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Old ways for new days: Australian Indigenous peoples and climate change

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ABSTRACT

This paper explores how Australia's Indigenous peoples understand and respond to climate change impacts on their traditional land and seas. Our results show that: (i) Indigenous peoples are observing modifications to their country due to climate change, and are doing so in both ancient and colonial time scales; (ii) the ways that climate change terminology is discursively understood and used is fundamental to achieving deep engagement and effective adaptive governance; (iii) Indigenous peoples in Australia exhibit a high level of agency via diverse approaches to climate adaptation; and (iv) humour is perceived as an important cultural component of engagement about climate change and adaptation. However, wider governance regimes consistently attempt to “upscale” Indigenous initiatives into their own culturally governed frameworks - or ignore them totally as they “don't fit” within neoliberal policy regimes. We argue that an opportunity exists to acknowledge the ways in which Indigenous peoples are agents of their own change, and to support the strategic localism of Indigenous adaptation approaches through tailored and place-based adaptation for traditional country.

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1. Introduction

Climate change poses both direct and indirect threats to the socio-economic, institutional and environmental systems of the world's Indigenous populations (Altman and Jordan 2008). Indigenous communities in Australia are experiencing both rapid and slow onset climate change (Bird et al. 2013; O'Neill, Green, and Lui 2012). In Australia, climate change impacts are already being felt and predicted to become more severe including changes to social ecological landscapes such in Arnhem Land (Petheram et al. 2013) and Kakadu which will affect culture and subsistence practices (Dunlop and Brown 2008). Changes have been observed across Australia including changes in weather, sea level rise, cyclone seasons, loss of land and hunting ground, changing fire regimes, increased severity of Wet and Dry seasons, and fewer animals in the sea and creeks (Zander et al. 2013; Bird et al. 2013; Nursey-Bray et al. 2013). The exposure of Indigenous Australians to such climate impacts, is compounded by existing socio-economic disadvantages such as inadequate health and educational

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services, insufficient infrastructure, limited employment opportunities (SCRGSP 2017) linked to colonial and post-colonial periods (Bardsley and Wiseman 2012; Green, King, and Morrison 2009).

Constraints also exist that prevent the exploration of Indigenous driven adaptation pathways. Despite a global trend towards climate change adaptation, Aboriginal people's perspectives are being undervalued: "poor communication and engagement, accompanied by a top-down institutional process, allows little Indigenous voice, and lack of recognition of Indigenous culture and practices" (Petheram et al. 2010, 682). In an integrated review of climate change vulnerability for the Alinytjara Wilurara Natural Resources Management region, South Australia, Bardsley and Wiseman (2012) argue that a specific focus on particular climate change impacts and adaptation can mean that the broader needs for both people and environment are overlooked. O'Neill, Green, and Lui (2012) identify similar constraints hindering Indigenous responses to climate change identifying a lack of effective collaboration at both state and federal levels between Indigenous peoples and government agencies responsible for climate change policy planning and development

Studies of Indigenous peoples and climate change in the Wet Tropics region of north eastern Australia confirm that the impact of climate change cannot be divorced from social justice and historical issues, and that climate change adaptation needs to be tailored to local contexts and accent the importance of providing opportunities for strong community engagement (Hill and Lyons 2014). Further despite proposing their own solutions, many Indigenous groups struggle to find institutional "fit" in implementing their preferred climate initiatives (Nursesey-Bray et al. 2013; Nursesey-Bray and Palmer 2018).

There is thus both a convincing rationale for progressing Indigenous adaptation to occur, yet multiple barriers existing that affect its implementation. Set against this context, we sought to build a deeper understanding of Indigenous perspectives about, and how they conceived responses to, climate challenges. In this paper, drawing on the results of a two-year national study in Australia, we use the concept of agency as a lens to explore these perspectives. What types of agency, if any, are being exhibited in Indigenous realms in Australia in relation to climate change? Does this matter, and what types of impacts does this have for collaborative and socially just adaptive governance for climate change?

1.2. Agency

While agency is a challenging term and can be qualified in a range of ways, Ahearn (2001, 112) provides a working definition of agency as "the socio-culturally mediated capacity to act". Agency can also be constructed as resistance to power (Frank 2006), the "flexible wielding of means towards ends" (Kockelman 2007, 375); where power and knowledge intersect in dynamic ways. Agency is the mediating factor between them, and manifest as the push and pull between the individual and structure of the state. As such, agency might initially be understood as the relatively flexible wielding of means toward ends, and as such can also be seen as a form of resistance.

