country. For the scientific literature, the indexes are not mentioned within the same journals. There seems to be a rise in impact of the vulnerability indexes, although not many journals cite several indexes. Those journals that cite indexes most are Environmental Change, Siteseer and Climate Policy. In the Web corpus there is no indication that the three different categories of indexes appear within the same contexts. There is however an indication of competition among the indexes from the same category (DICE and HDI). This is especially visible within the network of journals and cited indexes. Each category of indexes does seem to have its own space within the scientific literature (cited within the same journals). However, this does not account for the contexts within which the indexes are mentioned in the Web corpus. Within the UNFCCC National Communication documents, the indexes HDI, HPI and EVI resonate most. The communication documents outputted by Bangladesh, Gambia, Germany, Mexico, Iceland and Lesotho cited indexes the most. The analysis of the LexisNexis database, albeit in preliminary findings, shows that the Climate Vulnerability Monitor (CVM) has been cited most within news media over time. In sum, the vulnerability indexes each have a different context they are mentioned in. Competition thus only occurs within specific spheres, such as the scientific literature, and not within others.

CORRELATION DONORS-INDEXES
BILATERAL FUNDS
GERMANWATCH INDEX



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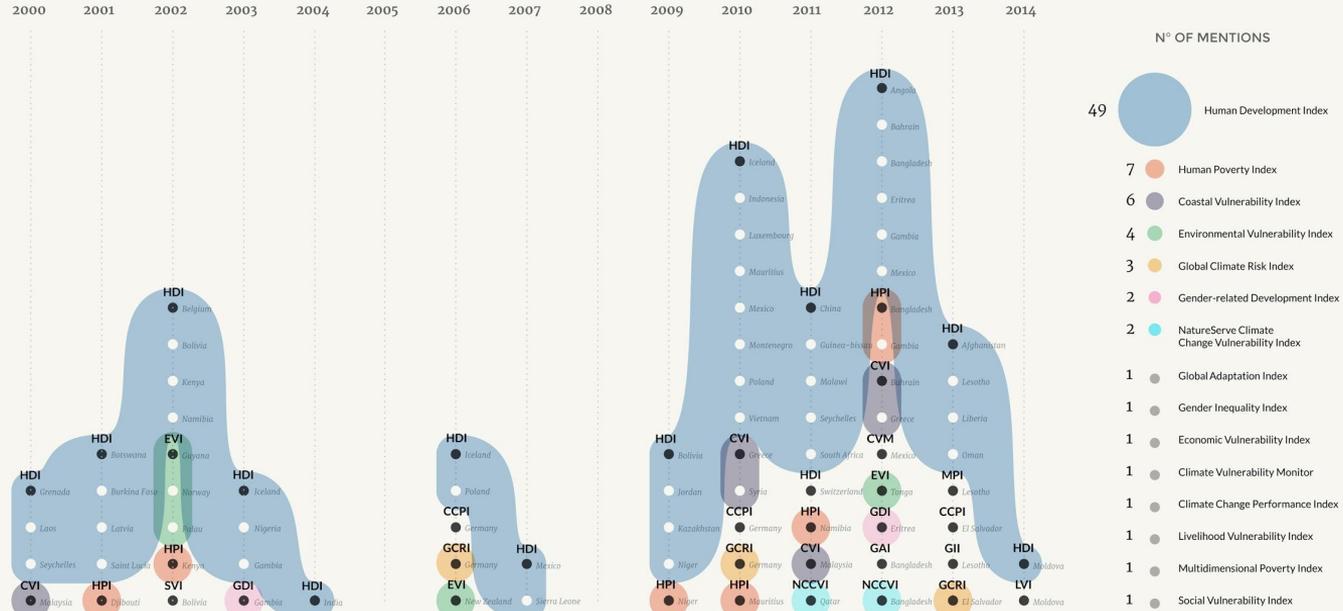
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Peter Gerry Young, Foundation	
Stefano Guarni, Politecnico di Milano	

