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The Voices of Local NGOs in Climate Change Issues: Examples from Climate Vulnerable Nations

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Abstract

The contributions of small local non-government organisations (NGOs) in countries at risk from climate change to knowledge creation and action on climate change are rarely considered. This study sought to remedy this by focusing on NGOs in member countries of the Climate Vulnerable Forum (CVF). Analysing data from Intended Nationally Determined Contributions (INDCs), NGO websites and email correspondence with NGO staff through a knowledge brokering typology, this study examines the ways in which local NGOs in five members of the CVF (Afghanistan, Bhutan, Kiribati, Nepal and Tuvalu) take action, generate new knowledge and understandings and contribute to the plans and actions of their government and the international community. The study found that local NGOs are involved in the creation of new knowledge both at the scientific and community level and engage in actions to support adaptation to climate change. However, there are differences in the approaches they take when making contributions to scientific knowledge and climate change debates. The findings of this study suggest the need to reconceptualise the role of local NGOs in small countries at risk from climate change.

Keywords

NGOs; Climate Change; Climate Vulnerable Forum; Knowledge creation

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Introduction

In 2009, some of the countries most vulnerable to climate change formed a coalition to act together in a South-South partnership, the Climate Vulnerable Forum (CVF), to deal with issues of global climate change. These countries include small island states, countries with low-lying coastlines and mountainous countries that are particularly vulnerable to rising temperatures. Five members of this Forum are at the heart of this study: Afghanistan, Bhutan, Kiribati, Nepal and Tuvalu. The study is based on data gathered from a variety of sources including representatives of local NGOs focussing on climate change and their websites, from the media, from reports compiled by transnational NGOs and personal communication with staff. It also includes an analysis of documents produced in the context of the UN Climate Change Conference in Paris in 2015 and of the Intergovernmental Panel on Climate Change, as well as data from other published studies. This study seeks to understand how local NGOs in these countries take action and generate new knowledge and understandings.

Many discussions of global climate change tend to be coordinated at the supra-national level, with little place for smaller states and their NGOs to have a voice. Alliances and groupings of national governments have had considerable influence on the agendas of supra national meetings. The Alliance of Small Island States (AOSIS) has given the small states a 'voice in the political arena' (Jaschik, 2014, p. 287), so that they 'box way above their weight' (Betzold, 2010, p. 142) in ensuring that their concerns are on UN Climate Conference agendas. AOSIS has been a major force since the initial negotiations on the UNFCCC (UN Framework Convention on Climate Change) in 1991. The CVF formed in 2009 is not a formal UNFCCC negotiating group, unlike AOSIS and the LDCs (Least Developed Countries) groups.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by a number of states, including the US, and by the World Meteorological Organization and the United Nations Environment Program (UNEP). The IPCC has become the focal point for the process of establishing agreed ways of focussing on scientific knowledge in a global society (Miller 2007, p. 340). Yet, some of the countries most at risk from climate change have not been fully involved in this organisation and its workings. It is noteworthy that of the countries in our study, only Nepal has ever participated in the IPCC process as an author (Ho-Lem, Zerrifi and Kandlikar, 2011). It would be a mistake, however, to assume that scientists and their knowledges have been the only significant players in establishing consensual knowledge or in setting agendas for action on climate change. NGOs concerned with climate change and with the environment are 'champions of online climate communication' (Schäfer, 2012, p. 530 - 531), active in disseminating information, increasing support for climate change action and mobilising local citizens to take action. This study explores the ways in which local NGOs in these countries contribute to knowledge flows and debate about climate change.

Setting the Scene

Rising temperatures and their impacts

Rising temperatures are impacting these countries in different ways. Sea level rise is a major issue for the island states and is already having an impact on the everyday lives of their citizens. The government of Kiribati has bought land in Fiji so that it can relocate its population of around 100,000 in the next 30 – 60 years. Tuvalu, with its much smaller population of around 10,000, is not focussing on relocation and has decided to leave the decision on relocation to its citizens and has finalised an agreement with New Zealand to take up to 75 Tuvaluan emigrants each year.

