Climate Knowledge Brokering in Latin America and the Caribbean

Towards a regional agenda for action

Maria van Veldhuizen and Rebecca Clements



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Introduction

The countries of Latin America and the Caribbean (LAC) are especially vulnerable to the current and predicted impacts of climate change, due in part to the heavy reliance of their economies and populations' livelihoods on fragile natural resources.¹ This makes sound, climate-sensitive decision-making based on reliable climate change information particularly important. Currently, though, decision makers in LAC are often faced with a lack of tailored resources: the information they can find is not in their language, or not applicable to their particular situation. A lack of awareness and difficulties accessing existing information, among other issues, also form important barriers to climate change information being used in decision-making.

Climate knowledge brokers help users overcome these challenges by working in chains to connect producers with users of information. They point decision makers to the right information, and they filter, synthesise and tailor information to make it more relevant and useful.

This paper provides an analysis of the current climate knowledge brokering landscape in Latin America and the Caribbean. It describes the needs and challenges faced by climate knowledge users and brokers, and also brings in the funder perspective. Then, the paper proposes a way forward, with a number of concrete activities the CKB network in the region could consider as next steps.

The paper has been developed based on a literature review, internet research, interviews with 29 climate knowledge users, producers, brokers and funders working across the region and a series of short consultation webinars, to gather feedback on findings and to facilitate discussions around possible actions and alliances moving forward.

The full outcomes of this study, including detailed analysis, basic statistics on interviewees, interview questions and examples of climate knowledge portals and networks in Latin America and the Caribbean can be found on tiny.cc/ckb-lacpaper.

¹Vergara et al., 2013. The climate and development challenge for Latin America and the Caribbean, Options for climate-resilient, low-carbon development. Inter-American Development Bank, Washington, D.C., USA.



iStock/Bob Balestri

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The Demand for Climate **Knowledge Brokering in LAC**

Out of the vast and fragmented array of decision makers across different sectors who need climate change information, this study focused on representatives of government, practitioners and researchers from across the LAC region. These people use climate change information directly in their work, such as for designing projects and strategies, producing vulnerability analyses, writing proposals, undertaking research, monitoring and evaluation, as well as for informing and influencing other actors, such as supporting local governments to integrate climate change into planning and businesses to reduce their emissions. As can be expected, the specific information needs of these users are extremely diverse, ranging from scientific data and climate projections to contextualised information concerning economic and social impacts of climate change within a particular geography, and information on adaptation and mitigation best practice.

Overall, the climate knowledge users expressed an interest in information at all levels, from the local to the global. International conventions and information about global causes and impacts of climate change can play an important role in advocating for action. Yet it is national and local information that is the most useful for designing and driving forward concrete actions on the ground. For example, those who lobby for action require access to information around national commitments and progress towards climate change goals in order to hold politicians to account, while practitioners and governments in charge of developing short and long-term adaptation strategies and programmes require accurate information on national and local impacts and projections. Frequently, however, national and local information is simply not available, and users turn to regional and international data to establish proxies.

→ 1.1

To What Extent Is This Demand **Currently Being Met, and How?**

It appears that Latin American and Caribbean users' needs are being satisfied to some extent by the climate change information they are currently accessing. In a 2016 survey of 142 Latin American and Caribbean climate change decision makers², 64% said they had access to enough climate change information to inform their decisions.

During the interviews for this study, many sources of information were cited, the most highly trusted being the UNFCCC, the IPCC, UN agencies, the FAO, CCAFS, IUCN, NASA, Ecosystem Marketplace, Conexión COP, international funders and lenders, international universities, national government ministries as well as specialised national institutions such as the National Meteorological and Hydrological Services.

Some regional initiatives were praised by users for their innovative contributions to generating and disseminating climate knowledge across LAC, most notably CANARI, CDKN, LEDS LAC, the Caribbean Climate Outlook Forum and the Evidence and Lessons from Latin America (ELLA) programme. However, overall very few users cited Latin America-based organisations or platforms as trusted sources of information on climate change.

