MAPPING GLOBAL CLIMATE NETWORKS FOR HIGHER EDUCATION INSTITUTIONS (HEI)

Trends, gaps, and opportunities

Project Summary

There are a growing number of global higher-education networks around the world acting on climate change. However, there is no one universally identified place that synthesizes, describes, and/or links these collaborations. As such, this project seeks to identify, characterize, and map these networks systematically, identify trends in network location and focus areas, address barriers to synergizing and/or diversifying networks, and provide recommendations for overcoming these challenges. In doing so, this report can support institutions in navigating participation in these networks, as well as explore potential gap or overlap areas such that networks themselves could both diversify and/or collaborate efficiently and effectively, thereby leading to greater impact in advancing climate action.

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1.0 Summary

There are a growing number of global higher-education climate networks around the world – partnerships between institutions working towards a common goal related to addressing climate change. To our knowledge, there is no one universally identified place that synthesizes, describes and/or links these partnerships in a meaningful way that identifies areas where further impact can occur. As such, this project is a collaboration between three partner universities – the University of Waterloo, University at Buffalo, and University Carlos III Madrid, facilitated through the University Global Coalition (UGC) Decade of Action initiative – to develop an initial review and understanding of the nature of global climate networks. Specifically, it seeks to identify, characterize, and map these networks systematically, identify trends in network location and focus area, address barriers to synergizing and/or diversifying networks, and provide recommendations for overcoming these challenges. In doing so, this report can support institutions in navigating these existing networks, and help ensure the formation of new networks diversifies into underexplored focus areas and reduces barriers for collaboration or duplication.

2.0 Project Purpose

It is believed that the mandates, commitments, and activities of various higher education climate networks may overlap. This can have the potential to stretch institutional resources thin and limit the impact of any one network in scaling up actions. The proposed solution of UGC Working Group #13 is to centralize information about these networks and map them. The benefits of doing so include gaining a better understanding of the breadth of institutional climate action around the world, identifying collaboration opportunities between networks, clarifying gap areas (geographical or topical), supporting institutions in navigating these networks, and most importantly, increasing impact in taking climate action.

3.0 Background

3.1 University Global Coalition

Established in 2019 with inspiration from the Declaration on University Global Engagement, the University Global Coalition (UGC) is a global platform of higher education institutions (HEIs) working together to support the Sustainable Development Goals (SDGs) from local to global scales through their education, research, and service missions.[1] One of many UGC initiatives is the Decade of Action, which began in late 2020 as a call for UGC member institutions to collaborate on projects related to the SDGs. Member institutions are assigned to specific SDG Working Groups based on their institutional strengths and interests, collaborating with other

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[1] United Nations Institute for Training and Research (UNITAR). 2021. 'About Us'. Non-governmental organization. The University Global Coalition. 2021. https://universityglobalcoalition.org/about/.

members to design projects that accelerate their SDG. The Working Groups will report on their progress annually, beginning at the September 2021 UGC Summit. Working Group #13 focuses on SDG 13: Climate Action and is made up of sustainability leaders from the University of Waterloo, the University at Buffalo, and Universidad Carlos III de Madrid. Together, they began exploring ways that higher education institutions (HEIs) are implementing climate action initiatives at institutions globally.

3.2 Climate change and HEIs

The World Health Organization (WHO) has defined climate change as the greatest challenge of the 21st century.[2] Around the world, action against climate change is important as the realities of this global challenge become increasingly apparent and threatening. Among those taking action are HEIs, which demonstrate leadership in research, knowledge mobilization and operations.[3]

One of the ways that HEIs have been initiating and coordinating their climate action activities are through 'networks,' which we define as clusters of individual institutions and other partners such as municipal governments, businesses, and more, working together towards common goals related to climate action. These climate-focused networks provide many benefits to the global climate action movement and individual institutions: in addition to collective action towards greenhouse gas emission reductions and climate change resilience, institutional benefits include increasing institutional capacity, building new technologies and knowledge, developing international relationships for future institutional collaborations, and fostering a culture of sustainability.[4]

While such networks present numerous opportunities to HEIs, barriers may exist that reduce their productivity and capacity. As far as we know and through a literature search that spanned several months, challenges faced specifically by HEI networks on climate action have yet to be explored in depth. Identifying these challenges would first require finding, synthesizing, describing, and linking these networks in a meaningful way. Without such an understanding of the existing landscape there is significant potential for overlap between the mandates and commitments of existing networks, leading to possible redundancy and dilution of institutional capacity and resources when trying to navigate participation. This in turn could limit the overall scalability and impact that any one network can have. To advance climate action by HEIs and their partnering stakeholders, there needs to be an understanding of the internal and external factors that influence the formation, operation, and outcomes of these networks. There also needs

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[2] World Health Organization (WHO). 2018. 'Health and Climate Change'. World Health Organization. 2018. https://www.who.int/news-room/facts-in-pictures/detail/health-and-climate-change.

[3] Leal Filho, Walter, Mark Mifsud, Petra Molthan-Hill, Gustavo J. Nagy, Lucas Veiga Ávila, and Amanda Lange Salvia. 2019. 'Climate Change Scepticism at Universities: A Global Study'. *Sustainability* 11 (10). https://doi.org/10.3390/su11102981.

[4] Henderson, Joseph A., Andrew Bieler, and Marcia McKenzie. 2017. 'Climate Change and the Canadian Higher Education System: An Institutional Policy Analysis'. *Canadian Journal of Higher Education* 47 (1): 1–26. https://doi.org/10.47678/cjhe.v47i1.187451.

to be an understanding of what already exists in this space, so institutions interested in joining or creating new networks can maximize their potential, rather than reinventing the wheel.

4.0 Methods

<u>4.1 Definitions and criteria</u>

As a first step, the Working Group determined a set of definitions and parameters to scope and structure the project, including network size, focus areas, and geographical applicability. In terms of network size, the Group decided to only consider networks with 15 or more HEI members publicly listed. To characterize the type of work that the networks conduct, six 'focus areas' were selected and defined (see below) based on trends in climate action observed by the three partner institutions. These focus areas include policy, education, student engagement, research, community engagement and campus action. This was determined by reviewing network websites and social media pages that describe what the network does and who its stakeholders are; a network could meet the criteria for multiple focus areas. The criteria for each focus area were determined collaboratively as the following:

- Policy - advocating for public policy interventions around a climate action challenge
- Education - developing more academic curriculum around climate change
- Student engagement - co-curricular student action on climate change
- Research - undertaking collaborative exploration projects with clear application
- Community engagement - collaborating with businesses, NGOs, or K12 education
- Campus action - Taking action to reduce institutional carbon emissions

When collecting data on each of the networks, the following fields were sought out:
- Name of network
- Network scale
    - National: members within one nation
    - Regional: members within one continent
    - Intercontinental: spanning two to five continents
    - Global: spanning all six continents
- National location (if applicable, specific country or continent)
- Institutional representation (e.g., individual institutions representing themselves or serving as a hub for other institutions)
- Institutional headquarters (if applicable, specific university that is the "home base")
- Host/parent network (if applicable, e.g., SDSN for SDSN Youth)
- Network included in analysis (yes/no)
    - Exclusion reason (why the network was not included in the analysis)
        - Too small with less than 15 members

