Migration as an Adaptation to Climate Change for Remote Indigenous Communities: What might we expect?

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KEY FINDINGS

- Despite rapidly growing international literature examining the impacts of climate change on human migration, there is no general model to provide an understanding of who might migrate, to where, and when.
- Existing literature on climate-induced migration of Indigenous Australians is limited, and focuses on migration as an adaptation to climate change.
- Where migration does emerge as an adaptive strategy, it is likely to present challenges for the people who are migrating, for the places they migrate to, and the communities they migrate from.
- This study identifies thirteen dimensions that should be considered when modelling climate-induced migration.
- It highlights the importance of acknowledging the diversity and dynamism between and within communities.
- Place-based adaptive strategies should be developed with individual communities to ensure that Indigenous people have appropriate migration options, and the skills and resources to exercise control over their migration decisions.

RESEARCH AIM

This research brief addresses an important shortcoming in the existing literature on the impacts of climate change on human migration.

By highlighting the role that migration might play as an adaptation to climate change by Indigenous people, with a particular focus on remote communities in the north of Australia.

The research was conducted by ***Professor Dean Carson[1], Dr Deanne Bird [2], Lauren Bell [3] & Pawinee Yuhun [4].***

This brief was compiled by Huw Brokensha.

[1] Northern Institute, CDU & Flinders University
[2] Monash University
[3] Charles Darwin University
[4] Northern Institute, CDU

1. INTRODUCTION

Migration is well recognised as an option for adapting to the impacts of climate change. However, there is no general model to provide an understanding of who might migrate, to where, and when. In reference to remote Indigenous communities in northern Australia, this study identifies thirteen dimensions that should be considered when modelling climate-induced migrations. It also highlights the importance of acknowledging the diversity and dynamism between communities and within communities.

The Australian Government Office of Northern Australia considers its remit to encompass the region north of the Tropic of Capricorn. Under that definition, 'northern Australia' covers about one quarter of the Australian landmass, and includes substantial parts of the jurisdictions of Queensland, the Northern Territory and Western Australia. Based on the 2011 Census, it has an approximate Indigenous population of 160,000 people, which is about 13% of the total northern population and about 30% of the total Australian Indigenous population. Around 300,000 northern Australians live in areas that are formally classified as either 'remote' or 'very remote' (AIHW, 2013). The definitions of remoteness take into account the distance people live from major services and infrastructure, and the sparsity of the population (Carson et al., 2011).

This brief reviews academic literature on climate induced migration and addresses an important shortcoming in the existing literature on migration due to climate change, by highlighting the role that migration might play as an adaptation to climate change by Indigenous people, with a particular focus on remote communities in northern Australia.

2. REMOTE INDIGENOUS COMMUNITIES AND CLIMATE CHANGE IN NORTHERN AUSTRALIA

Remote Indigenous communities in northern Australia present a very complex context in which to study migration as an adaptation to climate change. Indigenous communities are diverse, subject to very high levels of surveillance and control, embedded in cultural notions of the environment and legal constructs of occupation of the land and distanced from resources that underpin adaptive strategies everywhere. At the same time, however, they possess unique sets of knowledge and skills that present options for adaptation both by staying put and by moving. To begin to model what specific communities might do as a response to climate change demands an understanding of this context as it relates to the various dimensions of migration – the factors that determine how much migration occurs, from where to where, by whom, for how long, and with what consequences.

2.1. The Dimensions of Migration as Adaptation

McKeon & colleagues (2009) summarised the contemporary expectations of the impacts of climate change in northern Australia. Moderate sea level rises are expected to affect some coastal communities, although it is not clear the extent to which this will occur, and which communities may

be affected. The frequency of heat waves is expected to increase, and the intensity of (but not frequency of) cyclonic activity and associated flooding. There is also likely to be a loss of habitat for native animals and pastures for farmed animals as a result of wetland inundation and extended periods of drought affecting native and exotic flora and fauna in the arid areas. The timeframes in which such changes may occur are difficult to assess, although there are some arguments that changes are already being observed locally (Bird et al., 2013; Green et al., 2009; Petheram et al., 2010).

Existing literature on climate change induced migration of Indigenous Australians is limited. The report compiled by Green & colleagues (2009) focused on exposure and vulnerability to climate change impacts more so than assessment of the adaptive strategies that may be available. The authors were firm in their conviction that Indigenous people would be able to adapt because of their long history of building environmental knowledge and managing their relationships with the land.