The fact that most users did not mention any Latin America or Caribbean-based climate information sources may be down to a lack of awareness³, since recent research has identified numerous organisations and initiatives that are pro-actively brokering and disseminating high quality information on climate change, produced in and for the region⁴ (see a table of examples in the Appendix). During the webinars, a number of climate knowledge brokers pointed out that they themselves were not familiar with many of the portals and networks the authors had found. It appears that climate knowledge brokers in the region would do well to raise their profiles amongst users of climate information as well as their colleagues.

CKB Principle No. 3

We believe that understanding user needs in their multiplicity is the starting point for effective climate knowledge brokering See all 7 CKB Principles at tiny.cc/ckb-principles.

² Ryan, D. and Gorfinkiel, D. (eds.) 2016. Toma de decisions y cambio climático: acercando la ciencia y la política en América Latina y el Caribe. UNESCO. Available at http://unesdoc.unesco.org/images/0024/002456/245647S.pdf

³ It could be the case that this lack of awareness was due to the way potential interviewees were selected: some of the interviewees working in senior roles may not have been directly involved in research to inform their decision-making. ⁴ Clements, R. 2015. Link in to Latin America (LiLA): Mapping Latin American portals - A research report for Practical Action Latin America and the Institute

of Development Studies Open Knowledge Hub project. IDS. Available at http://www.okhub.org/wp-content/uploads/2016/01/LiLA_mapping_study.pdf

² The Climate Knowledge Brokers Working in LAC

Climate knowledge brokers work in a variety of roles and sectors, as represented by the people interviewed and otherwise consulted for this study. They included knowledge brokers working for think tanks, governments and academic institutions, working with a variety sectors in the entire region or focusing on one topic in one country, building portals, organising training courses or publishing climate knowledge in different formats. Not all had previously thought of themselves as climate knowledge brokers, but after hearing what knowledge brokers do, all agreed that their role was similar.

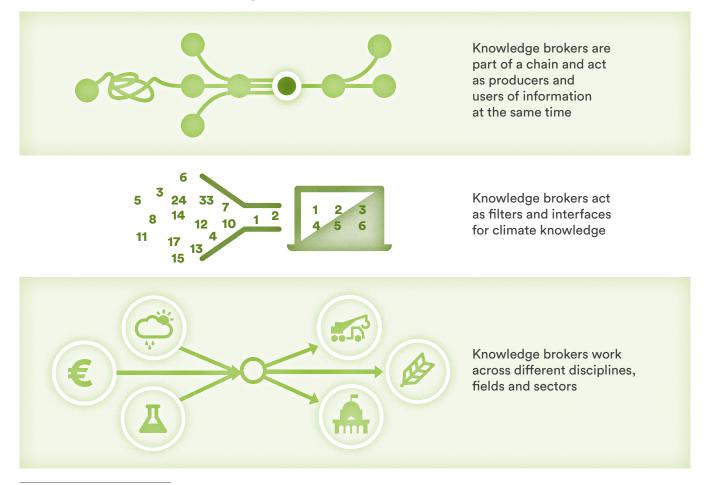
→ 2.1

How Do Climate Knowledge Brokers in LAC View their Role?

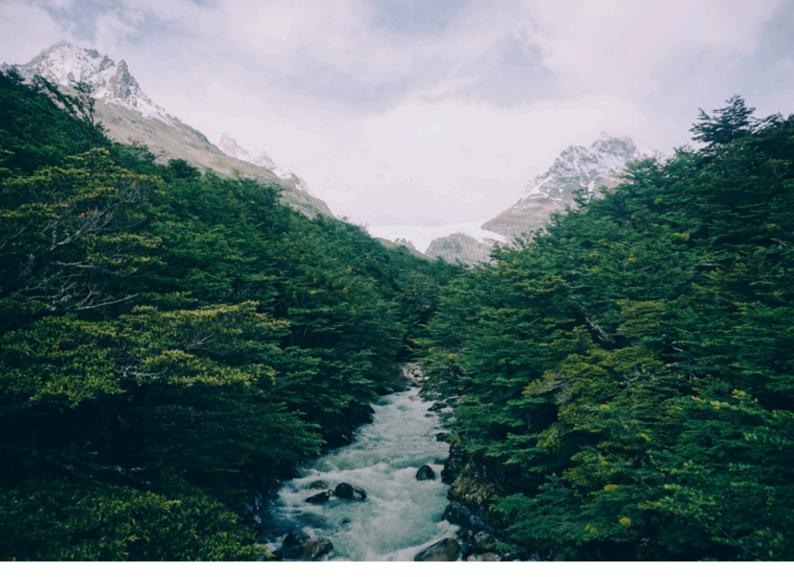
The Climate Knowledge Brokers Manifesto⁵ first outlined the role of climate knowledge brokers based on an extensive process involving 82 interviews and 17 contributors. It puts forward three main aspects of the role of the climate knowledge broker, which the interviewees from LAC also agreed with:

1. Climate knowledge brokers work in chains – it is rarely the case that a climate knowledge broker sits directly in between a producer and a user of

The climate knowledge broker role



⁵ manifesto.climateknowledgebrokers.net



information. Rather, information passes through many hands before reaching the end user. This makes all climate knowledge brokers also information users.

2. Climate knowledge brokers act as filters and interfaces of information – they look at the needs of the user first, then combine relevant information from different sources and adapt it so that it is relevant to the user's specific context and presented in a form that is useful.

3. Climate knowledge brokers work across different sectors – climate change is an issue that spans many sectors. A climate knowledge broker is not a specialist, but rather should be a generalist who speaks the language of science as well as policy, of development as well as meteorology.

Besides these three 'global' characteristics of the role, the interviewees proposed three more, specific to LAC:

4. Though everywhere in the world, climate knowledge brokers contribute to raising awareness of climate change among decision makers, whether deliberately or not, this part of the role seems to be more pronounced in Latin America and the Caribbean than elsewhere. Climate change is generally not high on the political agenda, and where official plans and strategies exist, they are not necessarily implemented. The general sense among the interviewees was that 'even a perfect knowledge product will not lead to action if there is no awareness of the problem in the first place'.

5. Connected to the above, climate knowledge brokers in Latin America and the Caribbean try where possible to help decision makers bridge the gap between the assessment and planning stage and the implementation stage of a project - many projects currently do not make it past the planning stage. This is visible in the range of knowledge products available on climate knowledge platforms, which generally include policy and practice-oriented manuals and guides.

6. Besides working across different sectors, climate knowledge brokers in Latin America and the Caribbean also need to be comfortable working and providing information in different languages in order to cater to the linguistic diversity of the region.



Latin American climate knowledge brokers at a CKB event.

→ 2.2 How Do Climate Knowledge Brokers in LAC Connect with

Climate Knowledge Users?

Many of the knowledge brokers have direct relationships with their users. Especially those working with governments meet with their users regularly, and produce knowledge products tailored to their individual or organisational needs. Personal contacts and trust building are viewed as crucial for successful climate knowledge brokering, and for those who cannot speak to all of their users directly, webinars are seen as a good way to forge relationships. These labour-intensive, direct approaches for climate knowledge brokering are combined with methods to guickly disseminate information among a wide audience. Examples of these are online knowledge platforms, which are generally complemented with community elements and possibilities for person-toperson contact, such as discussion boards, training and webinars. Newsletters in particular are highly valued by climate information users, as they provide a synthesis of the latest information around a particular issue, keeping them up-to-date without the need for extensive internet research.

Most of the climate knowledge brokers interviewed are also involved in some sort of outreach, going into communities to give presentations, holding consultations and workshops or running capacity-building programmes.

Although the idea of co-creation of knowledge products is becoming increasingly popular amongst brokers, users and funders, examples of this are rare. Those initiatives that do exist appear to work with local communities rather than, for example, policy makers or business owners.

→ 2.3

What Skills Are Important for Effective Climate Knowledge Brokering?