- ■ Too little activity in recent years
- Network size (number of members)
- Activity level based on a scale of 1-5 from the fields below:
  - Publication output (journal articles)
  - Events (conferences, workshops, etc.)
  - Active communications (social media, newsletters, blogs, etc.)
  - Report/network updates (annual reporting or public updates to their activities/membership)
  - Active projects (a list/database of ongoing projects or activities)
- Activity description (what the network is doing related to the above fields)
- Network leader (e.g., HEI are leaders, HEI are main partners)
- Whether the network focused explicitly on climate change
  - Explicit focus: the network's mission or goals are centred on climate action
  - Secondary focus: the network's mission or goals are focused on multiple or broader initiatives (e.g., sustainability in general) and climate action is just one of the numerous goals
- Focus area(s)
  - Policy
  - Education
  - Student engagement
  - Research
  - Community engagement
  - Campus action
- Continent(s) covered
- Description of network
- Year initiated
- Any additional resources, comments, etc.

If one of these data fields could not be populated, a note would be left in the "comments" column of the data table explaining why these data gaps occurred. The database was shared on Google Drive to enable access and simultaneous collaboration by the Working Group.

To determine whether a "gap" or "overlap" existed between networks, these two terms also required defining. For this report, a "gap" is defined as the absence of network activity occurring within a particular region or focus area. "Overlap" is defined as two or more networks actively covering the same topic or focus area in the same geographic areas.

4.2 Limitations of the study

The greatest limitation during this project was the accessibility of information. In many instances, resources such as membership lists were locked to the public and required paid

membership to access, which the institutions collaborating on this project did not hold. In these instances, the database could not be populated with an accurate number and either an estimate based on available information was made, or an estimate was omitted altogether. Access to this information is important for increasing the accuracy of this database.

Another limitation is related to the lack of information available about network activity. Some networks do not have a social media presence to share their ongoing activities. Likewise, some network websites appear static or did not have information on when content was posted, such as news articles or blog posts. Therefore, some of the networks in the database may no longer be operational, but this information could not be confirmed without timestamps. Likewise, some networks were omitted early on due to perceived inactivity. It is also important to note that perceived activity was used initially to filter through networks, before deciding that an activity filter should be used during the data analysis phase of this project. Networks that did not appear active within the last five years when initially searching for networks were omitted. This meant that for the most part, the networks that were included in the report demonstrated some form of recent activity as defined above.

Furthermore, a limitation is that weighing every network equally does not consider the actual impact that a network has on the world. This was realized during the analysis and was the reason that an activity filter was applied. The qualitative and quantitative output and impact of a network is ignored without looking at the network's activity level. To illustrate, if a very active network (e.g., producing numerous publications every year, posts regularly on social media, etc.) is viewed equally to a network that is significantly less active (e.g., hasn't produced any projects or reports in several years), inaccurate conclusions may be made about the gaps in HEI networks and climate action. This may lead to missed opportunities if a gap is overlooked and an inactive network is perceived to be covering a particular focus area or region. Going forward, when an institution or group of institutions are interested in creating a network and are looking for opportunities or gaps to fill, they should consider the activity level of the networks that exist to better understand whether gaps are still being filled. This needs further evaluation in future phases of this project.

Finally, a limitation in the development of this work was in assigning geographic coverage. Because network membership lists were not always publicly available, and the listing and formatting of institutions was not always directly comparable or would become rapidly outdated, it was decided that this project would focus on qualitative analysis of the networks themselves, and not quantitative analysis of participation in the networks. That is an area rich for further study if more information can be made available. As such, both the mapping and geographic analysis of this project should be interpreted as referring to areas in which a particular network is active or in which HEI participation from those areas is possible. There may be significant disparities in the level of participation of HEI institutions between continents, or between

countries within the same continent, which would require a second phase of quantitative network analysis to complete. For example, in our analysis a "global" network would be equally counted toward every country, or a "regional" network would be equally counted toward every country within that continent, despite significant differences in participation/membership.

4.3 Data collection

Data collection took approximately two weeks and began by populating the database with known networks. Once all known networks were included and their data fields were filled, search engines were then used to identify new networks. The initial search began by reviewing the results for "climate change university networks" and "climate action network HEIs." Searches were then narrowed to specific geographic regions and focus areas, such as "HEI climate action network" "geographic location" "HEI climate network" "focus area." Geographically, the searches were analysed at the continental scale for the efficiency of this analysis, although it was noted in the database when a network was only hosted within a single country. As noted above, to efficiently scope the project sub-national networks were not included in the database at this time.

In addition to websites, social media platforms for known networks were also searched for potential partnerships or highlights about other networks. The news section of search engines was useful for finding articles written about networks without individual websites, as was the case for several networks under the United Nations Framework Convention on Climate Change. If a website was not written in English, which occurred in several instances, the website was put through a translating tool for easier interpretation.

4.4 Data analysis

Two main approaches were used to analyse the database. First, to determine which geographic regions contain the most and the least networks. The second was topical to determine which focus areas were the most common. These approaches were also combined to consider which focus areas were most and least common in specific geographic regions, and why this may be the case. Connections were drawn to broader political, economic, and social factors through a literature review.

Once initial trends were identified, the database was reviewed by the Working Group and disseminated through virtual meetings. From these meetings, new levels of analysis were encouraged, such as the need to consider the activity level of networks. This involved creating a set of criteria to rank a network's "activity," or presence, based on five attributes. The meetings also prompted exploration of specific limitations of this approach, which are defined later in this report. When a network did not meet the specific criteria to be included in the analysis (e.g., less

than 15 member institutions or considered inactive), the network was flagged and filtered out. These networks were not removed altogether, because they serve as a reference to which networks have already been reviewed, and they may change in the future to include more members or become more active post-pandemic. When a network was excluded, the reasoning was noted in the database.

When the Working Group was satisfied with the results, the project entered the next phase, which included project mapping. After a brief scoping of mapping software, Microsoft Excel's embedded mapping feature was selected as an accessible and easily formattable platform that could be updated on an ongoing basis. Several choropleth maps were created to visualize the presence of networks by geographic area. The final maps are included in the Analysis section of the report; note that these are static images taken to include in this report, and the maps will change if the network database is updated on an ongoing basis as a "living" file.

5.0 Data

Table 1. Summary of general findings from the network database.

	Number of networks	Percent of total networks
Total number of networks included	32	
Network led by HEI	25	78.13
Focused solely on climate change	16	50.00
Network Focus		
Networks with more than 1 focus	26	81.25
Average # focal areas per network	2.78	
Universities per network		
Average	189.81	
Median	55.50	
Minimum	15	
Maximum	1019	
Range	1004	
Networks in >1 continent	18	56.25

Table 2. Number of networks at each scale.