In the landlocked, mountainous countries of Afghanistan, Bhutan and Nepal, major issues include glacial disappearance and retreat and changes in water availability for agriculture due to reduced glacial melt and land degradation. Afghanistan is facing desertification in some provinces, through land degradation, reduced water availability from glacial sources and drought from changes in rainfall patterns. The consequence of this destruction of eco-systems is that the predominantly rural population, dependent on subsistence agriculture, faces the threat of no longer being able to produce enough food. In many cases, subsistence farmers then move to urban areas where they are likely to be unemployed and live in shanty towns, which in turn can lead to disaffection and further contribute to Afghanistan's severe security issues. Bhutan, because of its small population and land protection policies, may be seen as less at risk from climate change than the other countries in this study. However, temperature rise since 2000 has been measured at 1°C in summer and 2°C in winter (Braasch, 2012). Heavier rains have caused landslides and significant glacial lake floods as glaciers melt at a much increased rate, while at the same time in some areas less water is available for irrigation. In Nepal, climate change is affecting the country's ability to feed its population, because of changes in rainfall patterns. Like Bhutan, Nepal also faces danger from glacial lake flooding, and farmers are reporting hotter days, decreased rain and changes in wind patterns, adversely affecting agricultural productivity.

Globalised Knowledge

Studies of knowledge flows in climate change policy and implementation can assume a top-down approach to the flow of information; Kalafatis et al. (2015) argue that it is important for local networks to be able to inform decision-makers with useful and usable information. Weichselgartner and Kasperson (2010, p. 267) suggested that 'research on global environmental change requires a shift towards a more extended notion of scientific knowledge, namely a shift towards socially robust or context-sensitive knowledge'. Welp et al (2006, p. 174) noted that in UN global environmental change processes, there was no space for local NGOs as initiators of dialogue, but only as stakeholders, where a stakeholder's role was as a participant in processes driven by the UN, Supra-National (eg European Union, AOSIS, LDCs) and State Actors. Little attention has been paid to the contributions of local community groups and NGOs to the actions and debates on rising temperatures and its consequences (cf Elwood, 2010, Elwood and Leszczynski, 2013). Advocates from global NGOs such as Greenpeace can have a significant voice at international forums, however, and for a while, attention was focused on these global players (Jasanoff, 2010).

Local NGOs and Knowledge Flows

The literature offers little guidance on how to understand the variety of ways in which knowledge about climate change is created and flows. Research studies tend to focus on the bigger picture of the scientisation of politics and the politicisation of science (eg Corfee-Morlot et al., 2007; Hoppe et al. 2013) or on particular organisations and their work, such as the IPCC (Grundmann, 2007) or the problems and issues at a very local level (eg Farbotko and Lazarus, 2012).

Rudiak-Gould (2012) claims the dissemination of the knowledge of climate science is a one-way process, with government statements aimed at foreign audiences, while local NGOs aim messages at their communities, attempting to foster a sense of local empowerment. Following Jasanoff and Wynne (1998), he favours dialogue and encourages governments to avoid becoming an echo chamber, where they merely repeat arguments from Western scientific literature, instead of engaging with local knowledge (Rudiak-Gould 2012, p. 53). Szarka (2013), focusing on the work of local NGOs, has proposed a hermeneutic framework setting out both the scope and the means for NGOs to interact with their communities. The framework includes five key components, some knowledge-centred and some action-centred. It is based on the assumption that it is possible to go beyond awareness-raising to create links between the worlds of science and the general public and to enable opportunities for citizen actions (Szarka 2014, p. 2).

Some studies (eg Xu and Grumbine, 2014) have drawn attention to the need for more open communication between experts, governments and local people. They suggest that it is the responsibility of government to support local people in bridging the gap in understanding between themselves and scientific experts and to avoid blanket solutions. They propose hybrid solutions to create adaptive knowledge by bringing together local knowledges and scientific knowledge. Other studies (eg Arnall and Kothari, 2015), however, have shown that at the local level, perspectives on everyday phenomena, such as the timescale for change, are so divergent that there is no common ground for scientists and local people to enter into discussion.

The voices involved in climate change are diverse, and their interactions are complex. Jones, Harvey and Godfrey-Wood, building on previous work by Shaxson et al. (2012) and Hammill et al. (2013), identified seven distinct information-focussed roles played by NGOs involved in actions relating to climate change (2016, p. 10). Using terminology familiar in the context of information access (see Oltmann, 2009), they identify the roles of producer, broker, translator, advocate, intermediary and consumer. The knowledge producer produces data, information and documents about some aspect of climate change relevant for decision-making at all levels and the consumer of climate information incorporates relevant information into everyday life. To emphasise the distinction between the use of climate-related information and knowledge at a local level and more broadly, there are two categories of broker, the knowledge broker and the innovation broker. The knowledge broker enhances the understanding and use of information and knowledge in local decision-making whereas the innovation broker is influential in the wider context, encouraging new ways of producing and using climate change related information. The policy advocate encourages changes in

policy and decision-making. The information intermediary makes information accessible to local communities and potentially more broadly, through establishing libraries or through contributing to online portals. The knowledge translator plays the very important role of making information and knowledge understandable to people throughout the local community, so that they can take appropriate action. This is partly about language, but more importantly is about meaning, where the meaning structure of climate science is mediated and transformed into local contexts.