Of relevance to the Indigenous context, Dissanayake (1996, ix) states that agency is also about understanding the "historical and cultural conditions that facilitate the discursive production of agency, and on useful ways of framing the question of agency" and that doing so would enable better understanding of the "contours of the cultures that we study". In this context, resistance is the product of the interplay between multiple subject-positions. Cairns (2009) builds on this idea, noting that structure/agency can be differentiated where one is about individual, collective and immediate action while the other is systemic, anonymized and bureaucratic. As such agency is conceptualised as the tension between the individual and the social, political and economic structures that can constrain those (Cairns 2009, 105). A study of agency in international climate negotiations highlights these dimensions, where agency is understood as "the ability of actors to prescribe behaviour and to substantively participate in and/or set their own rules related to the interactions between humans and their natural environment" (Schroeder 2010, 317). In this example, Indigenous peoples were being consulted and invited to participate in a REDD+ (stands for countries' efforts to reduce

emissions from deforestation and forest degradation) negotiation but were nonetheless effectively denied capacity to exercise agency as there were no means by which they can make a direct contribution and make sure their views were reflected. Alternatively, Tennberg (2010) shows Indigenous political agency can be based on multiple forms of power – that they are changeable over time, that multiple sites of encounters and powers are produced across and within multiple agencies, and that there remain many challenges ahead for indigenous peoples in claiming a political voice, especially in relation to global climate politics. The assertion of agency is further well-defined in UN Climate Negotiations where Indigenous peoples influence the agenda by crafting their immaterial power resources through the transfer of knowledge resources and normative instances from distinct institutions (Wallbott 2014, 1).

The use of visual narratives, therefore, emerges as another form of agency. Hermann (2015) reveals in an analysis of visual narratives about Indigenous peoples in the Arctic that they can be used to both constrain and to subvert dominant conceptions of Indigenous groups. In charting their own visual narratives, local Indigenous groups assert agency and power within dominant discourse frames. In so doing they provided “a new, temporally layered understanding of Arctic life in the Anthropocene” (Hermann 2015, 377). This also allows agency to occur within wider environmental planning regimes, as shown in an example from Guatemala, where collective capabilities and agency were expanded in rural Indigenous Guatemala through small community-led development projects supported by United Nations Global Environment Fund (Peris et al. 2012). In Australia, Moses (2011, 145) highlights how the assertion of Indigenous political agency enabled the key actors to transcend the resistance/co-option dichotomy embedded within the commentary of what was an official apology to Australia’s Indigenous peoples by the then Prime Minister, Kevin Rudd. Agency when asserted, can also be employed to make visible what was historically ignored: in a case study of the relationship between development of the economy and Indigenous peoples in the United States, Munro (2014) shows how the enactment of Indigenous agency assisted in developing the US economy.

To avoid the binaries inherent in the idea of agency being a tension between individual/structure, Okereke, Bulkely, and Schroeder (2009) and others (Schroeder 2010; Lipschutz 2005; Jagers and Stipple 2003; Risse 2002), suggest that agency is based on the assumption that power is multiple and relational, and that there are many centres of political activity within which agency can be asserted. This has important ramifications in terms of scale and agency – the multilevel nature of earth system governance means that both the problem and the solutions will occur from local to global scales, and agency can manifest within and between them.

The importance of language in informing agency is raised by Ahearn, who assert language is a form of social action, a cultural resource, and a set of socio-cultural practices (Ahearn 2001, 109); discourse thus shapes the nature and constitution of agency *in situ*. Agency becomes a property of groups and involves “mediational means” such as language and tools (Ahearn 2001, 110). Agency in turn refers to the socio-culturally mediated capacity to act—exhibited as free will (Ahearn 2001, 110). Reimerson (2013) highlights this in practice via a case study describing how limits to indigenous capacity for agency are embedded in discourse about, and within, the Convention on Biological Diversity, highlighting again, differential power relations and how colonial and post-colonial frames determine, constrain and provoke forms of Indigenous agency in conservation contexts.

How then is Indigenous agency exercised in practice and how does this in turn affect and influence climate governance? Can it be a means by which Indigenous peoples can overcome historical injustice and disrupt current discursive binaries. In this context, our project revealed the tensions inherent in this space, and the ways in which Indigenous peoples have attempted to subvert and assert their own aspirations about climate change management.

2. Materials and method

Our project, conducted over two years (2015–2017), sought to: (i) identify changes to Indigenous communities and Country¹ that is being attributed to climate change by Indigenous peoples; (ii)

document adaptation initiatives being driven by Indigenous peoples in Australia; (iii) identify the barriers and incentives to successful Indigenous adaptation; and (iv) understand how Indigenous people construct climate change adaptation.

Conducting a national project, when there are so many and diverse Indigenous peoples in Australia was confronting—trying to find a middle path that would enable us to acknowledge the diversity and geographical spread of Australia's Indigenous peoples, yet not fall into the trap of naïve and simplistic collective representations of Indigenous views presented an enormous challenge. A further challenge was navigating the often-held belief that non-Indigenous researchers tend to abuse the trust of, and exploit, Indigenous peoples, thus limiting interest, participation, and the transferable nature of results (Smith 1999). These were pitfalls that we wanted to avoid.