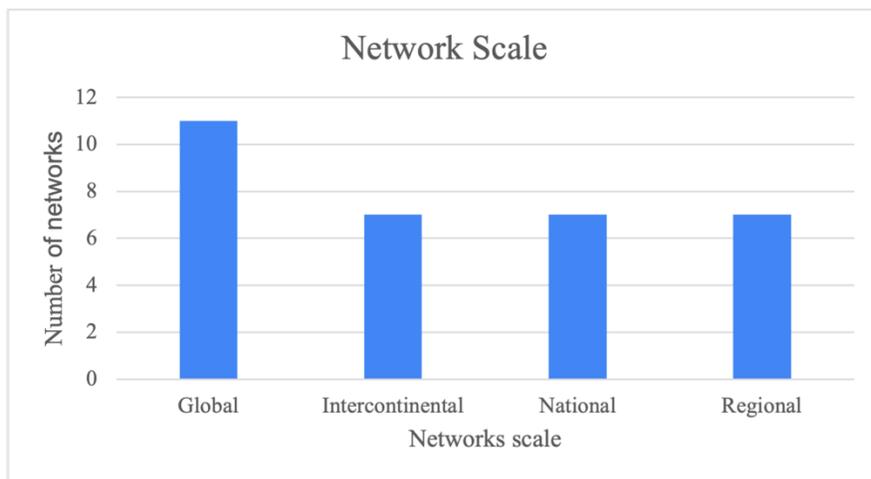| Row Labels	Count
Global	11
Intercontinental	7
National	7
Regional	7
Grand Total	**32**

Figure 1. Breakdown of networks at each scale.

Table 2. Number of networks in each continent.

Values	Count of networks
Africa	16
Asia	18
Australia/Oceania	14
Europe	21
North America	20
South America	17
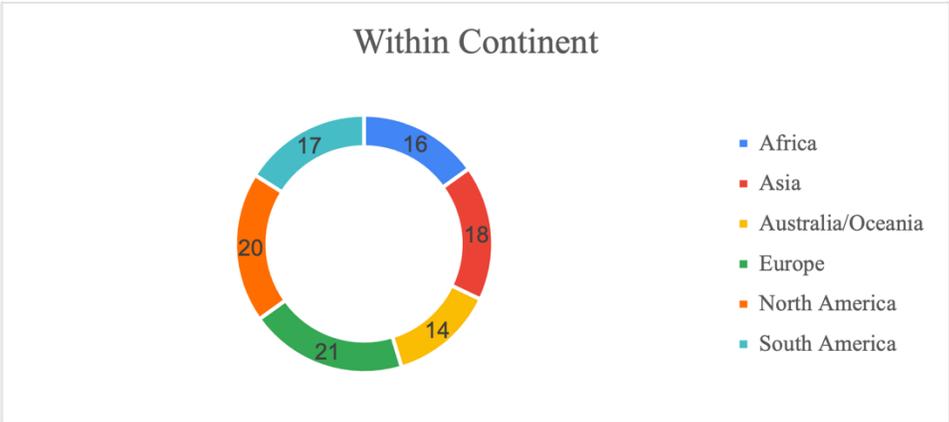
Figure 2. Breakdown of networks in each continent.

Table 3. Number of networks covering each focus area.

Values	Count of networks
Research	22
Campus Action	19
Education	16
Student engagement	11
Policy	11
Community engagement	10

Figure 3. Breakdown of networks covering each focus area.

Network reach - Europe contained the most networks (21), followed closely by North America (20) then Asia (18), South America (17), and Africa (16). Australia and Oceania contained the

fewest networks (14). Close to half of the networks (43.8%) were composed of members only from within the same continent, which includes regional and national networks. For instance, UNICA Green & SDGs is exclusive to European HEIs. However, for those that were intercontinen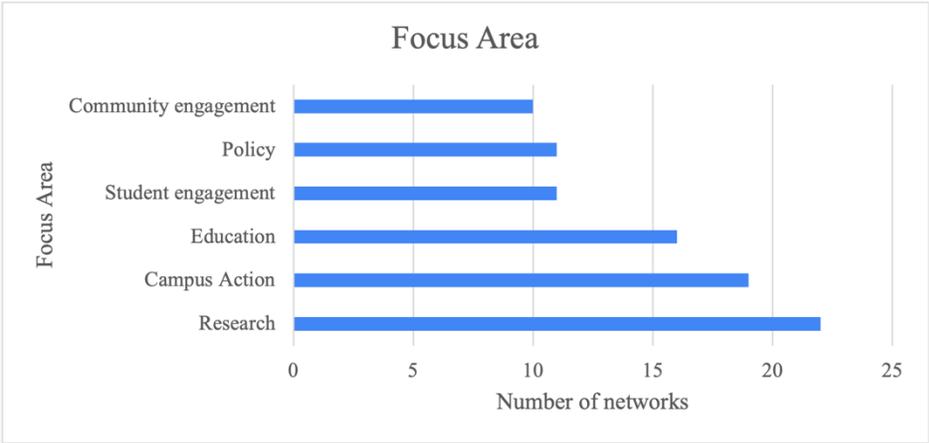tal, more networks were global, covering all six continents, (11, or 34.4%) than those covering two to four continents (3.13% to 6%) and even five continents (9.34%). In other words, the most common reach of these networks was either continental/regional or global.

Focus on climate change - Of the networks analysed, only 16 (50%) focused explicitly on climate change. Others focused more broadly on sustainability with climate change as one of their multiple key themes. Even those considered to focus 'explicitly' on climate change overlap with other areas such as waste, water, and social issues as a result of the interdisciplinary nature of climate change.

Focus area - The most common focus of the networks was research (68.8%) followed by campus action (59.4%), education (50.0%), student engagement, policy (34.4%), and community engagement (31.3%). Most of the networks (78.1%) were HEI-led.

Focus range – The majority of the networks (81.3%) cover multiple focus areas. Based on this analysis, most networks cover three (12, or 37.8%) or four (8, or 25.0%) focus areas, whereas only five networks (15.6%) cover just one. The average was 2.8 focus areas per network. This could be because focus areas overlap. For instance, student engagement and campus action go hand in hand as many student clubs and projects aim to make their campuses more sustainable.[5] Also, given that the criteria for each focus area were designed independently from the networks, there is nuance as to how the focus areas like "research," "education" and so forth are defined from the network's perspective.

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[5] Helferty, A., and A. Clarke. 2009. 'Student-Led Campus Climate Change Initiatives in Canada'. *International Journal of Sustainability in Higher Education* 10: 287–300. https://doi.org/10.1108/14676370910972594'; Murray, Jaylene. 2018. 'Student-Led Action for Sustainability in Higher Education: A Literature Review'. *International Journal of Sustainability in Higher Education* 19 (6): 1095–1110. https://doi.org/10.1108/IJSHE-09-2017-0164.

6.0 Analysis

6.1 Summary of findings

The following list is a summary of the main observations from the data.