The summary above does little more than touch the surface of the complexity of engagement in knowledge flows related to climate change. However, one thing that is clear is that local knowledge and local voices may be marginalised because studies do not include them and they are absent from the policy-making processes. This study seeks to remedy this oversight by focussing on NGOs in five small countries, vulnerable to the effects of rising temperatures. It explores the ways in which communities and NGOs take action at the local level, generating new knowledge and understandings for themselves and potentially contributing to knowledge-based communities in the wider international context.

Methodology

This study uses five cases to demonstrate the variability of approaches local NGOs take as they participate in the creation of new knowledge and the debates and actions about climate change. Three of the countries have small populations and relatively few NGOs concerned with climate change; the other two face issues which have made coordination of debates and actions challenging. It was assumed that in places with small populations, the distance between a government and its planning to confront the challenges of rising temperatures on the one hand and its citizens and activists on the other would not necessarily be large. Thus, there was some possibility of identifying the actions of NGOs in generating local knowledge and supporting local actions on climate change.

A case study approach is the most common in studies related to knowledge creation and information access. Selection of cases tends to be purposeful (Oltmann 2009) as happened in this study, with cases selected because of their perceived similarity, rather than focussing on their distinctiveness as Yin (1994) or Denzin and Lincoln (2003) might propose. They also tend to focus on qualitative data, gathered from participants engaged in the knowledge flow process. In this study, although qualitative data were gathered, following Yin (1994), multiple sources were used, as is shown in the summary table below. Information gathered through email correspondence with representatives of NGOs engaged in the process and from the websites of these NGOs was supplemented by analysis of UNFCCC documents, IPCC reports and online media reports.

For each country, we used a number of strategies to identify local NGOs involved in climate change and individuals associated with them, as well as documents which might show evidence of inclusion of local sources of knowledge in climate change discussions. These are shown in summary form in the table below and elaborated on in the following paragraph.

Country	Local NGO	INDC	IPCC	Media
Afghanistan	AES by email	Yes	No	No
Bhutan	RSPN by email and website	Yes	No	No
Kiribati	Kiribati Local Government Association by email KiriCAN by email and website	Yes	No	Yes
Nepal	Clean Energy Network by email and website WWF by email and website	Yes	Yes	No
Tuvalu	TuCAN by email and website; Women's Council of Tuvalu by email and reports; Alofa Tuvalu by email and website	Yes	No	Yes

Local NGOs contributing to this study

Using personal knowledge, suggestions from activists and the output from internet searches, we identified between one and three NGOs in each of Afghanistan and Bhutan. In Kiribati, a number of NGOs are linked in KiriCAN, the Kiribati Climate Action Network and we sought advice on which of the partners to contact. Similarly, in Tuvalu, a number of NGOs are linked in TuCAN, the Tuvalu Climate Action Network. In Tuvalu we also contacted an overseas-sponsored NGO. In Nepal, there are many potentially relevant NGOs and we chose to contact three where there was evidence that they play an active role at the local level. We invited members of the NGOs and other organisations identified to take part in our study by email, using the information provided in websites and Facebook pages of NGOs and followed up with an email questionnaire and with further clarifications. Email responses were received from one NGO in Afghanistan, the Afghan Environmental Society (AES); the only one in Bhutan, the Royal Society for the Protection of Nature (RSPN); the nominated member of the Climate Action Network in Kiribati, the Kiribati Local Government Association (KiLGA), and another climate change activist, who had been selected to take part in the Pacific Calling Partnership program KATEP in 2017 and who also works in a government department; a member of TuCAN, the Women's Council of Tuvalu, the overseas-sponsored NGO, Alofa Tuvalu, and another local climate change activist in Tuvalu who had also been selected to take part in the KATEP program for 2017; and two of the three NGOs contacted in Nepal. In 2017, after ten years in operation, Alofa Tuvalu report that they are no longer active. The INDC documents prepared for the UN Climate Conference in Paris in 2015, along with national plans and the list of participants for each country, were analysed for mentions of involvement of NGOs.

From these data, the roles played by local NGOs in the creation and dissemination of knowledge emerged. The two island countries and the three mountainous countries are linked together not just through the particular problems they face and the associations formed to work on them, such as CVF, but also by engagement in broader communities, yet local circumstances and contexts mean that the possibilities for actions and knowledge creation and engagement by NGOs differ markedly.

