2017

# Accounting for justice in local government responses to sea-level rise: evidence from two local councils in Victoria, Australia

Sonia Graham
*University of Wollongong*, sgraham@uow.edu.au

Jon Barnett
*University of Melbourne*

# Accounting for justice in local government responses to sea-level rise: evidence from two local councils in Victoria, Australia

## Abstract

This chapter explains the way justice is being considered by two local governments tasked with the responsibility of facilitating adaptation to sea-level rise. It compares the ways in which the East Gippsland Shire Council and Wellington Shire Council in Victoria have approached adaptation to sea-level rise, how they have engaged their communities on the issue, and the way staff in these two local governments think about the justice dimensions of adaptation.

## Keywords

## Publication Details

7

# Accounting for justice in local government responses to sea-level rise: evidence from two local councils in Victoria, Australia

Sonia Graham and Jon Barnett

## Summary

This chapter explains the way justice is being considered by two local governments tasked with the responsibility of facilitating adaptation to sea-level rise. It compares the ways in which the East Gippsland Shire Council and Wellington Shire Council in Victoria have approached adaptation to sea-level rise, how they have engaged their communities on the issue, and the way staff in these two local governments think about the justice dimensions of adaptation.

## Introduction

Successful adaptation to climate change requires local-level responses that account for place-specific risks and community needs (Adger and Nelson 2010; Brisley *et al*. 2012). Local governments are argued to be the most appropriate entity for delivering responsible and legitimate adaptation (Measham *et al*. 2011; Bradley *et al*. 2015), because they are well placed to evaluate the likely distribution of climate impacts (Brisley *et al*. 2012), consider the vulnerabilities and adaptive capacity of local communities, engage with local residents (Mukheibir and Ziervogel 2007) and incorporate local knowledge (Dow *et al*. 2006). Therefore it is assumed – if not well demonstrated – that local governments can develop adaptation policies that are perceived to be fair by their local communities.

The growing body of research on climate justice provides few insights into fairness considerations in local government adaptation decision making. Most of this research focuses on: mitigation rather than adaptation (Schlosberg 2012); the global rather than the local scale (Fritze and Wiseman 2009); developing rather than developed countries (e.g. Huq and Khan 2006; Barnett 2009); local community rather than local government perspectives; and distributive and procedural fairness at the expense of other types of fairness, such as interactional, spatial and temporal (Graham *et al*. 2015). While there is an emerging body of literature surrounding just adaptation (e.g. Grasso 2007; Brisley *et al*. 2012), there is much work to be done to understand how local-level decisions on adaptive responses are made (Paavola and Adger 2006).

**Box 7.1:** Five types of justice in climate adaptation

Graham *et al.* (2015) explored how residents of East Gippsland Shire Council and Wellington Shire Council perceived fairness in the context of adaptation to sea-level rise. Below is an overview of five types, and two sub-types, of justice that emerged from the analysis.

1. *Distributive*: the effects climate change and adaptation have on residents' everyday lives, and how these impacts vary across the community.
2. *Procedural*: the process through which decisions on adaptation are made and by whom, with a particular emphasis on the degree to which local residents are included in the process.
3. *Interactional*: how individuals are treated by government over time. This includes:
   (i) *Interpersonal*: the extent to which residents feel they are treated with dignity and respect in their interactions with government.
   (ii) *Informational*: the extent to which residents feel that governments have provided them with information about sea-level rise projections, the risks sea-level rise poses to their community and the possible adaptation options being considered.
4. *Spatial*: being given access to decision-making forums and not being required to adapt to a greater extent than other communities, especially in other jurisdictions.
5. *Temporal*: the speed of adaptation decision making, which provides timely information to residents, allows them enough time to adapt and occurs close to the impacts of sea-level rise.