The interviewed climate knowledge brokers mentioned a number of skills and attributes they believe good climate knowledge brokers should possess. Though some may be difficult to teach, the climate knowledge brokers stressed the importance of and expressed interest in receiving training for the following skills and attributes: ▲ Interpersonal and communication skills, including skills for mediation and facilitation of dialogue between stakeholders

▲ Translation skills, both literally (from English to Spanish and other regional languages) and in the sense of translating science for policy makers and policy contexts for scientists

▲ General skills for creating meaning from information, how to best go about the filtering, synthesising and adapting of information that are at the core of the climate knowledge broker role

An understanding of how political decision making processes work

▲ The ability to make sense of large volumes of information, to organise and map it in a way that makes sense to others, and to identify gaps

▲ Finding business cases and other opportunities created by climate change, to offer users a positive outlook and not just a story of prospected losses

▲ Skills to use state-of-the-art technology, among other things for maintaining portals and creating good knowledge products, especially those involving data visualisation, for disseminating information and for encouraging engagement in online communities

▲ Monitoring and evaluation skills to measure the impacts of climate knowledge brokering initiatives, both to allow knowledge brokers to learn from past successes and failures, and to demonstrate to funders that what they are doing is valuable

Finally, a few interviewees mentioned that people can only be effective climate knowledge brokers if that is what they really want to be – a good attitude is crucial.

3

The Main Challenges Faced by Climate Knowledge Users and Brokers in LAC

The interviewees shared many different challenges faced by climate knowledge users and brokers in Latin America and the Caribbean. These have been divided into categories and are summarised below.

\rightarrow 3.1 Lack of Certain Types of Information

Most climate knowledge users and brokers cited the lack of local (national, sub-national) climate change information as one of the most important challenges they face in the LAC region. The underlying causes are manifold. Besides weak data gathering capacity in (governmental) institutions working on climate change due to, for example, understaffing or a lack of budget for the construction and maintenance of monitoring stations, these include poor coordination/communication between institutions leading to multiple, overlapping and often incoherent datasets, as well as a lack of funding and infrastructure for processing and disseminating data in the region.

As a consequence of the lack of monitoring capacity in Latin American and Caribbean countries, each country prioritises gathering the data it needs, when it needs it. The countries in the region collect different types of climate change data, and because of changing priorities it is rare that the same data is collected over a long enough period to be useful for analysing climatic trends. The countries also each employ different methodologies for data collection and presentation. This makes comparison and cooperation between countries more difficult.

Many users also referred to the need for them to search out, interpret, adapt and communicate climate change information for their own purposes since very little national and local level information, in particular, is produced with a climate change lens.

The knowledge brokers faced a similar challenge: in order to effectively inform climate change decision making, they need reliable information not just on climate change, but also on decision-making processes and policy best practice. Disciplines that study political and economic decision-making are just now starting to analyse climate change, and little research has been conducted so far on the 'social science side' of climate change⁶.

\rightarrow 3.2 Centralisation

Expertise related to climate change tends to be centralised in big cities, and information on climate change is often focused only on those cities and their immediate surroundings. This means that it is challenging for more rural organisations and institutions to produce information, plans or projects with a climate change lens or to find climate change experts with knowledge of their local area. The climate knowledge brokers noted that the few capacity building services available to them are usually located in the capital cities, and therefore difficult to access for those living and working in smaller towns or rural areas.

\rightarrow 3.3 Inaccessible Knowledge

Where information does exist, it is often inaccessible. Firstly, a lot of information is not written down, or not published, or not digitalised, which means that it is impossible to access at a distance.

Secondly, government and especially private sector-owned information is often not made public, either because it is confidential or because it never progresses past the draft stage. Requests for information to governments are sometimes ignored, or take so long to process that by the time the information is made available, it is no longer of any use. As was found in the 2015 IDS study on Latin American portals and open knowledge⁷, academics are incentivised to publish only in the most renowned journals. These journals are often in English, and they tend to charge both for publishing and for accessing articles, making it unaffordable for many academics and researchers to share or access the information published in them.

⁶ Ryan and Gorfinkiel, 2016

⁷ Clements, 2015





Climate change tends to be overlooked in favour of other issues, which may be related to climate change but are seen as higher-priority, such as disaster risk reduction, food security, employment, poverty reduction and halting deforestation. This was confirmed by the UNESCO survey, in which 42% of respondents, all of whom self-identified as climate change decision makers, said they rarely or never considered climate change in their decision making.⁸

Certain decision makers can be difficult to reach, especially if they are too busy or not interested enough to specifically look for climate change information themselves. Despite the fact that most interviewed knowledge brokers said that ideally they would like their users to be policy makers and other decision makers, climate knowledge brokering platforms tend to be used more intensively by academics, practitioners and students.