NGOs and information-based roles

NGOs, knowledge and local involvement

Through their email responses and websites and Facebook pages, the NGOs identify a number of key ways in which they support knowledge flows or the generation of new knowledges in their communities and beyond. They each identify that working to inform and influence local populations about the kind of changes they may have to make to manage their immediate vulnerability to the effects of rising temperatures is a significant purpose of the organisation. The Afghan Environmental Society (AES), one of the few NGOs with a national focus that have remained active in spite of the challenging political and security situation, has as its main objective raising awareness and training those local people with influence in the community – teachers, local governors, mayors and local government officials. Their email respondent indicated that people have little information and are happy to take part in programs, but ‘it takes much times to fully have people support but day by day the people are getting much involve in Environmental Protection issues and climate change issues’. In Kiribati, KiLGA’s main purpose is awareness raising and capacity building at the local government level, and supporting other NGOs, in particular those focussed on young people, in their Climate Change projects. Similarly, Clean Energy Nepal has a focus on capacity building, and works to bridge the knowledge gap among major stake holders on the one hand and to empower local people, especially youth on the other hand. The Tuvalu National Council of Women is concerned with the ways in which climate change affects the lives of women, raising awareness of these issues throughout the islands and using its mandatory power to take the issues into the broader national debates. Yet, this process of awareness-raising is not straightforward. There is evidence that of opposition to the notion of climate change because of religious beliefs (McGregor and Yerbury, in press) and the young activist from Kiribati noted that ‘we know [about the consequences of rising tides] but it’s not a good topic for us to talk about’.

Some NGOs are responsible for gathering scientific data. AES reported that in Afghanistan there is no scientific organisation with authority to gather data, so that members of AES gather information directly from local communities, either through anecdotal evidence or through data collection instruments such as questionnaires. In Bhutan, the Royal Society for the Protection of Nature (RSPN), Bhutan’s only NGO devoted to climate change, reported that there is ‘no scientifically documented database on local knowledge’ available at grassroots level. Since 2014, in partnership with the International Centre for Integrated Mountain Development (ICIMOD), they have started the assessment of climate change and its impact through an analysis of biodiversity and meteorological data; they have also extended the collection of meteorological data through the installation of automated data

loggers in pilot study test sites. They have enlisted the support of local people in tracking patterns of migratory birds. They note that the lack of scientific data has meant that they have been engaged in conducting pilot studies, 'a learning process rather than knowledge sharing with partners'. They believe that a rigorous and continued working relationship is essential to the development of a knowledge sharing mechanism. In Tuvalu, Alofa Tuvalu has worked with visiting scientists to coordinate local data collection in areas such as the development of biomass. In Kiribati, the relatively small size of the population means that scientists and technical staff working for the government, for example in the Department of Fisheries, are also involved in climate change activism as volunteers, thus supporting a two-way flow of knowledge. The young activist from Kiribati involved in KiriCAN notes that they rely on 'data from outside'.

NGOs are involved in the implementation of climate change projects. RSPN in Bhutan works at multiple levels within communities, some of which are in the most remote part of the country, on the sustainable management of natural resources, improvement of agricultural practices, mitigation of water resources issues and environmental education programs. CEN works on 'strengthening the role of non-state actors in climate change policy formulation' by bridging the knowledge gap among major stakeholders in Nepal and 'facilitating a process to inform and empower Nepalese people to take action towards addressing climate change issues'. It works with local communities to 'transform villages into ecologically self-sustaining communities', improving the ecosystem and the lives and livelihoods of the people and trains households in Kathmandu in techniques for urban farming. WWF Nepal is also active in implementing local actions, working recently with community-based organisations on forestry issues, as well as working to develop local and national policies. The Tuvalu National Council of Women has run workshops on home gardening to help overcome problems of food security. They have also been involved in other projects to help villagers develop skills and expertise in growing staple foods such as *pulaka* (swamp yams) in pots which help to protect them from salination and the effects of inundation from storm surge.

NGOs emphasise their involvement with the wider society. Some NGOs have a strong local or national focus whereas others take a regional or even international focus. AES noted that their Board was made up of members of parliament with relevant portfolios or academic staff in local universities. RSPN works in collaboration with the International Centre for Integrated Mountain Development (ICIMOD) and has a Memorandum of Understanding (MoU) with the Department of Forest and Park Services, with its Water Management Division being one of the key partners in recent projects. Both Tuvalu and Kiribati take a broader approach. TuCAN, the Tuvalu Climate Action Network is the only climate focused NGO in Tuvalu. Maina Talia, its secretary at the time, said in an interview before the Paris Conference in 2015, that 'it is better to speak from experience' and he emphasised his concern was that government representatives and delegates from other countries at the conference need to be made aware of the dangers to their lifestyle faced by sea level rise. Similarly, in Kiribati, KiriCAN considers that a key focus is to take local knowledge and experiences into a wider societal context.

