

Information overload? A review of databases on climate change mitigation policy

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In Brief

Information on policies mitigating climate change, which could meet key information needs in a post-Paris world, is increasingly available in online databases. However, the available information suffers from several shortcomings. First, there is an uneven geographical distribution of the available data, with little information available about some regions of the world (e.g. sub-Saharan Africa). Second, information about policies is available mostly for the energy sector, while other areas (e.g. agriculture) are underrepresented. Third, databases overall shy away from reporting on costs, actual emissions savings or policy interactions, and also tend to eschew comparisons between jurisdictions. Fourth, databases seem to be insufficiently linked with each other, thus forgoing synergies. These findings are very preliminary in nature and the points evoked above warrant deeper analysis and further research in order to make policy information relevant to policy makers

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Introduction

With the Conference of the Parties (COP) in Paris now some months behind us, international politics is entering the next phase of tackling climate change. With the Paris Agreement being adopted and signed, attention will need to rapidly shift to implementing the nationally determined contributions (NDCs) of countries, which form the core of the agreement. Effective implementation of NDCs depends on a variety of factors, ranging from finding the right economic incentives to questions of social acceptance and equity. This implies that policy makers need a wide range of information in order to adopt the best possible policies to act on climate change. At the international level, robust information and data can help to determine whether the NDCs, taken together, are sufficient to reach the goal to stay well below 2 degrees Celsius above pre-industrial levels. At the national or sub-national level, information on other countries' policies can help policy makers to make competent decisions on climate change mitigation actions (Aldy and Pizer 2016, forthcoming). For private sector players, information on climate policies is vital to guide investments in low-emission solutions, while civil society and concerned citizens might use this information to exercise pressure on policy makers for more ambitious policies. Throughout the years, a variety of databases and other data sets have emerged, compiling information about climate change mitigation policies in a variety of countries. However, it is unclear whether this large variety of data sources and the available information matches the expectations and needs of stakeholders at these different levels.

Against this backdrop, the Stockholm Environment Institute (SEI) in Oxford has undertaken an analysis of 24 databases on climate change policies, with a focus on climate change mitigation policies. In a first step, data sources have been clustered together to gauge the available information. In a second step, SEI Oxford will carry out a stakeholder consultation to assess the needs of users of climate policy databases in order to identify data gaps and opportunities for data improvement. This brief gives an overview of our preliminary findings of the first step.

Methodology and scope

Our sample consists of 24 databases.¹ For each database, we have collected basic background information (e.g. year created, lead organization managing the database etc.), indicated the scope and coverage, and offered details on the types of climate policy information presented in the database. We have coded the data sources, allowing us to filter the results according to certain criteria (e.g. "countries covered" or "focal area"). The vastness of information available online means that it is unlikely that we have covered all the available data sources on climate change mitigation policies, and limitations of language and available time might have driven the sample towards a "Western" and English-speaking bias. Nevertheless, we are able to make several observations on the basis of our sample.

Analysis

Most (13) of the databases in our sample were launched after 2008. While advancements in communication technologies and the increasing user-friendliness of the internet might explain this trend in part, another factor may be the recent shift towards bottom-up climate governance, involving a larger group of stakeholders on many levels. Businesses, non-

¹ The main analysis was carried out between September and November 2015.

governmental organisations and citizens' initiatives increasingly act alongside governments on climate change, both globally and locally, and they create a wealth of data and information that needs to be assessed and systematised. Moreover, reporting requirements – including under the United Nations Framework Convention on Climate Change (UNFCCC) and the European Union – have likely helped to bring more information out in the open. In addition, increasing awareness of the causes and consequences of climate change, following several assessment reports by the Intergovernmental Panel on Climate Change (IPCC), and mounting attention in mainstream media, may have led to further demand for transparency about the policies implemented to address the problem. In the wake of the Paris Agreement and given the increasing central importance of NDCs, it is to be expected that the supply of climate policy information will grow even further, thus increasing the need for providing systematic and understandable information on climate change policies.² The analysis of the data sources described in this brief is a first step to do so.

As far as the policy sector³ is concerned, most databases (18) convey information about energy sector policies,⁴ while 14 databases cover the buildings sector and 13 the transport sector. Within the energy sector, half of the databases analysed cover energy efficiency policies, while seven focus on renewable energy policies. Information on industry policies is in the middle of the spectrum with eight data sources dealing with this sector. At the lower end, we find the agricultural and the waste policy sector with only four data sources covering agricultural and two data sources covering waste policies. However, further analysis is needed to discern whether this is due to the fact that policy makers focus on the energy sector and eschew the agricultural sector, or because information on climate change mitigation policies in the agricultural sector is scarce. Shedding light on this question may point to the need for further transparency of the policies in this sector, which is responsible for roughly 24% of greenhouse gas emissions worldwide (Smith et al. 2014). Moreover, successful implementation of the NDCs under the Paris Agreement will require mitigation actions across multiple sectors, including agriculture.