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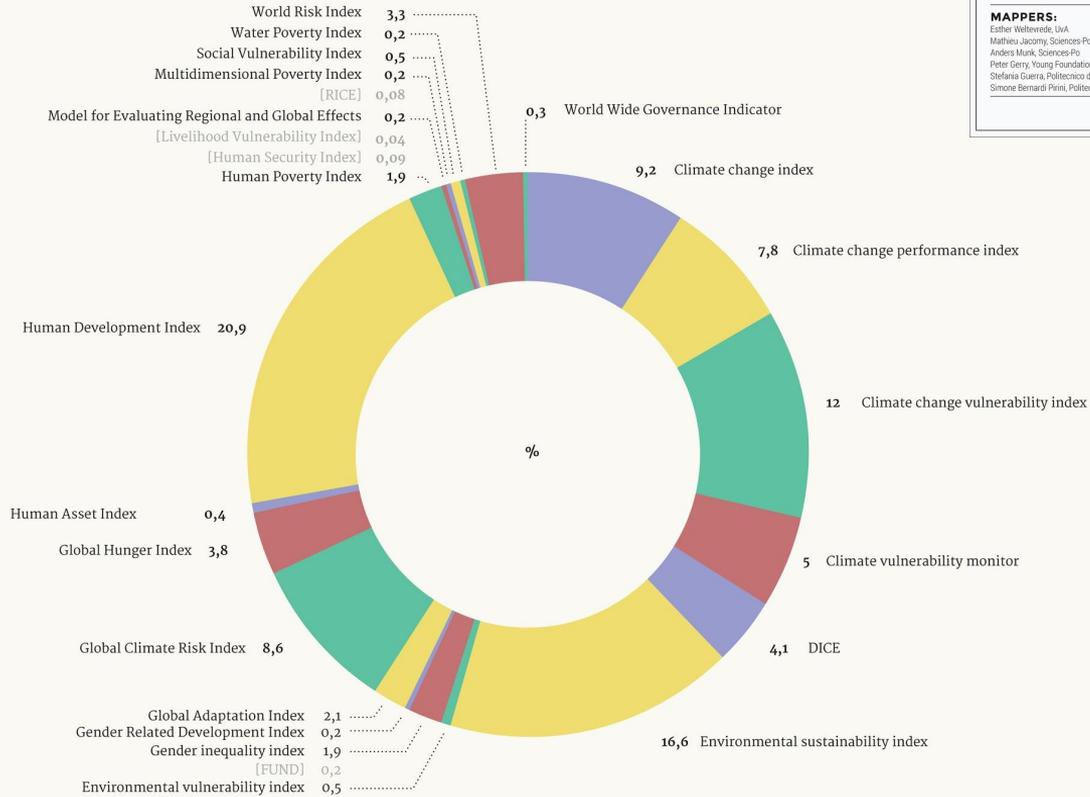
UNFCCC NATIONAL COMMUNICATION DOCUMENTS
INDEX CORRESPONDENCE



LEXIS NEXIS MENTIONS

ENGLISH, FRENCH AND SPANISH NEWS

● too little to visualize



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EMAPS is a collaborative research project funded by the European Research Council to map controversies around climate change adaptation. For more information:

www.emapsproject.com

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Anders Munk, Sciences-Po	Susan Clandillon, Uva
Peter Gerry, Young Foundation	Pascal Janssens, Uva
Stefania Guerra, Politecnico di Milano	Mareke van Dijk, Uva
Simone Bernardi, Politecnico di Milano	

5.0

CLIMATE CHANGE STUDIES ON ADAPTATION STRATEGIES IN GERMANY AND CENTRAL EUROPE

MAPPING WITH THE KOMPASS DATABASE

Research Questions

- 1) Which topics (sectors and fields of activity) are covered in the scientific projects from Germany and Central Europe?
- 2) To what extent do topics of projects correspond with the climate change impacts that regions face, and are there any regional patterns of project funding to be found?
- 3) Are there any patterns in the structure of the actors involved in the projects?