Kendall et al. (2011, 1722) say that attempting to undertake research with Australia's Indigenous peoples require researchers to undertake a:

Lengthy process of learning about and acknowledging the specific historical facts and experiences of colonization that have affected the way our first peoples live today, as well as learning about the social and cultural values and worldviews of Australia's diverse Aboriginal peoples.

Rigney states that when developing appropriate Indigenous research methodologies, the method must be structured in a way that forces researchers to “explore alternative research results, and ... to offer counter explanations and to develop non-Western alternatives” (Rigney 2011, 4).

To meet those two goals, the method developed for this project was based on the ethical principles of Indigenous involvement in research (AIATSIS 2012). The method included a design principle that factored in ongoing cultural advice from close associates in the Girringun Aboriginal Corporation who were positioned as co-leaders of the project with the University of Adelaide and insights from Irabinna Rigney a pioneer in Indigenist methodology and with whom we had worked closely on a previous project (Nursey-Bray et al. 2013; Rigney 2006). We embedded the idea of strong community participation throughout the project and emphasised the inclusion of Indigenous ways of knowing in the results (Cochran et al. 2008; Howitt 2001).

To encourage Indigenous community participation, our data collection also utilised existing Indigenous governance structures. The use of existing structures, such as a community steering group, helps with: (i) relationship building efforts, (ii) creates legitimacy and acceptance by community representatives (Lui 1998); and (iii) facilitates the collection of strong Indigenous perspectives. The goal of our approach was to ensure we complemented and aligned our methods with local modes of expression and decision making. By doing so, the project becomes a genuine collaboration not a tokenistic addition to a larger agenda.

Using qualitative research techniques, we collected our information via four mechanisms. First, a nation-wide desktop analysis of Indigenous climate and adaptation initiatives provided a minimum baseline of the level of Indigenous engagement in, and knowledge about, climate issues and policy. We collected and documented all the current and past work that had been undertaken either with or by Indigenous groups in Australia relating to climate change and/or adaptation.

Second, we conducted two Indigenous-led peer learning workshops, in which we asked Indigenous participants across Australia about: (i) their understanding of climate change and adaptation; (ii) impacts they had observed; and (iii) their perspectives on or efforts in adaptation. The first workshop, a collaborative participatory workshop titled “Climate Change: Learning From You”, was held during a Great Barrier Reef Marine Park Authority Indigenous Steering Group meeting in May 2016, and co-hosted by Girringun Corporation in Cardwell, north Queensland, Australia. This form of data collection is appropriate in an Indigenous context because it emphasises “respect for the individual and a commitment to social change” (Henry et al. 2002, 8).

Drawing from the experience of Preuss and Dixon (2012) who developed an approach for conducting workshops with multiple Indigenous cultures, small group discussions were held between participants and presentations by both Indigenous and non-Indigenous researchers and experts. By conducting the workshop as part of a larger meeting, rich data from over 100 Aboriginal and

Torres Strait Islander peoples (land and sea-based rangers), representing 70 different clan groups, was obtained. Importantly, the participants in this workshop were recognised leaders within their own communities, hence carried cultural authority and power. As there was a high diversity of clan groups, information about what is happening across a diversity of ecological habitats (e.g. from rain-forest to savannah) was obtained. There were many families and hence young/er people at this gathering who were present and also workshop participants, and this helped us to obtain, to some extent, a cross generational perspective in relation to the issues explored. However, we are conscious that we did not seek to specifically explore climate change from a cross generational, (specifically of younger generations) perspective, and suggest this is an important area of future research.

A second participatory workshop was held in Adelaide, where data was collected from a group of 8 key Aboriginal and Torres Strait Islander leaders who agreed to participate and represent organisations that are, or who will be ultimately responsible for, helping their people adapt to the impacts of climate change. Leaders from South Australia, New South Wales, Victoria, Northern Territory, Queensland, and the Torres Strait participated. This workshop helped us understand how adaptation in an Aboriginal or Torres Strait Islander context could be perceived and operationalised at an institutional, rather than at an individual scale. At the conclusion of this workshop, four Indigenous leaders also volunteered to support the Girringun Aboriginal Corporation and act in a cultural advisory role with the purpose of providing ongoing support to the research team in the development of actionable, culturally appropriate, and innovative communication resources.

Finally, data was collected through two field visits, one to far north-east Queensland and another from Adelaide through to Alice Springs in central Australia. These areas were selected for two reasons. First, they both constitute areas with accessible and large concentrations of Aboriginal and (in the case of Queensland) Torres Strait Islander organisations. Second, they are both regions within Australia where the existing networks held by the research team afforded access to organisations that were willing to talk about climate change and adaptation. During these field trips, semi-structured interviews were held with natural resource managers, rangers, community boards, and local leaders. These trips enabled us to speak to an additional 25 Indigenous people on or around their country. It also enabled us opportunities to be shown (by various Indigenous individuals) some of the impacts of climate change *in situ*.