- **Geographic Region**
  - Europe hosts the most networks, followed closely by North America. The fewest networks were located in South America, Africa and Australia/Oceania.
  - The majority of the networks (14, or 43.8%) occur within only one continent, and those spanning more than one continent were mainly global (11 or 34.4%).
  - Challenges may exist when fostering global collaboration as a result of differences across social, economic and political dimensions. Failure to design networks in a manner that reflects the diverse needs and abilities of international members may be unable to facilitate collaboration effectively.
  - When networks were limited to the regional level (excluding global networks) there was a notable drop in participation across all continents. There were no regional networks in Australia and Oceania, and reductions in most focus areas in all other regions ranged from slight (-8.6%) to significant (-72.2%). A drop in the overall number of networks when shifting from the global to regional scale is expected, but the proportion of the remaining regional networks focused on topics demonstrates that priorities at the international scale differ from the local level.
- **Focus**
  - Overall, the top focus area is research; community engagement has the least network coverage, likely due to the exclusion of community-led networks in this analysis.
  - When including global networks, policy had the lowest representation in five out of six continents. This decreased further when omitting global networks but still including intercontinental ones (one to five continents), and then even further when only looking at regional networks. However, North America had the highest percentage of networks focused on policy, which increased at the intercontinental scale and again at the regional scale.
  - Campus action was consistently high across all continents, ranging from 61.9% to 82.4% at the global scale. South American and African networks were very focused on campus action, which made up over 80% of their networks at both the global and intercontinental scales; at the regional scale, it was one of the only focus areas covered by networks in both continents.
  - Most of the networks (81.3%) cover multiple focus areas, which is likely due to the multidisciplinary nature of climate change, and because half of the networks focus more broadly on sustainability than just climate change itself.

- ○ These findings could in part be explained by the limitations of the scope of this analysis, which excludes community-led networks where HEIs were not the main partner. As such, most of the networks included are led by HEIs (78.1%). Community-based networks, such as those led by municipalities or NGOs, with only a few institutional partners were excluded. In addition, on some occasions, there was no information on the role of HEIs as members of a network.

- **Size**
  - ○ Many networks were excluded due to their small size and the 15 HEI threshold that was set for this analysis.
  - o Determining the size of each network was challenging when networks did not publicly disclose their member list. Eight of the networks considered gave an estimated count (e.g., "over 400 members") without further details on the membership type.
  - o Most of the networks (23 or 71.9%) have less than 150 HEI members publicly listed, including those with member estimates.
- **Activity**
  - ○ Most of the networks (24 or 75.0%) are considered very active (activity scale 3-5), whereas only 8 (25.0%) were considered rarely active or inactive (activity scale 1-2).
  - ○ Before deciding to assess activity levels, many networks that appeared inactive (see activity criteria in the methods section) were excluded from the analysis section. Therefore, the data was already filtered to focus on networks that appeared active. This was later updated so that the excluded networks were still analysed in the same manner as the more "active" networks, but they were omitted from the final calculations described throughout this report.

6.2 Detailed analysis

6.2.1 Geography and network focus: literature comparison

In this analysis, geography appears to influence network presence and focus significantly. This trend also appears in the literature: in a similar study comparing climate action efforts at HEIs across geographic regions, Henderson et al. examined how HEIs across Canada were implementing climate action initiatives within their institutions. The authors found that 100% of the HEIs they studied that were in British Columbia had climate policies, whereas only 22% of the HEIs they studied in Quebec had climate policies. More broadly, only 30% of the HEIs in their study had climate change mentioned in their broader institutional strategic plans. While this study highlights the differences at the HEI level within a single nation, it aligns with the findings

of our report on a global scale. This may indicate that local contextual factors influence climate action efforts by individual institutions as well as networks.

In another study, Leal Filho et al. explore the relationship between geography and climate action at HEIs, suggesting that "a mix of development status levels, concerns, priorities, lack of formal structures and lack of funds or how resources are allocated" influence how HEIs approach climate action.[6] In the study, HEIs in Europe, North America and Australia demonstrated a stronger awareness of climate change, its implications for their institutions, and the role that HEIs play in addressing climate change. In contrast, Asian, South American and African HEIs demonstrated lower awareness about the risks that climate change poses to HEIs and their role in taking action. This study found that South American HEIs were the least likely to believe that HEIs should have climate policies, and South American and African universities had the fewest policy-based frameworks in place for addressing climate change. On a similar note, an article in Eco-Business suggests that climate education in Southeast Asian institutions is often "silo[ed]," missing critical competencies in the "basics of climate change, energy-climate challenges, energy and climate policy as well as the international cooperation for climate change."[7] Without this critical educational component to foster a culture of caring about climate change, there is less interest in climate action within HEIs, and thus fewer relevant initiatives. This trend may exist in other areas where efforts to combat climate change appear low.

6.2.2 Geography and network focus relationships relative to this report

The literature referenced above shed light on what was found in this network analysis: although low in comparison to other focus areas like research, North America had the greatest percentage of networks focused on policy at the global (40.0%), intercontinental (55.6%) and even regional (75.0%) scales. South American and European networks had a similar engagement rate with policy at the global (29.4% and 28.6%, respectively) and intercontinental scales (33.3% and 30.0%, respectively) but this trend diverged at the regional scale (50.0% and 20.0%, respectively). Australia and Oceania also had a comparable engagement rate with policy at the global scale (28.6%) but this dropped to zero networks at the intercontinental and regional scales. Networks in Asia and Africa demonstrated the least engagement with policy: 25.0% of global networks in Africa dropped to zero networks and the intercontinental and regional scales; 16.7% of global networks in Asia fell to 11.9% at the intercontinental scale but increased to 50.0% at the regional scale. However, this regional presence equates to one out of two total networks.

While policy was consistently low in our study, campus action was consistently high, with at least 61.9% of global networks covering this focus area across all continents. South America has

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[6] Leal Filho, Walter, Mark Mifsud, Petra Molthan-Hill, Gustavo J. Nagy, Lucas Veiga Ávila, and Amanda Lange Salvia. 2019. 'Climate Change Scepticism at Universities: A Global Study'. Sustainability 11 (10): 9. https://doi.org/10.3390/su11102981.

[7] Yiming, Gao, and Hoyyen Chan. 2019. 'Energy and Climate Education Still Missing in Southeast Asian Universities'. *Eco-Business*, 26 November 2019. https://www.eco-business.com/opinion/energy-and-climate-education-still-missing-in-southeast-asian-universities/.

the most networks that fit this focus area (82.4% of global, 83.3% of intercontinental, and 50.0% of regional), followed closely by Africa (81.3% of global, 80.0% of intercontinental, and 100.0% of regional). Australia and Oceania also came close (78.6% of global, 66.7% of intercontinental) but had zero networks at the regional scale focused on campus action. North America's engagement with campus action was lower relative to other continents, but consistent (70.0% of global, 55.6% of intercontinental, 50.0% regional). Europe (61.9% of global, 40.0% of intercontinental, 20.0% regional) and Asia (72.2% of global, 57.1% of intercontinental) were the lowest, but Asia had zero networks at the regional scale.