→ 3.5

Challenges Related to Translating and Tailoring Information

A lot of information about the region is not available in either Spanish or Portuguese, including reports produced by regional and international agencies. As a result, best practices from other regions often do not reach those who could apply them in Spanish and Portuguese-speaking countries in Latin America and the Caribbean. Several interviewees also cited the predominance of English at conferences held within the region, though others, from English-speaking countries, said that they often had difficulties participating fully in conferences held in Spanish when no interpreters were made available.

Due to limited resources, climate knowledge producers and brokers working in LAC at a regional level often only publish information and hold events in Spanish, which excludes those users in the region who do not speak Spanish. Another challenge climate knowledge brokers struggle with is communicating uncertainty. The UNESCO

\rightarrow 3.6 Monitoring and Evaluation (M & E)

Though some of the climate knowledge brokers interviewed collect basic performance statistics, such as number of website visits and report downloads, many struggle to really understand and make visible the impacts that their work is having. They are not aware of any methodologies for measuring the impact of information on decisions made by users.

This lack of solid proof of positive impacts of climate knowledge brokering activities can make it difficult for knowledge brokers to attract funding. They consider that funders usually prefer projects with more tangible or at least more easily verifiable results.

\rightarrow 3.7 Funding

In general, users feel that funders do not prioritise climate knowledge in the LAC region and they do not work together in a coordinated way to produce and disseminate relevant information. Some of the interviewees said that it is difficult to convince politicians and funders to prioritise climate change because most of the measures

study found that in politics, uncertainty in projections is still often seen as a failing on the part of the scientists, rather than as an intrinsic characteristic of climate science⁹. The interviewees also said that most decision makers fail to recognise that uncertainty is inevitable, and would prefer to receive concrete instructions rather than information to help them make their own decisions. Telling people just how much uncertainty is inherent in climate change projections can have a paralysing effect, and stop them from taking any action, especially if they did not think climate change was a priority to begin with. However, failing to communicate uncertainty is misleading and potentially dangerous, as it can lead people to place too much faith in projections and prepare for the wrong impacts. As one of the interviewees said, "I just tell them to prepare for anything."

⁸ Ryan and Gorfinkiel, 2016 ⁹ Idem

necessary to tackle the issue require long-term investments without producing immediate, tangible results. One climate knowledge broker proposed that universities should take over the types of long-term monitoring and adaptation projects that are increasingly difficult to fund through national governments or international donors.

\rightarrow 3.8 Challenges Connected to Communication and Coordination

From the interviews, it appears that all climate knowledge brokers working in (Spanish-speaking) regional organisations were part of networks and communicated well with colleagues in other (Spanish-speaking) regional organisations. However, national organisations and those with different working languages seemed to have less strong ties with other knowledge brokers both at the national and the regional level. In the webinars, it was suggested that this is because at the national level climate change tends to be more compartmentalised, in governments especially, so that cross-sector as well as cross-border collaboration on the issue is less common.

Even those users who are aware of their needs for climate change information sometimes will not find resources if it is not communicated to them that they are available. Yet it can be difficult for climate knowledge brokers to reach users, especially when they are not part of any of the networks that the brokers engage with.

→ 3.9

Challenges Related to User Capacity

According to the report on a World Climate Research Programme (WCRP) conference on climate knowledge in the LAC region, held in 2014¹⁰, one of the main problems climate knowledge brokers encounter is that governmental institutions and others often have limited capacity for identifying their own climate information requirements, and also for applying climate information. In the UNESCO survey, 23% of respondents, all of whom self-identified as climate change decision makers, said they had only basic knowledge of climate change and, as mentioned before, 42% reported they rarely or never considered climate change in their decision-making¹¹.