Two specific examples of Indigenous adaptation to climate change in northern Australia (Petheram et al. 2010; and Howitt et al. 2011) suggest at least four dimensions relevant to assessing the extent to which migration may be an adaptation. Howitt and colleagues are explicitly concerned with the extent to which migration is a voluntary, as opposed to mandated, adaptation. In their case example, migration from the Kiwirrkurra community was mandated as part of government policy around emergency/disaster management. Kiwirrkurra is a community in Western Australia where the population was evacuated following flooding associated with Cyclone Abigail in 2001 (Howitt et al. 2011). Disaster Management Plans for remote Indigenous communities in the Northern Territory (particularly those in tropical areas susceptible to cyclones) also include provisions for mandatory evacuation.

On the other hand, Petherman et al. (2010) and Bird et al. (2013) found that communities were considering or implementing temporary migration as a voluntary response. Petherman et al. (2010) research noted adaptive strategies around engineering and infrastructure design and the redesign of transport systems, and it was suggested that these adaptations *in situ* were the preference of Indigenous people in Arnhem Land, Northern Territory. Bird et al. (2013) documented multiple reasons for mobility among four northern Australian communities (Broome, Western Australia; Maningrida and Ngukurr, Northern Territory; WujalWujal, Queensland). The reasons for mobility included health and livelihood and employment opportunities with a focus to be closer to essential services following the centralisation of many government services. Additionally, survey respondents discuss movement from outstations to these four somewhat larger centres during the wet season to avoid being cut off from flooding.

Both Petherman et al. (2010) and Bird et al. (2013) research suggested that the preferred migration response would be to move to relatively nearby locations and within well established networks of locations (existing homelands and outstations, for example). In contrast, the Asian Development Bank (2012) report (as one example) talks about the need for some displaced people to move large distances to very unfamiliar environments. In general, the global climate change literature has a strong interest in international migration as a response (McLeman & Smit, 2006), although many empirical studies suggest that moves within a single jurisdiction are likely to be more common given the additional resources and risks involved in international moves (McLeman & Hunter, 2010).

Our understanding of current spatial patterns of migration by Indigenous people from northern Australia includes poorly tested assumptions that very little movement occurs across State and Territory borders. When such movement becomes apparent, concerns are raised about the jurisdictional responsibilities for both 'servicing' and policing Indigenous people (Taylor & Carson, 2009). Similar concerns are raised around rural to urban migration even within a jurisdiction (Habibis et al., 2011). It might be expected that moves over short distances following established migration (and other) networks would be easier to anticipate and measure than moves over longer distances to less predictable locations. However, even well established patterns of mobility among remote Indigenous populations in northern Australia can be difficult to model (Prout, 2008). Furthermore, recent evidence suggests that the range of migration destinations that Indigenous people in remote northern Australia consider and pursue is increasing, and becoming more diverse, particularly for young people (Taylor, 2012).

In addition to the spatial dimension of migration as an adaptation is the dimension of time and changes to migration. Discussions between Indigenous people and Petheram et al. (2010) and Bird et al. (2013) specifically focused on temporary relocation. Howitt et al. (2011) case example also involved temporary relocation, but the mechanisms for facilitating return to the origin community were less well structured than the mechanisms for (forced) movement away. Clearly, whether migration is short- or long-term (or permanent) is in part a function of the nature of the impact of climate change. Communities (and even entire islands) that are inundated by rising sea levels, for example, will not be able to be repopulated. Ford et al. (2010) advocate permanent relocation of some specific communities in northern Canada, which face this level of threat.

Communities experiencing disruptions such as floods, fires or cyclones, on the other hand, may be suitable for habitation very soon after the event, even if such events become more frequent and severe (although a 'ratchet effect' whereby continued exposure to even low risk results in dramatic responses (Ford et al., 2006) may ultimately apply). However, the duration of a migration event is not simply a function of habitability of the origin community, but the attitudes of the individual migrant and the perceived utility of remaining absent for a particular period of time, moving on to new locations, or staying away permanently (Petrov, 2007, demonstrated this for Indigenous people moving from the north to the south of Canada). Utility may be measured in economic, social, cultural, health or other terms, and is likely to be a complex combination of these (Greenwood & Hunt, 2003). It would be difficult to justify any assumptions that all Indigenous people in all communities in northern Australia have the same specific perceptions of utility, even if there are cultural worldviews of utility.