It was surprising to find how low Europe ranked on this focus area, given Leal Filho et al.'s findings and the various climate policies and programmes implemented by the European Union,[8] which have implications for HEIs.[9] That said, most of the global and regional networks in Europe (71.4% and 60.0% respectively) are focused on research, which aligns with these policies and programmes. It may also be due to the centralized approach that the EU is approaching to coordinate carbon and energy policies, which may imply compliance-based efforts in a similar direction to many "voluntary" efforts requiring more direct campus leadership in other jurisdictions.[10] It is also interesting to observe changes when comparing global and regional networks within a particular continent. For instance, the percentage of total networks in North America focused on policy is higher when global networks are omitted (55.6% of intercontinental networks versus 40.0% of global networks) and even more so when looking at regional networks (75.0% of total regional networks). This may suggest that focusing on policy at a regional level is more effective in North American than broader collaborations because local factors will influence the type of policies that can be created. In contrast, for all continents there was a reduction in education-focused networks when narrowing the scope of analysis from global to regional, suggesting collaborating internationally on educational initiatives is more productive. This may be due to pre-existing international efforts towards similar goals, including those related to Sustainable Development Goal #4: Quality Education.

6.2.3 The role of information accessibility in analysis accuracy

It is important to note that geographic representation in Leal Filho et al.'s study was unbalanced, as it was in our report, which can lead to misinterpretation of the data if overlooked. In the Leal Filho et al. study, most of the HEIs were in Europe (43% of their total data), followed by South America (21%), North America (16%), Africa (10%), Asia (5%) and then Oceania (5%). While

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[8] European Commission. 2020. Proposal for a Regulation of the European Parliament and of the Council Establishing the Framework for Achieving Climate Neutrality and Amending Regulation (EU) 2018/1999 (European Climate Law). Vol. COM/2020/80 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588581905912&uri=CELEX:52020PC0080; European Commission. 2019. *The European Green Deal*. Vol. COM/2019/640 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#document2.

[9] European Commission, EAC. 2020. 'Education for Climate Coalition'. Education and Training - European Commission. 9 December 2020. https://ec.europa.eu/education/education-in-the-eu/european-education-area/education-climate-coalition_en.

[10] Delbeke, Jos, and Peter Vis, eds. 2015. *EU Climate Policy Explained*. European Union: Routledge. https://ec.europa.eu/clima/sites/clima/files/eu_climate_policy_explained_en.pdf.

the study concludes that there is less awareness and engagement in climate action by the latter three regions in the study, it is unclear whether these conclusions were made with consideration to a lack of accessible information from these areas.

In our analysis of HEI networks, there was less public information available from African, Asian and Australia and Oceania networks, and much more accessible information from North American, South American, and European networks. In addition, there were significant reductions in networks in Africa, Asia and Australia/Oceania once global networks were omitted. Most notably, there was a 72.2% reduction when shifting from a global to regional focus for campus action focused networks in Asia. When Australia and Oceania are viewed from a global perspective, there are 14 networks in this area, but when shifting to a regional view, zero of the networks solely occupy this area.

While there may genuinely be fewer networks in these regions, if the unbalanced regional representation is due to information gaps, it may be because the search engines are dominated by Western-focused perspectives and algorithms. This means that when comparing findings between continents and scales, it's important to keep perspective on how many networks the percentages represent. For instance, 67% of intercontinental networks in Australia and Oceania represent two out of three networks, whereas 67% of intercontinental networks in North America represent six out of nine networks, which is triple the former.

6.2.4 The challenges with Westernized perspectives in global partnerships

Utilizing mainly Westernized tools for research reflects another challenge that could impact international collaborations. In a recent study, Nagendra et al. argue that community development, particularly in the context of sustainable urbanization, is led and shaped by industrialized nations, which may not be relevant to developing nations.[11] In other words, westernized nations have tools, resources, and conditions that are not widely available to all. There are drastically different economic, social, and political priorities as well as knowledge and resource capacities. Such differences can hinder participation in networks initiated or led by industrialized nations. For instance, networks initiated in Canada with goals that reflect local conditions or require locally available resources (financial, technical, or otherwise) may not meet the needs of HEIs in Africa.

Furthermore, various barriers could prevent developing nations from participating equitably in Western-focused networks. These barriers range from financial and health disparities, conflict, societal hierarchies, accessibility to communication and more.[12] Areas within Africa, Asia, and

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[11] Nagendra, Harini, Xuemei Bai, Eduardo S. Brondizio, and Shuaib Lwasa. 2018. 'The Urban South and the Predicament of Global Sustainability'. *Nature Sustainability* 1 (7): 341–49. https://doi.org/10.1038/s41893-018-0101-5.

[12] Biesbroek, Robbert, Judith Klostermann, C.J.A.M. Termeer, and Pavel Kabat. 2013. 'On the Nature of Barriers to Climate Change Adaptation'. *Regional Environmental Change* 13 (October). https://doi.org/10.1007/s10113-013-0421-y; Casey, Alanna, and Austin Becker.

Latin America are particularly vulnerable to these barriers,[13] which may explain their lower participation overall in the networks analysed. For instance, when focusing on regional networks, zero African networks focus on policy, research, or communication. Only one network was determined to be regional to Africa, and only two regional networks were found for South America and Asia. That said, Australia also had zero regional networks found, but it already had the lowest number of total networks, including global ones, which is likely due to the lack of information accessibility than resource limitations as an industrialized nation and Australia's presence as a G20 country.

What this observation then suggests is that forming global partnerships forces one to think beyond local-level political, social, and economic conditions to broader, global issues. These global collaborations may also create pressure for progress in areas not deemed as priorities at the regional scale. For instance, Selin and Vandeveer suggest that partnerships between organizations in Canada and the United States were more progressive on climate action targets when collaborating, rather than when setting targets on their own.[14] This pressure may be greater with partnerships spanning multiple continents, as illustrated by the increased attention to the focus areas at the global level. This trend is promising because, to tackle the global problem that is climate change, efforts are needed from every nation across the world. In addition, fostering these global collaborations can help eradicate other challenges that amplify vulnerability to climate change, including poverty, conflict, governance issues and more.

Based on our findings, more networks are regionally focused (43.8%) than globally focused (34.4%). Given how the engagement with each focus area differs from the global to regional scale, it is likely that these regional networks are more focused on addressing locally relevant issues and are limited by local factors referenced earlier. There may be challenges with intercontinental collaboration because of these differing contextual factors that influence decisions. There may also be logistical challenges to international collaborations, including linguistic and cultural differences, scheduling and time zone conflicts, travel restrictions due to the COVID-19 pandemic, and more.[15] Both contextual and logistic challenges can make international collaborations daunting and ineffective if the established networks do not reflect the diverse needs of all current and future members.[16] To illustrate, one study of 29 African HEIs found language to be the greatest challenge when approaching sustainability initiatives from a

2019. 'Institutional and Conceptual Barriers to Climate Change Adaptation for Coastal Cultural Heritage'. *Coastal Management* 47 (2): 169–88. https://doi.org/10.1080/08920753.2019.1564952; Doughty-Grajales, Miguel. 2013. 'Identifying Institutional Factors That Are Barriers to Climate Change Adaptation in Vietnam'. Uppsala, Sweden: Uppsala University. http://www.diva-portal.org/smash/get/diva2:663741/FULLTEXT01.pdf;

[13] Nagendra et al. 2018.

[14] Selin, Henrik, and Stacy Vandeveer. 2005. 'Canadian-U.S. Environmental Cooperation: Climate Change Networks and Regional Action'. *American Review of Canadian Studies* 35 (August): 353–78. https://doi.org/10.1080/02722010509481376.