The interviewees agreed, saying that governmental institutions are often understaffed, that many politicians lack a basic understanding of the causes and impacts of climate change and that government tends to be technologically 'old fashioned'. This was felt to be particularly the case outside of capital cities where climate change expertise is scarce.

When trying to reach the wider public, climate knowledge brokers in LAC have to be aware of the fact that many people in rural areas lack access to fast internet. Reaching decision makers in the private sector can be difficult because in most countries in the region the private sector is made up mostly of SMEs, run by one person or perhaps a small team. Most businesses therefore lack the capacity to consider climate change in their decision-making.

\rightarrow 3.10 Political Issues

A number of interviewed knowledge brokers commented on the fact that building relationships with and raising awareness among policy makers at all levels can be difficult because the turnover of politicians as well as employees in government departments is very high. This also jeopardises the government's ability to effectively implement climate change (and other) projects, because newly elected officials tend to cancel existing projects and start their own, abandoning valuable work that has already been done or duplicating efforts by starting over.

The climate knowledge users mentioned that publications produced by national governments tend to adopt a political slant and can lack objectivity and accurateness.

¹⁰ WCRP and Universidad de la República, 2014. WCRP Conference for Latin America and the Caribbean: Developing, linking and applying climate knowledge. Outputs and recommendations. Available at http://www.cima.fcen.uba.ar/WCRP/docs/LACCOutcomes_Final.pdf
¹¹ Ryan and Gorfinkiel 2016

The Funders Supporting Climate Knowledge Brokering Initiatives in LAC

All funder representatives who were interviewed agreed that climate knowledge brokering is crucial to making effective climate action possible. They saw a need especially for awareness raising and for uncovering and adapting information that is hidden or not tailored to user needs. The interviewees also saw a need for institutional learning particularly in development organisations, where valuable knowledge is often lost when projects end and the project staff disperses.

When asked what criteria they apply when assessing climate knowledge brokering project proposals, besides each organisation's particular demands two general criteria where mentioned: that where possible, the projects should use existing climate change data rather than produce their own, and that the projects need to be demand-driven, to guarantee end-user ownership and use of the information provided.

Not all funders agreed on the need for specific climate knowledge brokers. One of the interviewees stressed that since climate information needs are virtually infinite, as many people as possible should get involved in providing this service, and they should be embedded in organisations at all levels, in all projects.

In accordance with this idea, most interviewed funders incorporate climate knowledge brokering principles into their projects to some extent, keeping it in-house, to ensure the information outcomes are presented in a useful way to decision makers who may need them. However, little funding is available for climate knowledge brokering as a 'standalone' activity or to disseminate knowledge produced by projects other than those implemented by the funders themselves. Though some funders participate in knowledge sharing networks, they are not necessarily interested in financially supporting them.

Long-term core funding for sustained climate knowledge brokering efforts is particularly rare, as was also mentioned by climate knowledge brokers. This reveals a mismatch between the types of projects funding organisations increasingly prefer (short-term, with immediate, tangible outcomes, as one of the funder representatives confirmed) and those required for climate knowledge brokering: long-term initiatives which allow knowledge brokers to build solid relationships with decision makers and which often do not produce tangible outcomes or immediately visible effects.

Where funding for climate knowledge brokering is available, the type of activities prioritised by funders range from scientific, academic or action research on climate change, to collaboration between climate knowledge brokers, networks and alliances, and climate research and policy communication (development of publications, exhibitions, conferences, seminars, film and video, digital production). Overall, the focus appears to be on closing the gap between the research and policy communities whereas knowledge management (technical), and capacity and skill building receive less attention. The exception is the Climate and Development Knowledge Network (CDKN), which supports all kinds of climate knowledge brokering and was mentioned by more than a third of the interviewed knowledge brokers and several of the users as an important funder and/or partner.