Method

This project makes use of the Kompass Project Catalogue. Each project listed in the catalogue is assigned to the official topic categories of the German Adaptation Strategy. Abstracts of the entire dataset are manually scraped in order to allocate each project to corresponding sectors. The co-occurrence of multiple sectors in the same projects is then calculated. Vulnerability (17 sectors of interest) is measured on a bio-geographical map partitioning Germany into areas of coastal, mountains, rivers or lowland areas. The distribution of the projects according to their target areas is realized by manually refining ‘uncontrolled’ (or freely defined) location keywords to match with the vulnerability definition areas. In addition, the abstracts are once again checked to include more locations. Finally, the key actors (project funders & coordinators) involved in the reports are mapped using the sectors as a correlation point.

5.0

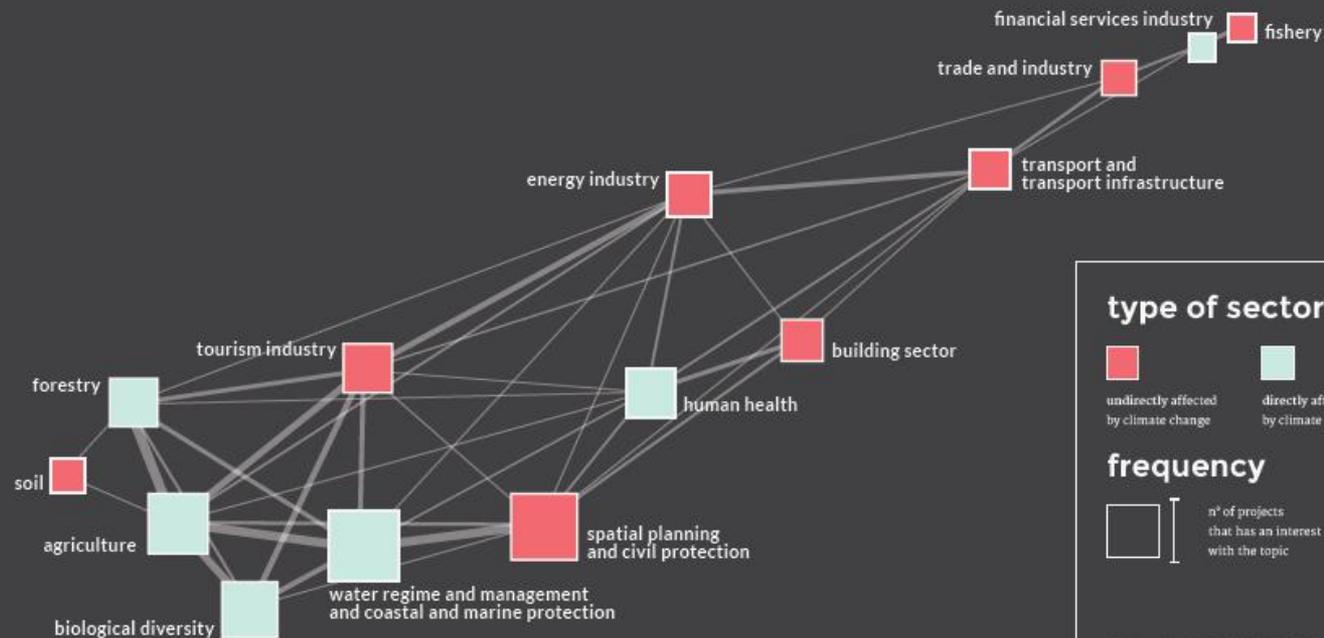
CLIMATE CHANGE STUDIES ON ADAPTATION STRATEGIES IN GERMANY AND CENTRAL EUROPE

MAPPING WITH THE KOMPASS DATABASE

Findings

Sectors and fields of activity directly influenced by climate change have been receiving attention from researchers since the early years, whereas sectors relating to indirect climate change impacts only gained full-fledged attention around 2005 and appear to be catching up. Moreover, since 2005 the number of projects allocated in the vulnerable zones has also significantly increased, suggesting a strategic shift of research attention as a result of the 2005 vulnerability report. Further, no visible correlation between the administrative division of Germany and the distribution of the number of projects per sectors were found, implying that all administrations are equally treated in terms of project allocations. Similarly, adaptation projects also appear to be evenly distributed in the bio-geographical regions. Surprisingly, it seems that highly vulnerable areas do not necessarily receive more funding which is counterintuitive considering the increased research attention and allocation of projects in vulnerable zones since 2005. Lastly, topics of the direct impact category appear to co-occur more closely than the ones of indirect climate change impacts.