With regard to the geographical coverage, 15 databases cover policies worldwide; however, only one database targets the Asian region specifically, and no database covers sub-Saharan Africa or Latin America exclusively. Seven databases focus exclusively on Europe and/or the European Union. A country-by-country analysis shows that Germany is the country covered by most databases: 22 databases provide some information on German climate change mitigation policies. India, China and the United States feature in 15 databases, Turkey and Canada in 14, and Russia and Brazil in 13.⁵ The following map (Figure 1) illustrates the number of times a specific country is covered in databases, with darker shades indicating more appearances than lighter colours.

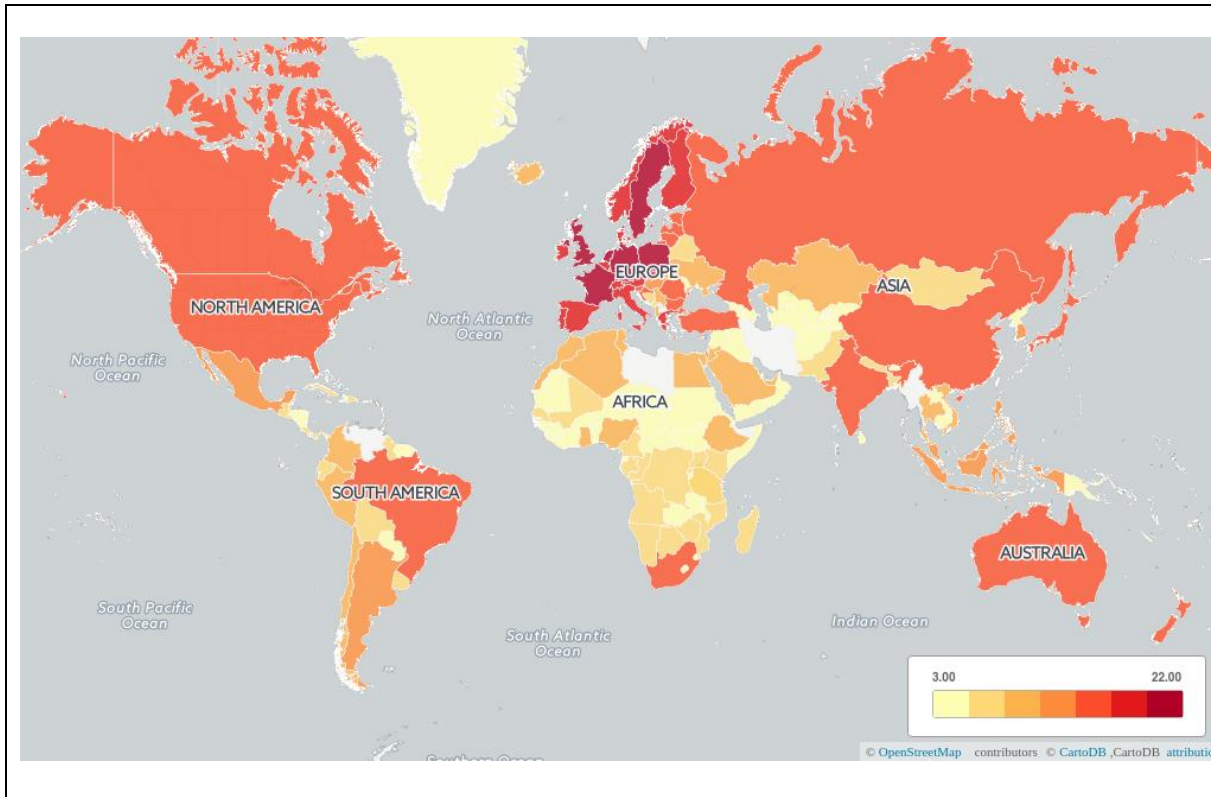
² In addition to databases on public policies, new databases are emerging to document the climate actions undertaken by a variety of non-state actors, such as the UNFCCC's Non-state Actor Zone for Climate Action (NAZCA) portal. For a recent review of these databases, see Widerberg and Strippl (2016, forthcoming).

³ We used the classification also employed by the IPCC: "energy", "buildings", "transport", "agriculture", "LULUCF", "waste", "industry", "crosscutting" and "not specified".

⁴ Including energy efficiency and renewable energy support.

⁵ One database focusing only on federal states of the United States was excluded from the sample.

Figure 1. Number of times a country appears in a database.



The figure shows that the databases analysed mostly cover countries with relatively high greenhouse gas emissions, while information remains scarce in many other areas of the world, such as sub-Saharan Africa (with the exception of South Africa) and Central Asia. While this should not necessarily come as a surprise, a deeper analysis can reveal whether this is due to unavailability of information or a lack of policies in those countries. In any case, increasing policy implementation and information about those policies will be important for developing countries and developed countries alike, in order to achieve the goals outlined in their NDCs.

Although it is not always clear what the exact sources are that are used to compile the information on climate change policies in different databases, national laws and climate strategies as well as grey literature often form the basis of the information presented. Academic sources are more rarely used.