The main gaps in funding that were identified are:

▲ Despite a wealth of funding for climate change initiatives in LAC, almost no support is provided for climate knowledge brokering in its own right

▲ Open calls from within Latin American for climate knowledge brokering appear to be non-existent

▲ Overall, knowledge management (technical), capacity, skill building and co-creation receive less attention

About CKB

The CKB Group is a network of individuals and organisations working in the field of climate change knowledge and information. Though they work in a wide variety of sectors and countries, these climate knowledge brokers are united by a vision of a world in which all people can make climate-sensitive decisions based on the best available climate change information. In order to accomplish this vision, CKB fosters collaboration and peer-learning amongst climate knowledge brokers and builds the capacity of those knowledge brokers, helping them to better understand their users' climate information needs and how to address them. Besides ledge sharing clinics where climate knowledge brokers can connect in person, CKB also collaboratively develops technical tools, publishes introductory training materials online and organises webinars to help knowledge brokers around the world perform their role more effectively.

For more information, please visit www.climateknowledgebrokers.net

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^₅ Conclusions

Discrepancies and common areas of interest between users', brokers' and funders' views on climate knowledge brokering include:

▲ The climate knowledge brokers stressed the importance of personal contacts to assess and meet users' knowledge needs; however, few users reported having personal relationships with climate knowledge brokers.

▲ Several of the brokers said the producers of information focused too much on hard data and not enough on information about policy, best practices and similar topics. Yet both users and brokers stressed the need for more hard data at smaller scales. This indicates that much of the data that is produced that is not particularly useful, at least to those people interviewed for this study.

▲ When asked where they get their information from, few users mentioned platforms offering information produced in LAC, for use in LAC.

▲ Funders stated that co-creation of knowledge products is very important, but brokers seem to only use this methodology when working in communities, with farmers, for example, and not with policy makers or private sector representatives.

▲ All funder representatives who were interviewed agreed that climate knowledge brokering is crucial to making effective climate action possible, however at present it appears that only CDKN has launched open calls for the region for climate knowledge brokering projects. Users and brokers cited a lack of funding and coordination between funders as major challenges to climate knowledge brokering across the region.

▲ Users, brokers and funders all agree that accessibility of climate knowledge is a major issue in the region.

▲ Users and brokers agree that capacity to interpret and use climate knowledge is generally low amongst policy makers, so efforts are required to build professional expertise and support mainstreaming of climate change.

▲ Users, brokers and funders agreed on the need to raise awareness of climate change within LAC, in particular among sub-national governments and the general public.

⁶ Proposed Action

Not all of the challenges mentioned in this report can be dealt with by the organisations in the CKB network. Below is a list of actions that CKB and its network partners in LAC could take to encourage new climate knowledge brokers to step up, and to increase the effectiveness of climate knowledge brokering in the region.

1. Identifying and promoting Latin American and Caribbean climate knowledge producers and brokers – especially those producing and disseminating national and local information – amongst users across the region and at different levels.

2. Strengthening networks

 $a \rightarrow$ Strengthen the regional network to bring together climate knowledge brokers through meetings, workshops for peer learning and identification of joint projects, and training and funding opportunities.

 $b \rightarrow$ Connect universities working on climate change with each other and with other knowledge producers and brokers to reinforce the flow of information across the region. This could include the joint-development of courses aimed at strengthening professional capacities to integrate climate change into a range of relevant sectors.

 $c \rightarrow Link$ climate knowledge producers and brokers with regional networks of journalists and communications professionals, and organise joint capacity building activities on how to communicate climate change issues. At the same time, strengthen ties among these journalists and communications professionals interested in climate change in different countries in the region.

3. Conducting research on...

 $a \rightarrow M\&E$ methodologies for measuring the impact of knowledge on decision-making (where these do not exist already).

 $b \rightarrow$ Policy-making processes in the different countries of LAC, and specific needs of decision makers, particularly those working on mainstreaming climate change into policy and practice. 4. Training and/or knowledge exchange (perhaps in the form of a series of webinars) for climate knowledge brokers on topics such as...

a \rightarrow Understanding decision-making processes and adapting information to suit.

 $b \rightarrow$ Co-creation processes, how to develop knowledge products with the involvement of different stakeholders.

 $c \rightarrow$ Monitoring and evaluation and impact assessment methodologies.

d \rightarrow Best practices for designing and managing climate knowledge portals including state-of-the-art and open access technologies.

 $e \rightarrow Mapping$, analysing and visualising data for different types of users.