Sectors co-occurrence



type of sector



indirectly affected
by climate change



directly affected
by climate change

frequency



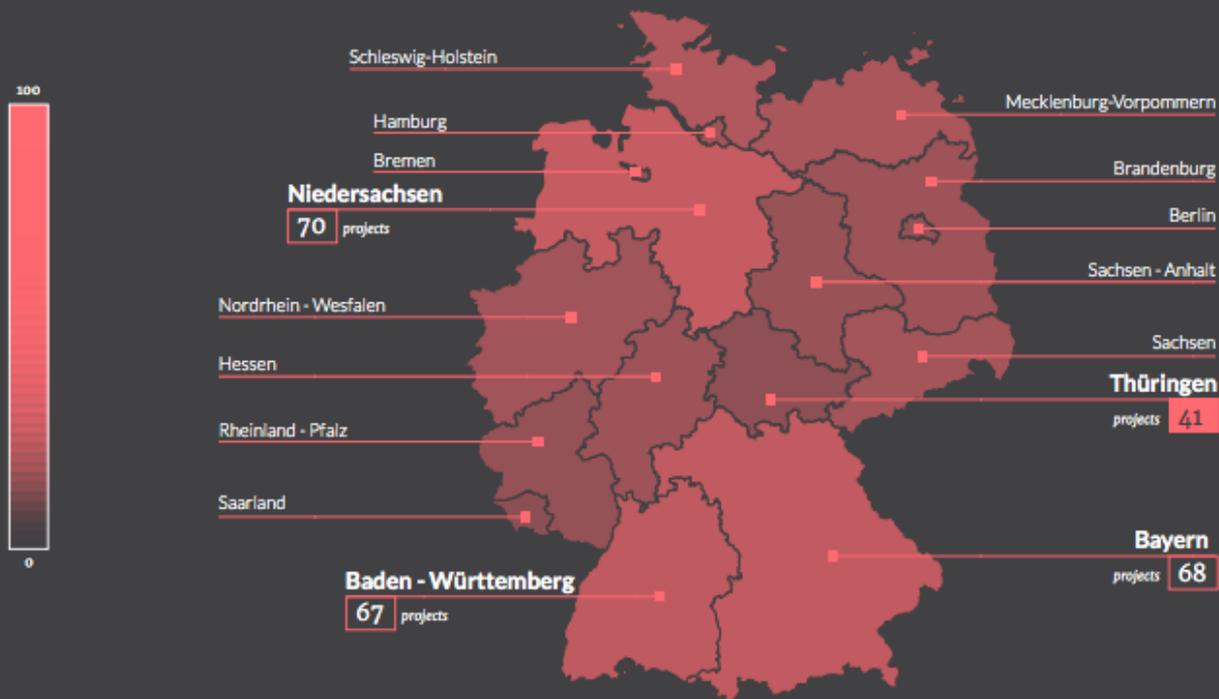
n° of projects
that has an interest
with the topic

co-occurrence



closeness
=
n° of project
where the two
topics co-occur.

number of projects per region



6.0

ON EUROPE'S READINESS TO ADAPT TO CLIMATE CHANGE

Research Questions

- 1) Are those countries leading the way in mitigation also leading in adaptation, or are the ones leading in mitigation slacking in adaptation?
- 2) What are the differences in funding allocation for European countries when following different strategies or ethical principles (proportionality, utilitarian and egalitarian)?