All the data was then collated and analysed through a qualitative research procedure based on coding and subsequent thematic analysis (Creswell 2014, 61). The proceedings of the participatory workshops and semi-structured interviews were transcribed. Coding, based on the research aims, was applied to the transcription data. Thematic analysis is an appropriate tool as it enables the identification, analysis and reporting of patterns within data (Braun and Clarke 2006) and in this case allowed for synthesis of commonalities across a diverse range of peoples and cultures.

The information we collected revealed insights about the relationship between Indigenous peoples, country and climate change, and importantly how and where agency is exercised to obtain outcomes for climate change management and Indigenous people's country. It is important to clarify that we do not present these insights as summative but as the starting point for a conversation about how to progress and support Indigenous peoples in dealing with climate change and adaptation. We acknowledge that there are over 500 clan or linguistic groups, who comprise hundreds of Indigenous nations in Australia, and we do not presume to suggest our results can adequately reflect this diversity. However, the analysis we present here, is a function of that diversity and highlights that there are specific approaches and considerations that could be usefully borne in mind when supporting or working with Indigenous peoples in responding to climate change.

As we draw upon a range of data sources (documents, workshops, interviews and field trip meetings), we present our analysis as a collation of them all by distilling them into the key results that emerged from the data. We then reflect on what these findings tell us about Indigenous agency for climate change adaptation in Australia.

3. Results

3.1. Indigenous people are actively observing the impacts of climate change

Our results show that while there was low awareness and knowledge about anthropogenic climate change per se, it is juxtaposed by the transmission of multiple local oral accounts about observed change on country. Furthermore, many of the concerns described by the participants about possible changes due to climate change and observed changes to country that could be attributed to climate change, are consistent with those outlined in the key scientific literature. These concerns about climate change are not just biophysical, but also related to how to deal with potential and observed impacts on traditional sites, knowledge and culture. For example, participants from the Torres Strait said sea level rise and associated flooding is having a significant impact on cultural sites, impacting the exchange of cultural knowledge. Participants from Arabana country in central Australia have observed degradation to a men's initiation site, which is being impacted and eroded from more intense flooding. Rainforest peoples in North Queensland are concerned that more intense cyclones will impact fishing and other significant sites.

One issue that typifies cultural impacts and that was often raised in the Cardwell peer learning workshop, was how to manage climate impacts on culturally significant species, especially turtle and dugong which are predicted to be severely impacted by climate change. Scientists predict, for example, that because the reproductive cycle of the Green Turtle is heat sensitive (i.e. eggs laid in cooler temperatures are more likely to produce male turtles, whereas eggs laid in warmer temperatures will produce female turtles), over time, more females than males will hatch causing a reproductive imbalance. To Indigenous participants, this represents a direct threat to their cultural hunting regimes. Similarly, many participants said sea level rise and erosion is causing some beaches to disappear, which for turtles that always return to the same beach to breed is potentially disastrous, not just to the species, but to the Indigenous peoples who hunt them for food and cultural purposes.

Other participants identified changes to culturally significant bush tucker species. Many are now flowering at different times (or not at all). These observed changes can be attributed to increased heat and changes to precipitation and is now affecting traditional knowledge. For example, the "signs" by which people read the landscape and which are embedded within knowledge systems is changing as shown in the following: "Bottlebrush is not flowering at the right season, the grunthers [fish] are not biting", or "Our traditional calendars changing used to be when wattle tree flowering we get barramundi, not always that way anymore". Food security emerged as an issue in this context; many people noted that, especially in remote regions that they relied on traditional foods to supplement their diets, and hence were worried that what was previously a guaranteed source of food, is no longer as reliable. These changes may necessitate the selection or amendment of cultural indicators by Indigenous people living on the land and reflect processes of adaptive agency.

Across Australia, Indigenous people who participated in this study also articulated their fear of climate impacts in relation to more extreme heat, poor quality housing and disease. For example, heat stress caused by higher temperatures was reported as a challenge for about 50% of the people participating in this study, who said they live in insufficient and unsustainable housing, and further, cannot afford nor have access to air conditioning. This is consistent with housing statistics which show that many Indigenous peoples in cities live in poorer suburbs, in cheaper housing, which are not insulated against heat or cold. In remote areas, or in town camps in Alice Springs, heat stress and other impacts can cause hospitalisation or death.

Significantly, our analysis also reveals that the corpus of historical climate knowledge based on these observations of the impacts of climate change on their country was largely based on observations of change throughout the *colonial* period. This included information not just about affiliated Country but the many regions outside it; *generated as a result of the dispersal of Indigenous people caused by colonisation*. Further, this knowledge base offers fine detail at local scale that had not been captured by regional climate projections and observations. The Arabana people in South

Australia for example, describe climate knowledge that reflects recent historical experience via changes not only to their culture and country but to the regions *outside* their country within which they now live, as a result of colonial dispersal (see Nursey-Bray et al. in revision). We suggest that this recent knowledge – often forged through and as a result of a sustained period of colonial invasion - is as important as longer ancestral climate knowledge for informing contemporary Indigenous climate change management.