As noted already, the Climate Action Networks in Kiribati and Tuvalu are strong, bringing together many sources of expertise in the countries. KiLGA is a member of the Kiribati National Expert Group (KNEG) on climate change, the key authority on climate change in Kiribati, with links to regional technical bodies such as SPC (Secretariat of the Pacific Community) and the SPREP (Secretariat of the Pacific Regional Environment Programme), etc. Through its outward looking focus, KiLGA is able to present local knowledge and experience in wider forums at international meetings and conferences, by contributing to discussions and publishing newspapers and so on; and through responding to academic inquiries. Similarly, the Tuvalu National Council of Women works with local communities and encourages them to incorporate international community engagement into their discussion, as they believe that this will certainly provide them more understanding when it comes to international issues.

In Nepal, a country with a larger number of NGOs and the active presence of international NGOs, there is scope for both strong inward and outward focus. CEN reports that it calls on the expertise of many key figures, from other NGOs with local offices such as WWF and Oxfam, from Nepalese universities and government departments in stakeholder consultation workshops and in seminars. 'Whenever we need any guidance on climate change related issues, we seek help from them [a list of named individuals] and they are always ready to help us'. It is actively involved in partnerships and networking, including providing the secretariat for a coalition of Nepalese youth and youth groups, known as Nepalese Youth for Climate Action. Clean Energy Nepal (CEN) has a MoU with the Department of Hydrology and Meteorology, supporting them to collect data and information which is then shared in the wider network. It also has access to information and scholarly data about climate change, not only through these networks but also through the websites of other organisations and on the basis of their own research. WWF Nepal acknowledges the significance of its own global network of scientists and those with other expertise as well as its relationship with government departments, such as the Department of Hydrology and Meteorology.

WWF Nepal considers information from local communities, 'based on indigenous knowledge', to be the primary data source of their work in Nepal. RSPN in Bhutan collects local knowledge as already noted, for example around the migratory patterns of birds. AES in Afghanistan documents local knowledge, which they refer to as anecdotal knowledge. The government of Tuvalu is concerned to ensure that indigenous knowledge is documented and used in actions, and the young activist from Tuvalu notes that the elders have 'their own knowledge and skills, which they only share when they think something useful might happen'.

NGOs are active in making available their own information as well as information from elsewhere. The young activist from Kiribati is working to set up libraries so that people can be exposed to a range of ideas on climate change; he wrote 'I learned a lot of things out of reading and I wanted my people to learn and [be] exposed to the same thing'. WWF Nepal are active in sharing their information through audio-visual means, including radio, as well as through print. Although some of the material is produced in English, much of it is aimed at the local communities and is available in Nepalese. Like WWF Nepal, CEN works in English

and Nepalese, using the printed word, and audio and video. In Tuvalu, Alofa Tuvalu report that previously they have widely disseminated their knowledge on climate issues and their local projects over more than ten years ‘via the web, comic books translated in 15 languages, international media articles, conferences, children workshops’ and so on. Their focus is both on the local community and on the international community. They note the importance of varying the focus of messages on climate change in order to maintain interest and attention on the issue in local communities.

NGOs and their Engagement in UNFCCC Processes

The roles and responsibilities for NGOs in the implementation of the actions of the INDC, however, varied. Kiribati emphasizes its whole-of-nation approach with its actions including the work of community groups and individual citizens; its INDC goes further, not only stating the need to work closely with NGOs and its citizens, but also with partners elsewhere in the Pacific. Afghanistan assumes the involvement of NGOs for example working with rural population and the partnership between the government of Bhutan and RSPN is taken for granted. Nepal states that several governmental, non-governmental and community-based organizations, academic and research institutions have been involved in generating and disseminating data and information on climate change and its impacts in recent years. Tuvalu stands a little apart from the other countries; while it assumes the importance of involvement of local groups in actions, it places its emphasis on the importance of the involvement of the emitting countries whose actions can have a much greater impact than any actions undertaken by the small population of Tuvalu.