There is research that seeks to understand the constraints local governments face in mainstreaming climate change into local government decision making (e.g. Mukheibir and Ziervogel 2007; Measham *et al.* 2011; MacCallum *et al.* 2014; Bradley *et al.* 2015; Pasquini *et al.* 2015). Most of these studies focus on internal constraints, such as local government decision-making processes, resources, leadership, competing priorities and informational constraints, with some recognition of constraints arising from local government interactions with higher levels of government (Measham *et al.* 2011; Pasquini *et al.* 2015). In this body of research, the focus is on the development and implementation of adaptation policies, rather than the array of fairness concerns that local governments are challenged with when engaging with their communities.

The aim of this chapter is therefore to explain the way justice is being considered by two local governments tasked with the responsibility of facilitating adaptation to sea-level rise in Australia. It builds on the work of Graham *et al.* (2015), who examined five types of justice (Box 7.1) from the perspectives of five coastal communities within these two jurisdictions. This chapter examines the way each of these five types of justice is being considered in the work of the two local governments.

## Two local coastal councils in eastern Victoria

East Gippsland Shire Council (land area 2.1 million ha; population 43 413) and Wellington Shire Council (land area 1.1 million ha; population 42 319) are the second and third largest councils, by land area, in Victoria. They have similar sized populations and their largest towns, Bairnsdale and Sale, respectively, are located in non-coastal areas. The coastal

settlements in both councils are destinations for tourists, and for migrants from metropolitan areas seeking a 'sea change' (McKenzie and Frieden 2010).

Together, the East Gippsland Shire Council (EGSC) and Wellington Shire Council (WSC) span the length of the East Gippsland coast, which has been identified as being one of the most vulnerable to sea-level rise in Australia (DCC 2009). At present, many of the coastal settlements, such as Manns Beach, McLoughlins Beach, Port Albert and Lakes Entrance, experience coastal flooding when there is a confluence of king tides and catchment flooding. The frequency and duration of such flood events are predicted to increase under climate change and associated sea-level rise (GCB 2008), providing an impetus for the two councils to develop adaptation plans.

There are two state government planning decisions that provide a policy imperative for the two local governments to implement sea-level rise adaptation plans. First, the 2008 Victorian Coastal Strategy required authorities to plan for no less than 80 cm of sea-level rise by 2100 (for a detailed explanation of the Victorian coastal planning process see Macintosh (2013) and Hurlimann *et al.* (2014)). This requirement has been maintained in the more recent 2014 Victorian Coastal Strategy. Second, both councils have been at the forefront of controversial planning decisions in the state of Victoria. Specifically, the Victorian Civil and Administrative Tribunal (VCAT) did not grant permits for particular developments in East Gippsland (*Taip v East Gippsland SC [2010] VCAT 1222 (28 July 2010)*) or Wellington (*Ronchi v Wellington Shire Council [2009] VCAT 1206 (16 July 2009)*) based on the sites' vulnerability to sea-level rise and coastal flooding. In the Lakes Entrance case, VCAT raised concerns regarding whether the development constituted '*intergenerational equity*, sustainability, *fair* and socially responsible development' (italics added). These decisions have applied pressure on both councils to plan for sea-level rise to a degree not seen in other parts of Victoria or Australia.

## Exploring local government perspectives on fair adaptation to sea-level rise

In September 2010, both councils became involved in an ARC Linkage project with the University of Melbourne, seeking to develop an approach for achieving equitable local outcomes for adaptation to sea-level rise. Other project partners were the Gippsland Coastal Board and the Department of Sustainability and Environment (now the Department of Environment, Land, Water and Planning) and the Department of Planning and Community Development (now the Department of Economic Development, Jobs, Transport and Resources). The project ended in June 2014.

As part of the project, seven members of staff across both councils participated in:

- six steering committee meetings
- five formal and two informal semi-structured interviews that asked them about their experiences planning for adaptation to sea-level rise and their views on vulnerable groups within their communities
- a day-long adaptation options workshop that sought to understand potential future adaptation strategies for the two councils (a detailed explanation of the full suite of methods used is provided in Barnett *et al.* 2014).