3.2. Indigenous perspectives on climate terminology is different

Our analysis also reveals significant discursive differences between how Indigenous and policy makers interpreted the Western scientific terms for climate change, including adaptation. For example, it is instructive that in two years of talking and working with Indigenous peoples that we did not find any group that had a specific equivalent term for “climate change” in their own language. Rather “weather”, “climate”, “seasons” and related concepts are all minutely described in multiple ways in multiple languages. We argue that effective engagement with Indigenous peoples about climate change and adaptation in relation to their country, necessitates the researcher or policy maker to become acquainted with the local language terms that can collectively describe what we know as “climate change”. Another approach may be to contextualise discussions about climate change in terms of causes and effects in ways that align with the ongoing local observations of changes to country as described above.

The term “vulnerability” used extensively in the scientific literature, is also problematic. The literature and policy makers often characterise Indigenous people’s status in relation to climate change as “vulnerable”. However, our work reveals that the majority of Indigenous participants did not feel this is a useful construction arguing that the characterisation of their “vulnerability” is used as a vehicle by governments and others to appropriate resources from Indigenous peoples and to “take care” of them. The word “vulnerability” was perceived as undermining Indigenous notions of “agency”, a term that was preferred by the people that participated in this study. We found that the use of vulnerability as a “catch all” term to locate Indigenous groups, also privileges certain modes of power relations, and risks romanticising the issue of climate change in Indigenous contexts.

Our analysis also shows that the term “resilience”, used normatively in the literature to express a positive attribute about Indigenous culture, and creates a dominant discourse that Indigenous people are resilient. However, Indigenous participants in this study also critiqued the constant use of the term “resilience”, arguing that it is too often used to avoid responsibility for supporting Indigenous-driven initiatives on the basis that they “don’t need it as we are seen to be resilient anyway” (Workshop 1 participant quote 2016). Some participants reflected that conceptions of Indigenous resilience were also used to justify investment in certain kinds of research that are deemed appropriate for application in Indigenous contexts, rather than investing in the kind of research that Indigenous peoples want and deem appropriate. The dichotomous use of both terms creates a polarised discourse that locates Indigenous peoples in pre-constructed ways by policy makers, but not necessarily in ways that are consistent with how they might see their involvement or status in climate change management.

Our analysis also revealed that Indigenous participants are often uncomfortable with how the term “Traditional Ecological Knowledge” (TEK) is used - inter-changeably and often romantically - to denote the strength and perceived resilience Indigenous peoples have to climate change. However, feedback, particularly from the Indigenous workshops highlighted this application of the term makes Indigenous groups feel constantly pressured; due to the loss and fracturing of TEK as a result of colonisation, the pressure to share it creates a fear of public exposure and loss of credibility, or as one participant noted “a shame job”, in the cases where it may be revealed that the TEK is no longer a whole system. The reification of TEK means that Indigenous people feel they are being put into an “Indigenous policy box” rather than being acknowledged also as citizens per se with cultural rights. Or as Maclean (2011, 143) point out (in the context of Indigenous water governance in

Australia), this process relegates Indigenous culture and knowledge as “purely linked to traditional customary traditional and priorities as opposed to also include distinct and specialised knowledge of place, local history, species and contemporary land management” thus marginalising Indigenous interests while purporting to support them. Cahir, Clark, and Clarke (2018) note that the use of “Indigenous Bio-cultural Knowledge” instead of TEK by some researchers is one way of addressing this issue.

Finally, the term “adaptation” is understood in different ways: Western science explains adaptation as a natural autonomous process (what species do to respond to change) but also it is asserted in the climate change literature as a way of understanding how society responds to climate impacts. However, to the Indigenous peoples who participated in this project, adaptation is something that has always happened, and is rooted in socio-political and cultural contexts. It is not an abstract (or new) idea connected just to climate change, but one rooted in history and time connected to country and everything relating to it. An excerpt from the Gungandji Land and Sea Country Plan demonstrates this belief well:

Climate change is another grave challenge to our country that is not of our making. However, like all coastal groups around Australia, Gungandji people have demonstrated the capacity to adapt to climate change over thousands of years. Our ancestors have lived, through a 10-metre rise in sea level, great changes in rainfall, the arrival of new plant and animal species and the great upheavals caused by volcanic activity as river courses changed and new land forms emerged. (Gungandji 2013, 21)

The notion of climate change adaptation *per se* is not always understood as a separate dimension but is inclusive of adapting to all change (Arbon pers comm 2013); it is not seen as a specific challenge but as part of day-to-day business. Adaptation is framed in cultural/historical terms and part of the history of Indigenous survival over millennia – rather than actions they need to take to address a recent issue (climate change). In this sense, adaptation is constructed as the application of “old ways to new days” (pers comm, Stuart, A, Leaders workshop 2017). This also generated a sense of confidence and a positive outlook that climate change was the most recent of many challenges Indigenous peoples had experienced and overcome.