The fourth dimension drawn from the publications specific to climate change and Indigenous communities in northern Australia relates to the extent to which migration is THE adaptation to climate change or is one of many options. Howitt & colleagues (2011) strongly emphasised the policies of forced migration as an adaptation to severe flooding in their case community, suggesting that government policy enforcing evacuation served both to limit government attention to other possible strategies and, more importantly, to deprive Indigenous people of the opportunity to use their traditional and local environmental knowledge to develop a range of alternatives. In contrast, Petheram et al. (2010), Bird et al. (2013) and Green et al. (2009) were able to document a number of alternative adaptations proposed and pursued by Indigenous people and by external agencies –

replacing or relocating physical infrastructure, better preparedness in terms of ensuring food, water and health supplies, and re-arranging work, social, and cultural schedules (see also, Ford et al. 2010). In locations where these alternative adaptations can be successfully implemented, migration may be a less common response to either discrete weather events or slow-onset environmental changes. The great diversity of both exposure to climate change impacts and capacity to anticipate and respond observed among Indigenous communities around the world (Parker et al., 2006) suggests that general rules about the nature and extent of migration as adaptations are unlikely to emerge (Perch-Nielsen et al., 2008).

2.2. Dimensions of Climate Induced Migration

This literature review has revealed 13 dimensions of migration as potential adaptation to climate change in remote Indigenous communities in northern Australia (Table 1). Within each of the dimensions, there is evidence that a diversity of outcomes is likely. For example, out of the same population, there may be some people who migrate long distances and some who migrate short distances. There may be some mandatory and some voluntary migration. There may be some people who are well resourced economically to migrate to a new place and some who are not. Given our current knowledge of migration patterns in remote Indigenous communities, we can expect there will be substantial differences between communities.

Table 1: Summary of Dimensions of Climate Induced Migration

	Dimension
1	Voluntary ⇔ Mandatory
2	Short distance ⇔ Long distance
3	Short term ⇔ Long term
4	Only adaptation ⇔ One of many adaptation
5	Outmigration ⇔ Inmigration
6	Mobility ⇔ Migration
7	Climate as driver ⇔ Many drivers
8	Exaggerate existing migration patterns ⇔ Inspire new migration patterns
9	Individual decisions ⇔ Collective decisions
10	Seeking similar livelihoods ⇔ Seeking new livelihoods
11	Proactive ⇔ Reactive
12	Regional ⇔ Local
13	Well resourced ⇔ Poorly resourced

The diversity of possible and probable responses across the 13 dimensions, will make it difficult for government in particular to effectively impose 'one size fits all' adaptation policies on Indigenous communities. What government should be doing instead is working with individual communities to assess their specific potentials and develop place-based adaptive strategies. This assessment is not new, but the articulation of the dimensions as a mechanism through which to examine the role of migration within a potential suite of localised adaptations is.

3. DISCUSSION AND CONCLUSION

What is clear is that climate change is just one of many migration pressures being exerted on northern Australian remote Indigenous communities. Government policy, socio-economic conditions, impacts of new technologies and cultural change appear to be considered as more immediate and dramatic issues than climate change. Not all of these pressures are acting in the same direction (i.e. encouraging the same patterns of in- or out- or non-migration), so it is difficult to assess what the impact is or will be of adding (or emphasising) climate change to the mix.

Where migration does emerge as an adaptive strategy, it is likely to present challenges for the people who are migrating, for the places they migrate to, and the communities they migrate from. This is already the case with migration from remote to urban settlements in particular, but will apply equally where migration changes the patterns of occupation of outstations and homelands and affects the exchange of people between remote settlements. Nevertheless, migration is currently considered as part of the adaptation of remote communities (formalised in disaster management plans), and it is difficult to conceive comprehensive adaptation strategies which do not allow for some level of migration.

The challenge for communities and policy makers is to ensure that Indigenous people have appropriate migration options, and the skills and resources to exercise control over their migration decisions. For researchers, along with assessing the dimensions of migration as they apply to specific communities, there is a need to learn more from young people and those who have already migrated out of remote communities to better understand how individuals and communities (both of origin and destination) can be better prepared to deal with the consequences. This task cannot be based on a general model of what migration is expected, because each community will respond differently based on its unique circumstances.

4. REFERENCES

Australian Institute of Health and Welfare (AIHW), 2013, *Rural, Remote and Metropolitan Areas (RRMA) classification*, last accessed online 1/04/2014 from http://www.aihw.gov.au/rural-health-rrma-classification

Asian Development Bank, 2012, Addressing Climate Change and Migration in Asia and the Pacific. Mandaluyong City, Philippines: Asian Development Bank.