Interactivity

The level of interactivity of the databases is generally low, with most data presented in a static fashion. Ten data sources qualify as interactive, meaning that users are able to control the presentation of data. However, the interactive part of these databases is usually not well developed, allowing for only simple modifications (e.g. altering graphs by adding or removing information). Fifteen data sources included some sort of visualisation, with simple graphs, pie charts and maps prevailing as the types of visual support used. Ten databases allowed for the export of data, but no data source allowed users to do their own calculations or simulations directly on the website.

Type of policy instruments

Following existing classifications of policy instruments (Jordan et al. 2011), the databases can be organised according to the types of policy instruments that are covered, including “regulatory”, “economic/market”, “informational”, “voluntary”, “procedural” and “other” instruments. An analysis of our sample shows that most (19) databases described some sort of regulatory instrument such as energy efficiency requirements mandated by specific laws. Also, 19 databases included information on “economic” and “market instruments” such as emissions trading. Data on “informational” instruments, such as appliance labelling, could be found in 16 databases and 10 data sources also described voluntary instruments. Only seven databases contained information on procedural instruments, such as information on how certain national institutions (e.g. ministries) address climate change or on how educational policies could shape climate change mitigation.

Level of detail

Sixteen out of 24 databases contain relatively detailed descriptions of policies. Some data sources simply provide the general objective of any specific policy or just the name of a law or policy, while others offer detailed information across a wide range of policy aspects. Overall, databases covering Europe or industrialised countries tend to describe policies more in detail, whereas data sources describing policies on a global level tend to be less detailed when it comes to policies in developing countries.

Most of the data sources furthermore refrain from evaluating policies, with only seven databases in our sample offering some type of evaluation of the policies covered. With one exception, the *Odyssee-Mure II* database, those databases also included country comparisons, but information remains rudimentary and/or aggregated. For example, the *Global Buildings Performance Network* database compares countries’ energy efficiency in buildings according to a rating system based on indicators such as “capacity building” or “financial instruments”, which is then presented in pie chart form.

Databases furthermore rarely provide information on the costs of mitigation policies or other indicators of the impacts or effectiveness of policies, such as actual emission reductions. Only five data sources provide some information about the costs of mitigation policies but only one did most of the time. Five databases include estimates of emissions savings for the policies, but this data is often only found for some policies, and most of the estimates are made *ex ante*. While this information might be hard to obtain, given the challenging nature of assessing the mitigation effects of individual climate policies, this kind of data can be of great use to policy makers and other stakeholders. This is particularly the case following the adoption of the Paris Agreement, where information about the policies put in place to achieve NDCs can provide an indication of how a country will perform.

Finally, it can be noted that most of the databases are insufficiently linked to each other. There are exceptions, such as the databases of the International Energy Agency (IEA), which are linked to one institution. As this brief has shown, many data sources focus on policies in the energy sector, thus often categorising and describing the same set of policies. For example, the IEA’s *Addressing Climate Change* database overlaps significantly with the NewClimate Institute’s *Climate Policy Database*. While the latter differs from the former in providing a more systematic approach in the form of a “good policy matrix”, it is not clear whether all potential synergies (e.g. providing complementary information) between the two databases have been explored. This also holds true for other database examples in the analysis.

Conclusions

Our analysis leads to a few preliminary findings. First, data on climate change mitigation policies is increasingly available. This is a positive development from the perspective of transparency of climate policy, and can potentially lead to more informed decision making, and at the same time can help strengthen the capacity of other stakeholders to act on climate change.

Second, available information is concentrated largely on the energy sector, with an emphasis on energy efficiency. Whether this is due to the greater number of energy policies compared to, for example, agricultural policies need further investigation particularly given the importance of simultaneous climate action in multiple sectors. Therefore, a more comprehensive sectoral coverage of climate policy databases would be a welcome development.

Third, data availability is unevenly distributed. While the emissions-intensive countries in the global North are well represented, information on policies in developing countries (particularly in Sub-Saharan Africa) is scarcer. Moreover, to the extent information is available, information in those regions tends to be less comprehensive when compared to industrialised countries. Again, further research can help to discern whether this is due to the fact that there are fewer climate change mitigation policies in these countries or due to the fact that information is not readily available because of transparency or capacity-related issues. In any case, more information about developing countries' policies would not only be beneficial to track their efforts to achieve their NDCs, but may also be useful for the countries themselves, with a view to sharing knowledge and best practices with each other, gaining access to climate finance, and learn about past successes and failures.

Fourth, the data sources analysed are insufficiently linked to each other, thus forgoing potential synergies, and potentially leading to an excess of information.

Lastly, data sources generally eschew comparisons of policies and provide little information about the costs of, and actual emissions savings attributed to, specific policies. While it may be challenging to provide such information both *ex ante* and *ex post*, comparable estimates of costs and/or emissions savings will become increasingly important after Paris.

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