Method

The dataset, provided by Hans-Martin Füssel, contains the adoption of adaptation strategies in Europe, broken down by year, average emissions and emission targets for the Kyoto protocol for Europe and Europe's population statistics. The Kyoto protocol emission target are visualized in combination with the actual emission reduction per country. Next, the EEA report is manually searched for the stages in the adaptation process: 1) not yet started, 2) agenda setting stage, 3) formulation stage, 4) decision stage, 5) implementation stage, and 6) monitoring and evaluation stage. An annotated document for the different stages per country is then constructed. To answer the second research question, first three philosophies are defined and operationalized: proportionality, utilitarian and egalitarian. Based on the dataset used for the previous question, along with data on Gross Domestic Capita per country and death rate per 100.000 citizens from the Germanwatch risk index, 7 different indexes are created: Adaptation index, RISK index, Corruption index, GDP, GDPPP, Population density index, and an average death index. Different formulas using the indexes then resulted in a list of ranked countries.

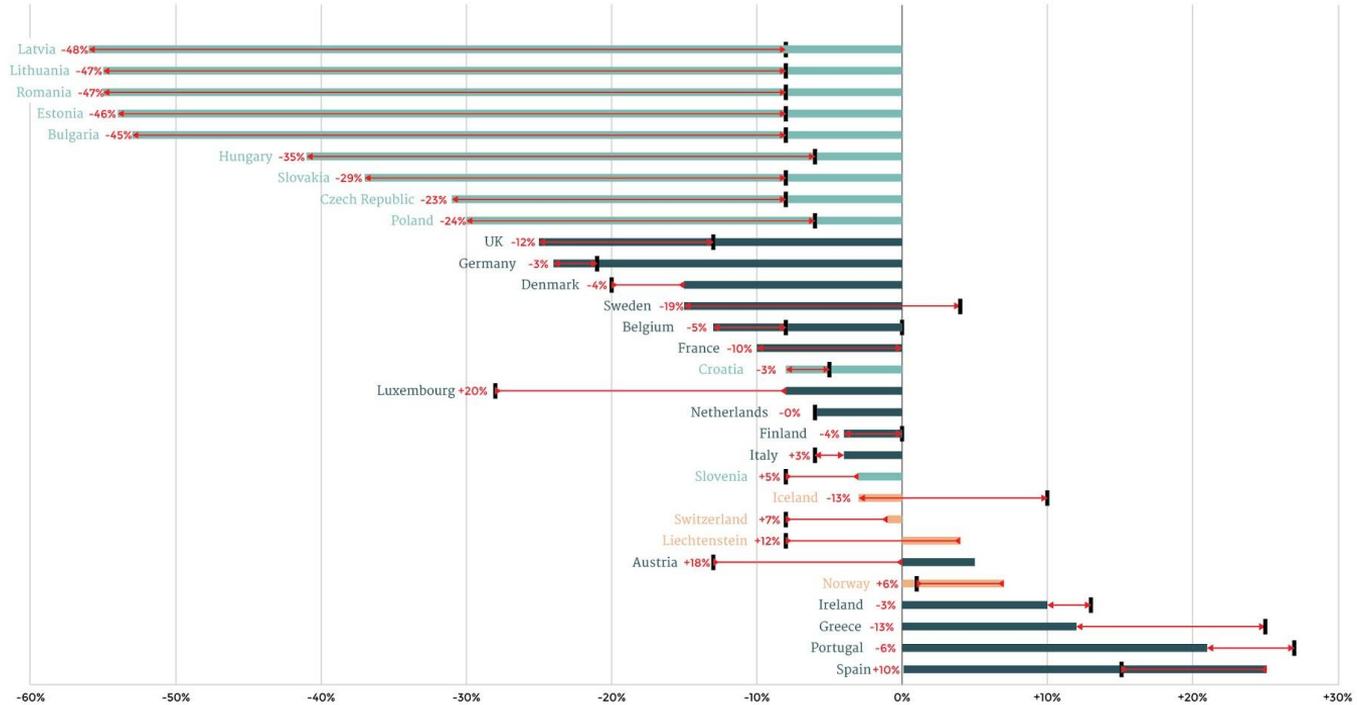
6.0

ON EUROPE'S READINESS TO ADAPT TO CLIMATE CHANGE

Findings

The visualizations show that those countries considered to be in an advanced state of the adaptation process do not necessarily emit less. Both France and Norway are ranked in the same stage of adaptation, but Norway appears to emit more than France. The data also reveals that all Eastern European countries emit significantly less than other European countries. Further, no direct correlation was found between population size and climate change adaptation plans.