3.3. Not passive victims: a diversity of climate initiatives have been implemented across the country

Further analysis shows that this confidence is manifested via assertion of agency through trial and implementation of a diverse array of programmes and models of Indigenous climate adaptation. Table 1 presents a descriptive (rather than comprehensive) synopsis of some exemplars identified through this research.

Further analysis of these initiatives reveals a few issues. Firstly, in many cases these programmes suffer from a lack of continuity. For example, the National Climate Change Adaptation Research facility (NCCARF) funded a series of important studies and established an Indigenous Research network, yet funding for the NCCARF has effectively ceased. This has resulted in a “start/stop” effect, with Indigenous adaptation programmes finding it hard to build stability over time. In other cases, adaptation programmes have been driven and run out of universities or other research organisations, and thus tend to be led by non-Indigenous partners, which again fractures ongoing continuity; over 70% of the initiatives we analysed were founded, initiated or coordinated by research or other groups external to the Indigenous organisation/community involved. While not problematic in itself, and reflective of many productive partnerships, this situation in effect constrains Indigenous capacity to run and drive initiatives in their own right, as many of them remain subject to the rules for academic institutions.

Finding institutional fit can also be problematic and many Indigenous adaptation initiatives exist separately from other wider policy frames. For example, in South Australia every single local government (74 in total) has a climate adaptation plan, and the State has established an (award winning) adaptation framework. Yet, despite this abundance of adaptation measures, Indigenous groups in

Table 1. A selection of Australian Aboriginal and Torres Strait Island Climate Change and Adaptation Initiatives.

| Type of activity | Example/s | Project Description |
|--|--|--|
| Involvement in networks and Indigenous public advocacy | Girringun co-leading research network | The National Climate Change Adaptation Network (NCCARF), hosts the Social Economic Institutions Research Network, within which there is a specific Indigenous theme. This theme is co-led by Girringun and encourages the involvement of other Indigenous groups in NCCARF activities. |
| | NAILSMA Climate projects | The Northern Australian Indigenous Land and Sea Management Alliance, develops climate projects for Indigenous groups across northern Australia. It is a wide network that involves researcher, traditional peoples, policy makers in collaborative projects. NAILSMA has been actively involved in a wide range of climate projects |
| | National Indigenous Dialogue on Climate Change | This initiative, driven by Indigenous leaders across Australia is driving a national discussion about how, when and where to develop and delivery culturally appropriate – and importantly- driven adaptation responses. |
| | ILC: Climate Risk Assessments for Indigenous groups | Kimberley Land Council send people to COP 13: The KLC group gave presentations at the Indigenous Pavilion of COP21 and associated events – the Global Landscapes Forum, and the UNESCO Organised Indigenous People and Climate Change Conference. |
| Specific Climate Strategies | Arabana Climate Change Strategy | In 2012, the Arabana people of the Kati Thanda Lake Eyre region launched their own climate adaptation strategy for climate change. |
| | Torres Strait Climate Change Strategy | The TSRA's Coastal and Climate Change Theme was established in 2007 by the Land & Sea Management Unit (LSMU) and has developed the Climate Change Strategy 2010-2013: "This Torres Strait Climate Change Strategy provides our region with a guiding framework and action plan so we can proactively address current and potential impacts by identifying the range of priority responses required based on sound scientific research and community involvement". |
| Outreach/ education activities | Mirrawoong Climate Calendar | The Miriwoong people, Northern Territory, are developing a climate adaptation tool using traditional ecological knowledge based on the weather and observed environmental change. This resulted in an interactive seasonal calendar, showing ongoing and future weather patterns, and help ensure younger generations can adapt to those changes. |
| | Tiwi Climate Science Project | This programme, aimed to increase the engagement of the Tiwi Islander people, Northern Territory (NT) with climate change science; was developed in response to many natural resources being threatened by climate change, upon which a number of Tiwi livelihoods are dependent. |
| | Dhimurru and Yirralka Ranger outreach activities | Dhimurru and Yirralka Rangers from North-East Arnhem Land have also been working with their local schools to deliver the Learning on Country programme module on understanding climate change and its effects on seasons and the abundance of natural resources. In this programme, Elders take students to some key areas around Nhulunbuy sharing cultural stories about important sites, sea-levels, tides, seasons and changes to the landscape through song and dance. |
| Management Plans/Activities | Ngarindjeri Sea Country Plan, South Australia: Yarlular-Ruwe | Climate change is explicitly addressed in the Sea Country Plan of the Ngarindjeri: "We recognise the huge impacts of global warming on our lands and waters and all living things. In recent years we have observed changes in our local environment that tells us that climate change is a reality. We see that the breeding behaviour of birds is changing, and the fruiting and flowering of our bush foods is changing. We have watched our fresh water holes dry up or turn salty and we've seen our coastal camping places and middens washed away by rising sea levels. When we lose these places we lose not only part of our cultural heritage, but we also lose an irreplaceable record of Ngarindjeri adaptation to climate change in the past" |
| | Uluru-Kata Tjuta National Park Climate Change Strategy 2012–2017 Kakadu National Park Climate Change Strategy 2010–2015 | These strategies are designed to be "an adaptive tool subject to ongoing review and management responses will be amended to take account of improvements in the understanding of the implications of climate change on the park". Both plans are for jointly managed national parks. The traditional owners for Uluru-Kata Tjuta are the Anangu people and Kakadu is the country of the Bininj/Munggyu people. |