 $f \rightarrow$ How to communicate uncertainty related to climate change projections.

 $g \rightarrow$ Encouraging user engagement in online communities.

 $h \rightarrow$ Key funding opportunities and what funders look for in climate knowledge brokering projects.

i \rightarrow Combining the roles of effective climate change advocates and climate knowledge brokers.

5. Awareness raising to improve the use of climate knowledge in decision making...

 $a \rightarrow$ Amongst decision makers, of current sources of national and local knowledge.

 $b \rightarrow$ Amongst funders, of the importance of climate knowledge brokering, preferably connected to the Paris Agreement, Nationally Determined Contributions (NDCs) and the Sustainable Development Goals (SDGs).

 $c \rightarrow$ Amongst funders and knowledge producers, of information gaps.

 $d \rightarrow$ Amongst educators, of the need to include climate change in social science degrees in universities.

If you are interested in implementing any of the above activities, or would like to join the Climate Knowledge Brokers Group, please get in touch with info@climateknowledgebrokers.net!

Appendix: Selected Latin American and Caribbean Climate Change Portals

Portal	Organisation(s) involved	Website
AdaptaClima	British Council, Newton Fund, IIED, FGV EAESP	gvces.com.br/adaptaclima
ASOCAM	Intercooperation América Latina	www.asocam.org
Caribbean Community Climate Change Centre	Caribbean Community Climate Change Centre	caribbeanclimate.bz
Caribbean Natural Resources Institute (CANARI)	CANARI	www.canari.org
Caribbean Institute for Meteorology and Hydrology (CIMH)	The Caribbean Meteorological Institute (CMI) and Caribbe- an Operational Hydrological Institute (COHI)	www.cimh.edu.bb
The Caribbean Regional Climate Centre	The Applied Meteorology and Climatology Section (AMCS) at the Caribbean Institute for Meteorology and Hydrology (CIMH)	rcc.cimh.edu.bb
Clima-LAC	UNEP, Euroclima, Centro Mexicano de Derecho Ambiental	clima-lac.org
The Climate and Development Knowledge Network (CDKN)	Overseas Development Institute, Leadership for Environ- ment and Development, Fundación Futuro Latinoamericano, SouthSouthNorth, Price Waterhouse Cooper	cdkn.org
Conexión COP	Libélula, UNEP, Euroclima	conexioncop22.com
Evidence and Lessons from Latin America (ELLA)	Practical Action Latin America, DFID, IDS	ella.practicalaction.org
FinanzasCarbono	Inter-American Development Bank, World Bank, UNEP, UNDP, Risø Centre	finanzascarbono.org
The Humanitarian Information Network for Latin America and the Caribbean (REDHUM)	UN Office for the Coordination of Humanitarian Affairs (OCHA)	www.redhum.org
Intercambio Climático	Latin American Platform on Climate (Group of 22 civil society organisations from 9 countries)	intercambioclimatico.com
LatinClima	CATIE, the Ministry for Housing and Land Planning of Uru- guay, the National Department for the Environment and the Ministry for the Environment and Energy in Costa Rica, GIZ.	latinclima.org
LEDS LAC	INCAE Business School and Libélula	ledslac.org
The Mountain Forum/Info Andina	CONDESAN	www.mtnforum.org infoandina.org
Redes de Gestión de Riesgos y Adaptación al Cambio Climático	Practical Action Latin America	www.redesdegestion- derisego.com
The Regional Centre for Information on Disasters (CRID)	WHO, UN, IRC, CEPREDENAC, MSF, CNE	www.cridlac.org
The Sustainable Development and Environment Network (La Red de DesarrolloSostenible y Medio Ambiente or REDESMA)	The Bolivian Centre for Multidisciplinary Studies (CEBEM)	cebem.org/redesma
The Tropical Agricultural Research and Higher Education Center (known as CATIE)	CATIE	biblioteca.catie.ac.cr/ index.php?lang=English
UNEP Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean (REGATTA)	UNEP	www.cambioclimatico- regatta.org/index.php/en

For more information about these portals, see the full report at tiny.cc/ckb-lacpaper

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