[15] Almansour, Sana. 2015. 'The Challenges of International Collaboration: Perspectives from Princess Nourah Bint Abdulrahman University'. Edited by H. L. Wendy Pan. Cogent Education 2 (1): 1118201. https://doi.org/10.1080/2331186X.2015.1118201; See, M. 2018. '18 International Collaboration: Are the Challenges Worth the Benefits?.' *Journal of Animal Science* 96 (suppl_3): 2–2. https://doi.org/10.1093/jas/sky404.003.

[16] Nagendra, Harini, Xuemei Bai, Eduardo S. Brondizio, and Shuaib Lwasa. 2018. 'The Urban South and the Predicament of Global Sustainability'. *Nature Sustainability* 1 (7): 341–49. https://doi.org/10.1038/s41893-018-0101-5.

global context. The lack of local governance for sustainability issues and an absent culture of sustainability were also significant challenges, making it difficult to collaborate with international institutions that possessed greater knowledge, interest and capacity in these areas.[17] This point was illustrated as well by Lang et al., who demonstrate that lack of problem awareness resulting from a lack of education is a significant barrier to collaborative research, in addition to competing research norms, knowledge types, communication styles and more.[18] While networks with global reach can achieve a more diverse, inclusive and harmonized approach to climate action, these networks must work together with their diverse members to build equitable, inclusive collaboration spaces that will benefit all members equally. It may also be beneficial to offer flexibility with international collaborations, such as the commitments members are required to make, to support the regional needs and limitations of diverse members.

6.3 Relevance for stakeholders

Layered upon the specific dynamics of coverage and foci of networks discussed above, there seem to be several key takeaways of relevance to individual institutions and networks themselves.

First, this exercise found a wide range of networks across multiple scales with climate change as a primary focus or as a major theme within a larger sustainability network. While this is encouraging, it reinforces that this is a very active space and may lead to some overlapping mandates and activity. The flourishing and growth in the number of these networks may eventually become a deterrent to any one network catalysing significant action commensurate with the scale of action needed to address climate change. This suggests that creation of new networks with overlapping foci and geographic areas may encounter increasing challenges in recruiting members, and this membership may come at the expense of participation in other networks, leading to fragmentation, or deeper and broader participation from wealthier institutions with adequate resources. Further analysis, as described below, is needed to determine if this is happening already.

Second, and recognizing that this overlap seems to be occurring, it suggests a need for leadership within HEI climate and sustainability networks to either better differentiate the various networks' foci or value propositions, or to establish more formal collaborations that could reduce duplication of efforts and pressure for participation on individual institutions. Particularly as networks attempt to scale membership and broaden participation across many geographical

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[17] Ulmer, Nico, and Kerstin Wydra. 2019. 'Sustainability in African Higher Education Institutions (HEIs): Shifting the Focus from Researching the Gaps to Existing Activities'. *International Journal of Sustainability in Higher Education* 21 (1): 18–33. https://doi.org/10.1108/IJSHE-03-2019-0106.

[18] Lang, Daniel J., Arnim Wiek, Matthias Bergmann, Michael Stauffacher, Pim Martens, Peter Moll, Mark Swilling, and Christopher J. Thomas. 2012. 'Transdisciplinary Research in Sustainability Science: Practice, Principles, and Challenges'. *Sustainability Science* 7 (1): 25–43. https://doi.org/10.1007/s11625-011-0149-x.

regions, differentiation and/or more effective consolidation could help improve the overall impact of participating networks and the networks as a whole.

Third, the ability to communicate the core activities, breadth of representation, accomplishments, and impact of the network could enable better institutional decision-making around participation. As noted in the limitations of the report, this is not always accessible as we sought a means of qualitatively understanding networks based on public information. Effectively communicating this activity and progress could both help institutions better understand participation in a prospective network, and, if there is limited activity happening, to better guide differentiation and consolidation where necessary.

7.0 Conclusions

The geographic region(s) that an HEI-focused climate action network resides in appears to influence the network's goals, focus areas, and initiatives. This is likely a result of regionally relevant political, social, and economic conditions. Competing regional conditions and priorities could make global collaborations challenging, not to mention logistical barriers like linguistic differences or time zones. That said, fostering global collaborations can offer unique opportunities such as knowledge and technology exchange, motivation to surpass national climate action targets, and a more unified approach to global climate action efforts. It would be especially beneficial to make partnerships between regions with a pre-existing culture of sustainability and climate action and those where this perspective is currently lacking or nascent, which can help spread awareness and understanding about the roles of HEIs in taking climate action. Such efforts, however, must take a collaborative approach to avoid marginalizing members.

Based on the networks analysed in this report, policy appears to be the most challenging focus area to explore as a network, especially when collaborating internationally, given the unique needs and conditions of individual nations. This focus area may be better suited for regional networks unless international policy initiatives are made flexible enough to reflect the diversity of its international members. In contrast, campus action is a very common focus for the networks analysed across all continents, likely because it naturally offers flexibility for individual member campuses and can easily be scaled up to the global level. Therefore, new networks should focus on other topics to avoid over-saturating the system or interested HEIs should support pre-existing networks to scale up their impact.

8.0 Next phase for the network analysis

While this report provides a set of conclusions and recommendations based on the current data, these findings led to additional considerations that would be valuable to explore moving forward. For one, the Working Group believes that comparing the findings of this report against the Times

Higher Education (THE) university rankings for SDG 13 would be valuable to see how climate action efforts are being recognized across other platforms. THE ranks universities from around the world on their performance against different parameters. Their Impact Rankings assess universities against the SDGs and is one of the most comprehensive rankings platforms of its kind. It would be interesting to see whether the rankings recognize the efforts of institutions from the networks in this report. This may involve creating a new section of the dataset that lists every institution connected to the networks, then listing which networks each of those institutions are involved in, and what ranking (if any) they received in the 2021 THE Impact Rankings.

Another consideration, and connected to the above, would be to review the networks on an institutional level. This would involve assessing how involved each institution is within a network, from simple membership through active leadership, resourcing, and decision-making within the network. There is already some data on network "headquarters," that is, institutions hosting the networks. By serving as the home base, these are likely going to be the institutions contributing the most to the network projects. Other ways to gather data on this could be to review project lists from each network if the projects are specific to institutions or partnerships between institutions, reviewing board or governance structures, and/or interviews with specific networks.

A third consideration that ties well into the second suggestion is understanding network presence on a smaller geographic scale, such as the state/province level or even major cities. There may be "hotspots" of network activity, in which cities have multiple networks occurring in one space. This analysis, coupled with findings about institutional involvement, could provide insight on why some institutions are more involved than others, such as geopolitical factors, institutional mandates and more.

A final consideration would be to connect with the networks in this dataset to understand their mandates and work. When reviewing the dataset and findings of this report, it is important to keep in mind that the definitions used to characterize the networks are self-prescriptive. To ensure a standardized assessment of each network, the Working Group had to establish criteria for each focus area and activity type that could be broadly applied to all networks. For instance, this report found that research was the most common focus area by networks around the world, but what does that research entail? By connecting with networks to understand their mandates and activities, the categories used in this report could potentially be refined and lead to more robust comparisons. Overall, these considerations provide opportunities to further understand and visualize the efforts towards climate action that are being taken by higher education institutions around the world.