South Australia still cannot find entry points to garner financial or other support to implement their own adaptation initiatives. They must “fit” within the existing governance frames, even if their own adaptation planning exists outside it. They are not explicitly catered for or written about in the local adaptation plans outside of statements of acknowledgment and respect. Thus, for the Arabana people, their adaptation strategy, while an important reflection of Arabana aspirations for their country, remains located outside of dominant and conventional governance structures, thus falling between the lines of what can be funded in an ongoing way. This example illustrates that conventional wisdom, that “upscaling” is the way to incorporate community/bottom up approaches, is limited and requires some rethinking.

Our analysis of adaptation initiatives also revealed what is *not there* providing insight into entrenched bias relating to the spatial distribution of investment in Indigenous Australians across Australia. For example, there is little fine scale work done around understanding how climate impacts may be differentiated between different communities, genders, or ages across Australia. Further, the focus on adaptation for country means that its impacts on people in cities and regions is overlooked: apart from some discrete pieces of work (see Low Choy et al. 2013). Despite the focus on Indigenous country, most Australian Aboriginal and Torres Strait Islander people live in non-remote areas with an estimated 32% of people living in major cities, 43% in regional areas, and 25% in remote areas (ABS 2016). Yet, in terms of funding arrangements, investments in Indigenous policy and programmes disproportionately favour or are allocated to Indigenous peoples living in remote regions. Further, our institutional analysis of urban policy frameworks reveals that while there are many policies in place for Indigenous groups, they predominately focus on health, employment, housing and education. While these are all significant issues, urban and regional climate change and adaptation policies largely ignore or do not differentiate Indigenous interests in any way.

Despite these challenges, these examples reflect the diversity of initiatives trialled across what is a very large and culturally diverse continent and show the dynamism and ongoing agency of Indigenous peoples in Australia as they seek to assert their *imprimatur* in this area.

3.4. Humour supports assertion of agency and is important in climate change communications

Synthesis of our results shows that most participants thought that the production of brochures, posters, articles for community newsletters, even when delivered in plain English, were not an effective means to encourage adaptation. Participants argued that unless you can produce a broad product that also addresses individual Indigenous cultural identities, including (where possible) traditional language, then Aboriginal and Torres Strait Islander peoples will not consider those communications to be relevant to them or their Country. A template approach to driving Indigenous adaptation or developing Australia wide communications simply will not work.

However, our results also showed that Aboriginal and Torres Strait Islander participants have become prolific social media users. Participants often said Facebook would be a good way of sharing information as it has become an integral part of day-to-day cultural mores. The majority of the participants indicated that if they wanted to express opinions, or find out information about an issue, topic, or just engage in frivolous gossip, their first port-of-call is Facebook; a finding consistent with other research that shows that Facebook and YouTube have become fundamental tools used to give a voice and help affirm cultural identity (Rice et al. 2016; Carlson and Frazer 2018).

In this context, over half of our participants suggested that the deliberate use of humour was a means by which cultural engagement could be obtained within climate communications. Humour was perceived as having the potential to become an enabling mechanism to progress adaptation per se, that it could overcome cultural hurdles and be used to translate climate change adaptation information in cross-cultural contexts. Humour is undeniably a central feature of Australian Indigenous culture (Duncan 2014) and plays a pivotal role in shaping their daily lives (French 2014). Duncan (2014, 2) describes how humour is a “complex institutionalised practice central to Aboriginal culture”

which is used to “regulate social behaviour by joking and shaming tactics”. Stanner (1982, 40) said “the underlying philosophy of Aboriginal humour is likely to baffle a European mind” because it is used in a way to deal with elements of their culture alien to a contemporary, non-Indigenous Australian. In particular, Indigenous peoples use humour to help them contend with the ongoing horror of colonisation, an experience non-Indigenous people can never truly comprehend. Duncan (2014, 82) adds: “humour is the only way we get through hard times”. Kable (1990, 38) said, “basically, an Aboriginal lifestyle is full of humour”.