The output for the second subproject is a list of ranked countries, showing which European countries should receive the most amount of funding based on each of the three alternative philosophies of proportionality, utilitarian and egalitarian. Each of the countries rank differently under the different formulas. An example of this is Iceland, who ranks last in both the utilitarian and egalitarian philosophies, while ranked tenth under the proportionality philosophy. From the data it appears that Iceland has much to lose to climate change, explaining the higher ranking in proportionality, yet it does not have a plan to cope with adaptation, meaning that it would not receive funding according to the egalitarian philosophy.



LEGEND

- Colors:
- EU-15 Countries
 - New EU-13 Countries
 - Non-EU Countries



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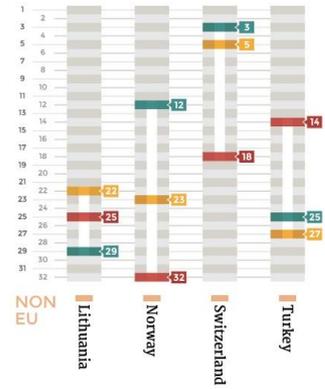
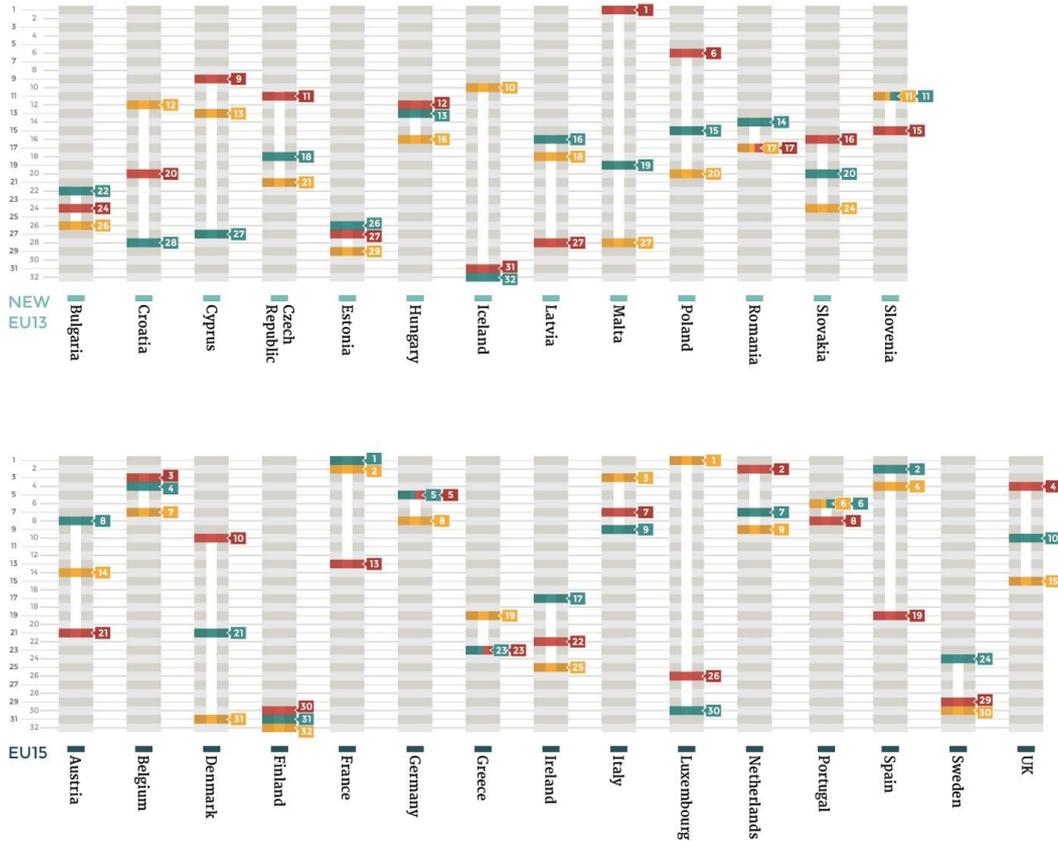
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LEGEND