The pattern of NGO involvement in the government delegation to the UN Climate Conference in Paris in 2015 reflected similar relationships on climate change issues as were found documented in the INDCs. The Kiribati delegation to the UN Climate Change conference in Paris in December 2015, as might be expected from the government’s emphasis on a ‘whole of nation approach’, included representatives of five NGOs, including one regional NGO, Pacific Calling Partnership. Similarly, there was strong NGO representation from Nepal, including three NGOs, one of which was WWF Nepal; in addition, seven Nepalese NGOs also had observer status, each with two or more representatives. NGOs from Tuvalu were also well represented, with two NGOs in the official delegation, one of which was the coordinating NGO for climate action, TuCAN; and in addition, one NGO had observer status. Afghanistan’s preliminary listing for its delegation to the UN Climate Conference in Paris 2016 listed one NGO, the Afghanistan Environmental Society, but this organisation was not on the final list of attendees because it was unable to raise the funds to attend; a representative of the French NGO, GERES, based in Afghanistan, attended as an observer. Bhutan’s official list of delegates contained a representative of WWF, based in Bhutan.

Establishing groupings in states becomes important (Weiss and Burke, 2011), as ways to demonstrate collective identity and contribute to the debates. This is clear from the states in our study; all are members of the Climate Vulnerable Forum, the three island states are members of the Association of Small Island States (AOSIS) and the Small Island Developing

States (SIDS) and the mountainous states are linked through ICIMOD. All are members of the Least Developed Countries (LDC) group. Through these memberships, they strengthen their individual messages of the effect of climate change and focus on the common threat to their physical environment, livelihoods and societies and potentially similar outcomes of rising tides and temperatures.

Discussion

NGOs as Knowledge Producers

The descriptions of action taken by local NGOs show that the importance of ways they engage in knowledge creation and interact with climate change debates. Actions in all countries are focussed both on local communities and, to a greater or lesser extent, on a national or international community.

NGOs in the mountainous states of Afghanistan, Bhutan and Nepal are all engaged in contributing to scientific knowledge. AES and RSPN both acknowledge that they are engaged in data collection because a gap exists in the scientific knowledge, but while RSPN is linked into an epistemic community through their engagement with ICIMOD, AES, with its limited capacity in a country which for a number of years has been wracked by military and civilian violence, has fewer options available to it. In Afghanistan, the country's Intended Nationally Determined Contributions (INDC) notes that the infrastructure to protect the intellectual property rights in mitigation technologies is weak and the national datasets on agriculture and food security are also inadequate. AES is doing its best to gather data, but without a strong partnership in an epistemic community, its data which is largely anecdotal is unlikely to contribute to a global scientific system. Nonetheless, each of these NGOs is acting as a knowledge producer, according to the typology developed by Jones, Harvey and Godfrey-Wood (2016). There appears to be no concern expressed from the respondents to this study with issues related to the politicisation of science as Corfee-Morlot (2007) expressed, but this may have been because in each of these countries, the links between NGOs, activists and decision-makers are strong, the relationships are positive and the data produced are unique, not being contested by data from other sources.

The small island states see themselves in a different situation from the mountainous countries. They cast themselves as recipients of the outcomes of the actions of others (Maru et al., 2014), a negotiating position introduced into discussion by Tuvalu and Kiribati. In Tuvalu, the key message is that people in the developed world over a considerable period of time have created the problems which have led to sea level rise and must take responsibility for this. In Kiribati, a key message is similarly that the problem faced by the population is not of their making and that actions must come from other countries. This does not mean that NGOs in these islands are taking no action. Data is being collected in a variety of ways, with an increasing emphasis on the importance of indigenous knowledge in disaster management (www.pacificdisaster.net) has a section on the topic in its website). Although there may be a perception that there is little that local knowledge can add to global scientific efforts, nonetheless, as Resture (2009) noted, in Tuvalu, coping strategies for disaster management

are still largely based on indigenous knowledge, demonstrating a need for integration of this knowledge with western science.

This emphasis on contributing to global scientific efforts which underpin mitigation demonstrates the significance of transnational actions (Risse-Kappen, 1995, p. 9), where NGOs, even local ones, operate across national boundaries. Although, as Esguerra (2015) points out, the consensual knowledge of an epistemic community is an important factor in the development of a policy oriented system for managing climate change and its effects, in this study, there is some evidence of transnational actions, where NGOs contribute to scientific data in their countries and beyond. The examples of the work of NGOs in Bhutan and Nepal for example indicate that the claim that the voices of local NGOs are not heard in climate change discussions requires more detailed consideration.