8.0 Recommendations

Several recommendations are provided to approach the challenges and opportunities outlined in this report.

For institutions or organizations wishing to create new HEI-focused climate networks, the following is recommended:
1. Use the living database created by this initiative to determine whether a network already exists that meets the interests of the inquiring institution.
2. Use the findings of this report to enhance networks in focus areas that are underexplored to avoid redundancy.
3. Use the findings of this report to foster international collaborations in regions where network activity is low and could benefit from knowledge exchange and/or capacity support.

For institutions/networks wishing to support the growth of this database:
1. Continue adding and updating this network database to make it a "living" file that can be shared with HEIs as they navigate through networks to join or create. This will help reduce overlap amongst networks and illustrate the options that HEIs can join before creating a whole new network.
2. To increase the accuracy of the network descriptions, network leads can be contacted to provide the details necessary to populate the database. This can eliminate uncertainties in the process, especially when data is not clear or available on network websites.

10.0 References

Almansour, Sana. 2015. 'The Challenges of International Collaboration: Perspectives from Princess Nourah Bint Abdulrahman University'. Edited by H. L. Wendy Pan. Cogent Education 2 (1): 1118201. https://doi.org/10.1080/2331186X.2015.1118201.

Biesbroek, Robbert, Judith Klostermann, C.J.A.M. Termeer, and Pavel Kabat. 2013. 'On the Nature of Barriers to Climate Change Adaptation'. *Regional Environmental Change* 13 (October). https://doi.org/10.1007/s10113-013-0421-y;

Casey, Alanna, and Austin Becker. 2019. 'Institutional and Conceptual Barriers to Climate Change Adaptation for Coastal Cultural Heritage'. *Coastal Management* 47 (2): 169–88. https://doi.org/10.1080/08920753.2019.1564952.

Delbeke, Jos, and Peter Vis, eds. 2015. *EU Climate Policy Explained*. European Union: Routledge. https://ec.europa.eu/clima/sites/clima/files/eu_climate_policy_explained_en.pdf.

Doughty-Grajales, Miguel. 2013. 'Identifying Institutional Factors That Are Barriers to Climate Change Adaptation in Vietnam'. Uppsala, Sweden: Uppsala University. http://www.diva-portal.org/smash/get/diva2:663741/FULLTEXT01.pdf.

European Commission. 2019. *The European Green Deal*. Vol. COM/2019/640 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#document2.

European Commission. 2020. Proposal for a Regulation of the European Parliament and of the Council Establishing the Framework for Achieving Climate Neutrality and Amending Regulation (EU) 2018/1999 (European Climate Law). Vol. COM/2020/80 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588581905912&uri=CELEX:52020PC0080;

European Commission, EAC. 2020. 'Education for Climate Coalition'. Education and Training - European Commission. 9 December 2020. https://ec.europa.eu/education/education-in-the-eu/european-education-area/education-climate-coalition_en.

Helferty, A., and A. Clarke. 2009. 'Student-Led Campus Climate Change Initiatives in Canada'. *International Journal of Sustainability in Higher Education* 10: 287–300. https://doi.org/10.1108/14676370910972594.

Henderson, Joseph A., Andrew Bieler, and Marcia McKenzie. 2017. 'Climate Change and the Canadian Higher Education System: An Institutional Policy Analysis'. *Canadian Journal of Higher Education* 47 (1): 1–26. https://doi.org/10.47678/cjhe.v47i1.187451.

Lang, Daniel J., Arnim Wiek, Matthias Bergmann, Michael Stauffacher, Pim Martens, Peter Moll, Mark Swilling, and Christopher J. Thomas. 2012. 'Transdisciplinary Research in Sustainability Science: Practice, Principles, and Challenges'. *Sustainability Science* 7 (1): 25–43. https://doi.org/10.1007/s11625-011-0149-x.

Leal Filho, Walter, Mark Mifsud, Petra Molthan-Hill, Gustavo J. Nagy, Lucas Veiga Ávila, and
Amanda Lange Salvia. 2019. 'Climate Change Scepticism at Universities: A Global
Study'. *Sustainability* 11 (10). https://doi.org/10.3390/su11102981.

Murray, Jaylene. 2018. 'Student-Led Action for Sustainability in Higher Education: A Literature
Review'. *International Journal of Sustainability in Higher Education* 19 (6): 1095–1110.
https://doi.org/10.1108/IJSHE-09-2017-0164.

Nagendra, Harini, Xuemei Bai, Eduardo S. Brondizio, and Shuaib Lwasa. 2018. 'The Urban
South and the Predicament of Global Sustainability'. *Nature Sustainability* 1 (7): 341–49.
https://doi.org/10.1038/s41893-018-0101-5.

See, M. 2018. '18 International Collaboration: Are the Challenges Worth the Benefits?.' *Journal
of Animal Science* 96 (suppl_3): 2–2. https://doi.org/10.1093/jas/sky404.003

Selin, Henrik, and Stacy Vandeveer. 2005. 'Canadian-U.S. Environmental Cooperation: Climate
Change Networks and Regional Action'. *American Review of Canadian Studies* 35
(August): 353–78. https://doi.org/10.1080/02722010509481376.

Ulmer, Nico, and Kerstin Wydra. 2019. 'Sustainability in African Higher Education Institutions
(HEIs): Shifting the Focus from Researching the Gaps to Existing Activities'.
International Journal of Sustainability in Higher Education 21 (1): 18–33.
https://doi.org/10.1108/IJSHE-03-2019-0106.

United Nations Institute for Training and Research (UNITAR). 2021. 'About Us'. Non-
governmental organization. The University Global Coalition. 2021.
https://universityglobalcoalition.org/about/.

World Health Organization (WHO). 2018. 'Health and Climate Change'. World Health
Organization. 2018. https://www.who.int/news-room/facts-in-pictures/detail/health-and-
climate-change.

Yiming, Gao, and Hoyyen Chan. 2019. 'Energy and Climate Education Still Missing in
Southeast Asian Universities'. *Eco-Business*, 26 November 2019. https://www.eco-
business.com/opinion/energy-and-climate-education-still-missing-in-southeast-asian-
universities/.

11.0 Appendices

Appendix A: Network presence by region and focus area

Table A- 1. Full data on networks and focus areas by continent.