- Equitable results ('egalitarian')
- Proportionality
- Classical utilitarianism

Countries

- EU15 Countries
- NEW EU13 Countries
- NON EU Countries

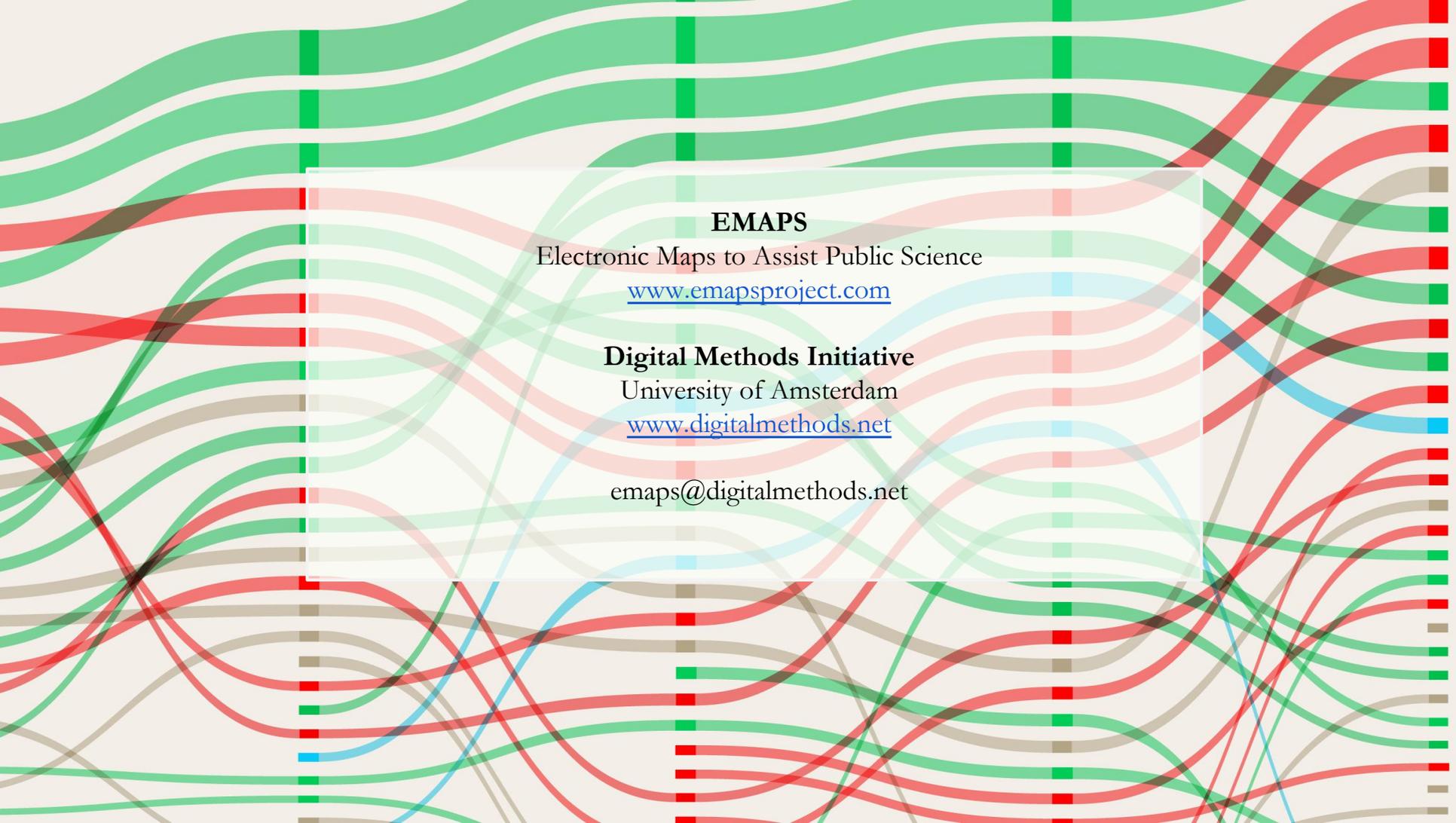


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