Not only do some local scientific advisers to NGOs act transnationally and contribute to the knowledge base of an epistemic community, they also encourage local people to add their knowledge, supporting Kalafatis et al.'s (2015) argument that it is important for decision-making to be informed by usable local knowledge. Jasanoff (2004, 2010) and Elwood (2010, Elwood and Leszcynski, 2013), in different contexts, have expressed concern that the voice of the citizen is not included in debates based on scientific knowledge. Van House notes the scepticism with which those with local knowledge may be viewed in the US, at best as ‘“expert amateurs”, people with (often considerable) expertise but no professional qualifications or training or institutional affiliation’ (2004, p.4). However, the engagement of non-scientists in data collection has become an important feature of environmental sciences, with very positive outcomes (Bonney et al., 2009). In this study, the RSPN in Bhutan and the AES in Afghanistan describe the importance of collecting anecdotal evidence from local people with particular experiences of climate change. There is no evidence in these cases of a devaluing of locally collected data or local knowledge, and it is not at all clear from the responses that these relationships create the ‘fragile collective’ that Meyer and Molyneux (2010) find in a context where what they refer to as amateur scientists come together with professional scientists. Indeed, the work of these NGOs would appear to confirm Sarka's assertion (2014) that NGOs are not just involved in raising awareness at the local level; the NGOs in this study demonstrate how it is possible to create links between the worlds of science and the general public, carrying out important work in gathering data, and thus substantiating larger claims.

Local Voices, Local Processes

By using the knowledge brokering typology as an analytical frame, it is clear that the relationships between local NGOs and local communities are complex. It is not just a matter of taking messages of climate change from the government or from the scientific consensus to the local communities, as studies such as that of Xu and Grumbine (2014) have shown. Clearly, the local NGOs whose actions are explored here are policy advocates, presenting the views of stakeholders, whether women, farmers or young people in relevant forums, both within the country and in broader arenas, and encouraging sound decision-making based on this knowledge. The close relationships between activists and decision-makers potentially

make this process simpler in states with small populations; as noted above, activists and decision-makers may even be one and the same person, a point not necessarily acknowledged in previous studies.

Some of the NGOs in this study also acknowledge the importance of their role in creating knowledge repositories; the efforts by the young activist from Kiribati to establish libraries is a significant example of this, and the emphasis in Afghanistan and Bhutan on the need for databases of locally collected knowledge is also significant. Regional organisations, such as ICIMOD for the mountainous countries, and the South Pacific Regional Environmental Programme (SPREP) for the two island states, are important through their capacity to act as knowledge portals, both collecting local resources and disseminating them to local communities and more broadly, demonstrating the role of information intermediary. In spite of the significance of repositories and portals and the role of NGOs in developing and maintaining them, little attention has been paid to them outside of the literatures of computing science and information studies, where the emphasis has been rather on the technology than on the content and involvement of local people.

Making available information on climate change issues in languages understood by the local communities, as in Nepal and Tuvalu, and using radio broadcasts as well as printed materials and posters are significant mechanisms for translating climate change knowledge. Translation here is not only a matter of using a language that local people speak, but also of making the information relevant to the local community. In this context, these NGOs are meaning brokers, in that wider sense of translation, and their capacity to correlate climate policy with local meanings and agendas, allows them to engage the local community. Alofa Tuvalu wrote of the need to ensure that people were not bored, hearing the same message over and over again, and the young activist from Kiribati noted that people tended to 'turn away' from unpalatable messages, preferring practical information that helped them to 'enjoy the beauty of [their] ancestors' home'. The work of the NGOs in this study would seem to emulate best practice and they would appear to be leaders in the dissemination of material in the languages of their community. Betzold (2015), in her review of practices in small island developing states, notes that information is often only available in English, which helps to enhance the perception that climate change is alien, not a factor in people's everyday lives.

The NGOs in this study are clearly knowledge brokers, encouraging learning and knowledge sharing in their local communities and to a large extent encouraging the dissemination of local messages to other groups. However, their capacity to create links between local communities and scientists and policy-makers is limited. Alofa Tuvalu noted that they had been able to bring scientists from Europe to work on projects with local people, but this would seem to be something of an exception. Respondents from Tuvalu and Kiribati note the difficulties of ensuring that people living on outer islands are included in national discussions and are included in programs of workshops, and emphasise the significance of isolation in impeding the sharing of innovations, that is, of new ways of solving long-standing problems. This has been noted recently as a challenge by Cambers et al. (2017).

The typology developed by Jones, Harvey and Godfrey-Wood (2016) also contains the grouping ‘innovation brokers’ drawing on non-specialist knowledge sets, such as indigenous knowledge. In this study, this label might be more appropriately applied to descriptions of new ways of doing traditional tasks, for example, creating raised garden beds, growing swamp yams in pots or understanding how to manage glacial melt. Lauer and Aswani (2009), in the context of the Solomon Islands, called for a practice approach to indigenous knowledge, where the ecological knowledge was not separated from the context in which it was used.