There are some examples that support the notion of using humour to frame communications about a serious issue such as climate change to Indigenous Australians. For example, Redmond (2008, 257) references a comedy performed in the Kimberley region of Western Australia, where information about white invasion is performed to an Aboriginal audience who at times were said to experience “a radical loss of bodily composure” from laughing so hard whilst watching the show. Torres Strait Islanders equally use laughter in their culture, but using humour has to be utilised with more caution, especially if the focus is on a family group or an individual’s reputation who “may perceive a slight where none is intended” (Beckett 2008, 295). The Yolngu dance troupe Chooky Dancers from Elcho Island use humour as the basis for their dance routines and to send their own messages about Aboriginal culture. The use of humour in climate change and adaptation communications has also been considered by Walker (2014, 368) who says it might be better “to take a playful and innovative approach in order to engage readers’ hearts and not just their heads”. As McCullough (2014, 678) observes: “humour creates a space wherein Murri (Indigenous) people can talk to each other and fight against non-indigenous understandings and perceptions of Murri life”. Nonetheless, we suggest the deployment of humour in tailored Indigenous climate communications has merit, especially as humour serves to break hierarchies.

4. Discussion

4.1. Facilitating agency and strategic localism

Our project has found that while Indigenous peoples are experiencing climate change, that they are asserting their agency to adapt to these changes. Our analysis shows that consideration of how to deploy key and important climate change terms matters because they are interpreted differently by Indigenous peoples, and specifically, that representing Indigenous groups as vulnerable/resilient is unhelpful. We find that adaptation, as it is understood by the Indigenous groups we met with, is an ongoing practice that has occurred over millennia. It is a holistic notion that embraces and enacts responses to various kinds of change. Furthermore, we found that humour has potential as an enabling mechanism for progressing culturally appropriate adaptation.

Most importantly, we found that across Australia Indigenous groups are trialling and implementing a range of adaptation programmes, and in so doing asserting cultural agency despite an institutional context that finds it hard to create space and “fit” for such initiatives. We argue that these Indigenous modes of adaptation, based on adaptation practice that has been forged over millennia, are the bedrock for addressing the “new” challenge of climate change. Yet one size will not fit all: the diversity of peoples, knowledge’s and contexts requires tailored, place-based responses, that co-involve Indigenous peoples and are adequately resourced.

To meet this challenge, an opportunity exists to acknowledge the ways in which Indigenous peoples are agents of their own change, and to support the strategic localism of Indigenous adaptation approaches through tailored and place-based adaptation for traditional country. Similar to Ireland and McKinnon (2013, 2), we construct strategic localism as an approach that operates on a horizontal scale (thus rejecting hierarchical models of scale), connects diverse sites and actors and commits and values “things that people do in the places where they are without relying upon an overarching framework to introduce, validate and extend such localism ‘doings’”. This challenges the dominant view that climate change responses need to be “big” and asserts that “global

impacts can be achieved by local adaptation efforts while remaining engaged with the contingencies and specificities of local contexts, concerns and capabilities” (Ireland and McKinnon 2013, 2). The acknowledgment of the value of local programmes also challenges the expectation that local initiatives and outcomes need to find ways to import their outputs upwards into wider governance structures or find ways to “fit in” with other Western institutions. Supporting strategic localism gives autonomy to, and recognition for, local and in this case Indigenous ways of doing and seeing (Howitt 2001). Given the specific focus of Indigenous peoples on their own country, this approach offers the possibility of building bridges between Western and Indigenous modes of climate adaptation governance.

Such an approach will create a more dynamic and equitable interplay between knowledge and power between Indigenous and non-Indigenous actors, thus forging deeper agency. Navigating this challenge will require acknowledgement of Indigenous modes of governance and need to include/embed equitable distribution of power in policy and other partnerships; ownership and access to resources; creation of effective governing institutions and accountability; and acknowledgment of cultural legitimacy (Nursey-Bray and Jacobson 2014). Indeed, as Ireland and McKinnon (2013, 162) suggest, lessons of value from the community may be applied “up” to “powerful bureaucracies”.

5. Conclusion

Responding to climate change has been an ongoing activity for Indigenous groups for millennia and their constructions of adaptation reflects this cultural/historical continuum, as well as aspirations for the future. We suggest that support for Indigenous adaptation programmes in these new days, acknowledge old ways of seeing and doing, build agency and partnerships and collectively address current climate impacts on both country and people.

Note

1. *Country* – is a term commonly used in Australia to denote the traditional land/seas that belong to a particular Aboriginal or Torres Strait Islander cultural group. Indigenous peoples identify each other by their country, and “caring for country” is a term used to denote the traditional and ongoing management of Indigenous land and seas. Country is a holistic concept that prescribes ways of seeing and doing for Indigenous peoples and is underpinned by a belief that all things are connected, and that Indigenous peoples belong to and are part of their own country.

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