Bird, D., Govan, J., Murphy, H., Harwood, S., Haynes, K., Carson, D., Russel, S., King D., Wensing, E., Tsakissiris, N., & Larkin, S., 2013, *Future change in ancient worlds: Indigenous adaptation in northern Australia*, Gold Coast, National Climate Change Adaptation Research Facility.

Carson, D., Ensign, P., Rasmussen, R., & Taylor, A., 2011, *Perspectives on 'Demography at the Edge',* in Carson, D., Rasmussen, R., Ensign, P., Huskey, L., & Taylor, A (Eds) 'Demography at the Edge: Remote human populations in developing nations', Farnham, United Kingdom, Ashgate Publishing Ltd.

Ford, J.D., Smit, B., & Wandel, J., 2006, *Vulnerability to climate change in the Artic: a case study from Arctic Bay, Canada*, Global Environmental Change, 16, 145-160.

Ford, J.D., Keskitalo, E.C.H., Smith, T., Pearce, T., Berrang-Ford, L., Duerden, F., & Smit, B., 2010, *Case Studyand analogue methodologies in climate change vulnerability research*, WIREs Climate Change, I, 374-392

Green, D., Jackson, S., & Morrison, J.E., 2009, *Risks from Climate Change to Indigenous Communities in the Tropical North of Australia*, Canberra, Department of Climate Change and Energy Efficiency.

Greenwood, M.J., & Hunt, G.L., 2003, *The early history of migration research*, International Regional Science Review, 26, 3-37.

Habibis, D., Birdsall-Jones, C., Dunbar, T., Scimgeour, M., Taylor, E., & Nethercote, M., 2011, *Improving housing responses to Indigenous patterns of mobility*, Melbourne, Australian Housing and Urban Research Institute.

Howitt, R., Havnen, O., & Veland, S., 2011, *Natural and Unnatural Disasters: Responding with Respect for Indigenous Rights and Knowledges*, Geographical Research, 50, 47-59.

McKeon, G.M., Stone, G.S., Syktus, J.I., Carter, J.O., Flood, N.T., Ahrens, D. G., Bruget, D.N., Chilcott, C.R., Cobon, D.H., Cowley, R.A., Crimp, S.J., Fraser, G.W., Howden, S.M., Johnston, P.W., Ryan, J.G., Stokes, C.J., & Day, K.A., 2009, *Climate change impacts on northern Australian rangeland livestock carrying capacity: a review of issues*, The Rangeland Journal, 31, 1-29.

McLeman, R., & Hunter, L.M., 2010, *Migration in the context of vulnerability and adaptation to climate change: insights from analogues*, WIREs Climate Change, I, 450-461.

McLeman, R., & Smit, B., 2006, *Migration as an adaptation to climate change*, Climate Change, 76, 31-53.

Parker, A., Grossman, Z., Whitesell, E., Stephenson, B., Williams, T., Hardison, P., Ballew, L., Burnham, B., Bushnell, J. and Klosterman, R., 2006, *Climate Change and the Pacific Rim Indigenous Nations*.

The Evergreen State College, Olympia, Washington: Northwest Indian Applied Research Institute (NIARI).

Perch-Nielsen, S.L., Battig, M.B., & Imboden, D, 2008, *Exploring the link between climate change and migration*, Climate Change, 91, 375-393.

Petheram, L., Zander, K.K, Campbell, B.M., High, C., and Stacey, N., 2010, *'Strange changes': Indigenous perspectives of climate change and adaptation in NE Arnhem Land (Australia)*, Global Environmental Change, 20, 681-692.

Petrov, A., 2007, *Revising the Harris-Todaro framework to model labour migration from the Canadian northern frontier*, Journal of Population Research, 24, 185-206.

Prout, S., 2008, *The entangled relationship between Indigenous spatiality and government service delivery*, CAEPR Working Paper, Canberra, Centre for Aboriginal Economic Policy Research, Australian National University.

Taylor, A., & Carson, D., 2009, *Indigenous mobility and the Northern Territory Emergency Response*, People and Place, 17, 29-38.

Taylor, A., 2012, *Information Communication Technologies and New Indigenous Mobilities? Insights from Remote Northern Territory Communities*, Journal of Rural and Community Development, 7, 59-73.