Local Voices in UNFCCC Processes

Within the UNFCCC processes, the voices of local NGOs also contribute to the policy debates on climate change, through the INDC development process and documentation. However, differences in the relationships between governments and NGOs are marked. The findings in this study match Newell’s observation (2000, p. 133) that some governments are more supportive of NGO involvement in policy development than others. An NGO’s capacity to influence may depend on the relationships staff have with staff employed in government departments (Newell, 2000, p. 134-35). Responses from the NGOs in the three mountainous countries, Afghanistan, Bhutan and Nepal, all indicated close working relationships with scientists and policy-makers in key government departments and collaborative working relationships with government. It is also evident that staff turnover in NGOs and among scientists and policy-makers as identified in several cases can disrupt relationships and make it more difficult to maintain collaborations, a finding in many other studies (eg Tadele and Manyena, 2008; UNEP, 2015, p. 43).

Jasanoff (2004) argues for a close link between science and technology and the practice of citizenship, where the very basis of what it means to be a citizen is questioned. This is not clearly stated as a concern in the context of this study, except in Kiribati, where one can see how the government of Kiribati is engaging its citizens in its processes at the local level and at the same time working with and challenging NGOs and governments of other countries to commit to policy changes which are significant enough to have an impact on sea level rise.

Local NGOs affected by climate change are not easily recognisable as ‘activists’ in a western tradition of opposition, protest and disruption. They would, however, appear to take a proactive approach to contributing to knowledge and its dissemination in a variety of ways. If they take a confrontational approach, it is towards decisions made elsewhere; in some cases, both the processes of knowledge-making and decision-making are unlike the processes they would use in their local communities or perhaps even in their national contexts. Overall, the typology of knowledge production we have applied here is useful because it allows a focus on contextual, situated local knowledge, and on the consensual knowledge of climate change, deriving from the principles of western scholarship, and acknowledges the need for some level of translation and interpretation for mutual understanding between the two sets of knowledge and their practical implementation.

Conclusion

This study has shown that these local NGOs have a voice in climate change discussions at the local level and increasingly in the international community. Mostly, NGOs contribute to the positions for action espoused by their governments, with their main actions being awareness-raising and educating around issues of adaptation. However, NGOs may, as in the cases of Bhutan and Nepal, contribute to scientific knowledge, complementing the efforts of scientists employed in research institutions and by government and filling in the gaps in parts of the scientific knowledge base. Previous studies have not taken account of the roles that those associated with NGOs as volunteers or board members play in the community, and although that was not a focus in this study, nonetheless, the revelations from our correspondents about their own employment or the positions of their board members show that even these local NGOs have a reach beyond their immediate communities.

This study has raised questions about the complexity of knowledge flows in these climate vulnerable countries, extending existing studies. The focus on the voice of local NGOs has shown that even at this local level, the flows of knowledge and information are not simple, as might be assumed. NGOs bring many sources of expertise to bear on the work that they do, both from within the country and outside the country. The relationships between NGOs and governments are diverse, that diversity being closely linked to the specific context of the country. The links between scientific knowledge, local and indigenous knowledge and policy priorities differ, even though the perception of climate risk may be shared. The use of indigenous and traditional knowledges may be potentially considered anecdotal or is apparently absent from discussion; exploring these ancient knowledges systematically and sharing solutions would enhance an understanding of the depth and value of knowledge in local communities. Yet this study has shown that in some places, for example in Tuvalu, it is clear that cultural norms prevent the sharing of local knowledge beyond a restricted local context, potentially minimising the possibility for integrating local indigenous knowledge and scientific knowledge in coping with climate change events.

The findings of this study suggest the need to reconsider the role of local NGOs in small countries at risk from climate change. The label of 'vulnerable' suggests that they are at the mercy of decisions made elsewhere, on the basis of information created by someone else, and unable to take meaningful actions. However, from a perspective of transnational action, our respondents show that these NGOs can have impacts on the climate change debate well beyond their local context. The external focus may mask difficulties that travelling within a country pose, giving rise to issues of isolation and marginalisation for those in remoter locations, and this should not be overlooked.

This study concludes that there can be no one way of considering local action and no one way of documenting and disseminating knowledge. The NGOs in the study carry out all the seven distinct roles of information-focussed action as identified by Jones et al. (2013, p.10), at many levels. The use of this analytical tool in the study has demonstrated that the seemingly passive process of awareness-raising and policy advocacy within a country produces a complex transformations of climate information. Climate narratives are developed that

engage locally and generate new agendas. These can then themselves influence the wider international climate policy process. Overall, the study has clarified the important role that local NGOs play in valuing of scientific and local knowledge and in the dissemination and use of this information in their own communities and more broadly.

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