Region + Focus	With global (1-6 continents)		Without global (1-5 continents)		% Change	Regional (1 continent)		% Change global to regional
	# networks	% Total	# networks	% Total		# networks	% Total	
North America	**20**		**9**			**4**		
North America + Policy	8	40.00	5	55.56	15.56	3	75.00	35.00
North America + Campus Action	14	70.00	5	55.56	-14.44	2	50.00	-20.00
North America + Research	15	75.00	6	66.67	-8.33	3	75.00	0.00
North America + Education	8	40.00	2	22.22	-17.78	2	50.00	10.00
North America + Student engagement	8	40.00	2	22.22	-17.78	2	50.00	10.00
North America + Community Engagement	6	30.00	2	22.22	-7.78	0	0.00	-30.00
South America	**17**		**6**			**2**		
South America + Policy	5	29.41	2	33.33	3.92	1	50.00	20.59
South America + Campus Action	14	82.35	5	83.33	0.98	1	50.00	-32.35
South America + Research	13	76.47	4	66.67	-9.80	2	100.00	23.53
South America + Education	9	52.94	3	50.00	-2.94	2	100.00	47.06
South America + Student Engagement	6	35.29	0	0.00	-35.29	0	0.00	-35.29
South America + Community Engagement	7	41.18	3	50.00	8.82	1	50.00	8.82
Europe	**21**		**10**			**5**		
Europe + Policy	6	28.57	3	30.00	1.43	1	20.00	-8.57
Europe + Campus Action	13	61.90	4	40.00	-21.90	1	20.00	-41.90
Europe + Research	15	71.43	6	60.00	-11.43	4	80.00	8.57
Europe + Education	10	47.62	4	40.00	-7.62	3	60.00	12.38

| Category								
Europe + Student engagement	7	33.33	1	10.00	-23.33	1	20.00	-13.33
Europe + Community engagement	7	33.33	3	30.00	-3.33	1	20.00	-13.33
Asia	**18**		**7**			**2**		
Asia + Policy	3	16.67	2	28.57	11.90	1	50.00	33.33
Asia + Campus Action	13	72.22	4	57.14	-15.08	0	0.00	-72.22
Asia + Research	12	66.67	3	42.86	-23.81	1	50.00	-16.67
Asia + Education	7	38.89	1	14.29	-24.60	1	50.00	11.11
Asia + Student engagement	7	38.89	1	14.29	-24.60	1	50.00	11.11
Asia + Community Engagement	6	33.33	2	28.57	-4.76	1	50.00	16.67
Africa	**16**		**5**			**1**		
Africa + Policy	4	25.00	0	0.00	-25.00	0	0.00	-25.00
Africa + Campus Action	13	81.25	4	80.00	-1.25	1	100.00	18.75
Africa + Research	10	62.50	1	20.00	-42.50	0	0.00	-62.50
Africa + Education	8	50.00	2	40.00	-10.00	1	100.00	50.00
Africa + Student engagement	7	43.75	1	20.00	-23.75	1	100.00	56.25
Africa + Community Engagement	6	37.50	2	40.00	2.50	0	0.00	-37.50
Australia/Oceania	**14**		**3**			**0**		
Australia/Oceania + Policy	4	28.57	1	33.33	4.76	0	#DIV/0!	#DIV/0!
Australia/Oceania + Campus Action	11	78.57	2	66.67	-11.90	0	#DIV/0!	#DIV/0!
Australia/Oceania + Research	10	71.43	1	33.33	-38.10	0	#DIV/0!	#DIV/0!
Australia/Oceania + Education	6	42.86	0	0.00	-42.86	0	#DIV/0!	#DIV/0!
Australia/Oceania + Student engagement	6	42.86	0	0.00	-42.86	0	#DIV/0!	#DIV/0!
Australia/Oceania + Community Engagement	4	28.57	0	0.00	-28.57	0	#DIV/0!	#DIV/0!

Appendix B: Map of climate networks
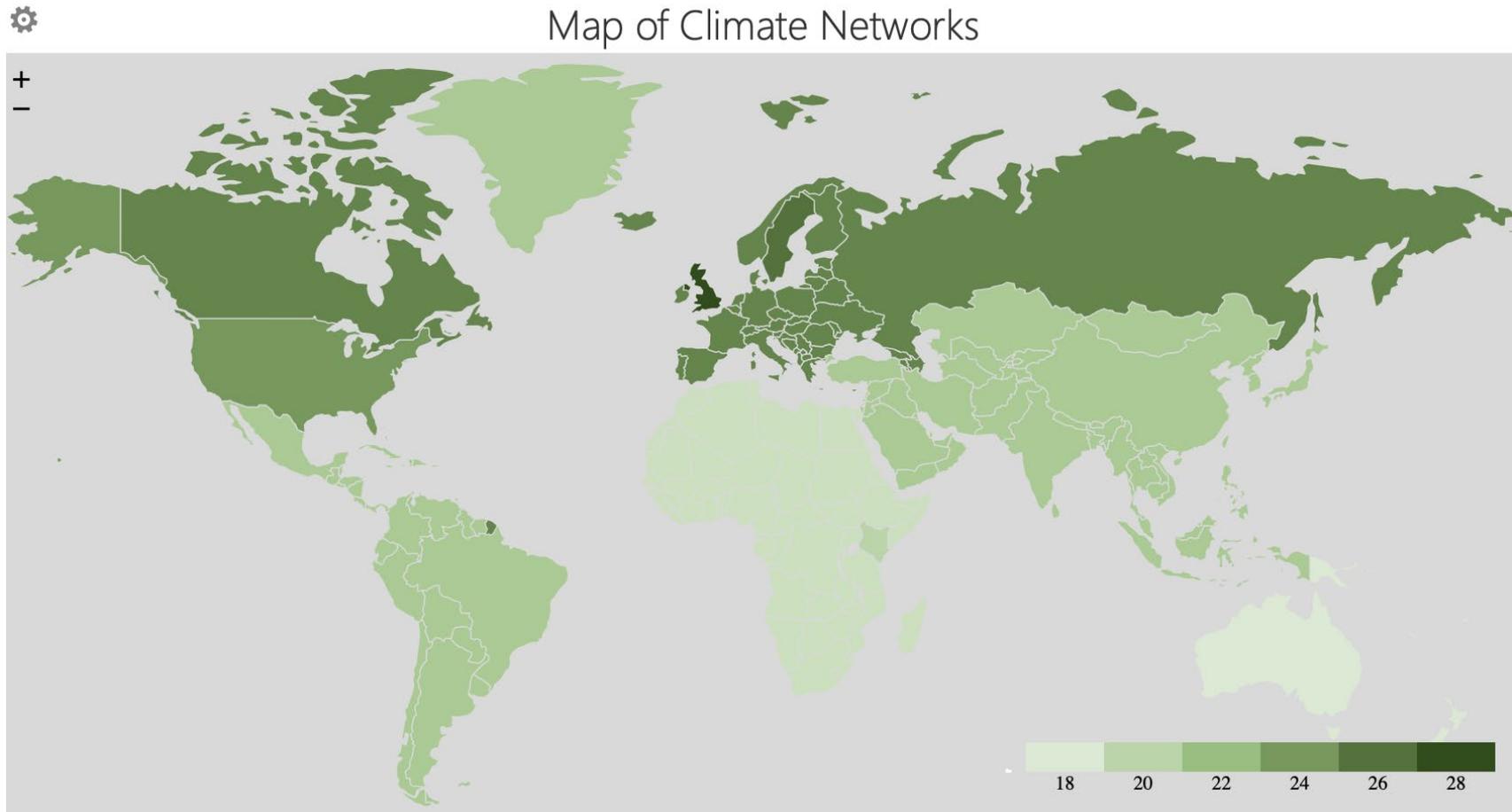
Figure B-1. Map of networks in each continent without filters.