The formal interviews (EGSC1, EGSC2, WSC1, WSC2, WSC3) and workshop (EGSC3, WSC4) were audio recorded and transcribed. Thematic analysis was used to explore how the concepts of distributive, procedural, interactional, spatial and temporal fairness emerged in the councils' sea-level rise adaptation deliberations.

The project also provided opportunities for the researchers to attend and participate in internal local government forums, which enabled observation of adaptation planning in action. Meetings attended by the authors included the Lakes Entrance Inundation Steering Committee (December 2010), Regional Councils Victoria Annual Summit (May 2013), Municipal Association of Victoria's Coastal Adaptation Forum (November 2013) and a meeting of the Board of the East Gippsland Catchment Management Authority and the Mayor and Councillors of East Gippsland Shire Council (April 2014).

The results presented in this chapter are primarily based on the formal interviews and adaptation options workshop, but also take into account the additional information obtained from the working relationships established with these two councils throughout the duration of the project. The ARC project focused on sea-level rise adaptation in one coastal community in EGSC – Lakes Entrance – and four small communities in WSC – Seaspray, Port Albert, Manns Beach and McLoughlins Beach. Therefore much of the discussion with the local governments focused on these communities.

## Six dimensions of fairness in sea-level rise adaptation in Gippsland East

Local government staff were most concerned about the fair distribution of outcomes and sharing of information in planning for sea-level rise. Staff were not only concerned about achieving distributive and informational fairness for communities, they also expected the state government to treat their local councils fairly. Procedural and interpersonal concerns were also raised, and these reflected broader concerns about community engagement. Some limited concerns about achieving fairness across space and time were also raised. It is important to note that the informational and interpersonal dimensions of fairness were sufficiently different that, in this analysis, they are treated as two separate dimensions of fairness, rather than as two subsets of interactional fairness, as they have previously been treated in the literature (Usmani and Jamal 2013; Graham *et al.* 2015). In drawing this distinction, we recognise that there is considerable overlap across the six dimensions of fairness, reflecting the fluidity of fairness concerns in adaptation decision-making practice.

### Distributive fairness

Protecting land values and property prices was a key distributive concern for both councils; they saw it as their responsibility to protect residents' 'investment into their little piece of Australia' (WSC1). Thus councils were keen to ensure that their climate adaptation plans had minimal impacts on the value of properties within their jurisdictions.

Although staff were genuinely concerned about the impacts of changes in property prices for their residents, they also discussed the impacts of adaptation planning for their own organisations' incomes. Thus distributive fairness concerns were directed both within and beyond the council:

> [Places] affected by coastal inundation … if we were to treat them all the same and say righto by 2015 you have to be off the coast, potentially a lot of those people might relocate outside the Wellington Shire … to lose 10, 15, 20% of those people through relocation, significantly reduces our bottom line. (WSC1)

Staff from both local governments were keen to explain that, although they do their best to protect property prices in adaptation planning, some key planning and policy decisions are made at the state level and thus are beyond their control:

*If you had a house on the Esplanade… with a stroke of the pen they've [VCAT] virtually made it worthless or at least de-valued it considerably. Depending how we go with the work on the committees … will determine the value again. (EGSC1)*

*[T]his State planning policy that says you've got to plan for sea-level rise trumps it all as being the be-all and end-all things is going to influence the outcomes for your town. (EGSC3)*

Beyond property, staff were concerned about 'people's day-to-day lives' (WSC1) and how they could enable fair outcomes for 'people's jobs, creating the liveability and wealth factors that lead to the life people lead' (WSC2), recognising that there is considerable heterogeneity in residents' values:

*Deciding where and what we're protecting and keeping people adapting is going to be one of the hardest set of decisions… it's about the sense of community probably more than the built environment… how do you maintain that sense of community? (EGSC3)*

*Up until now we've been worrying about the buildings and the infrastructure… I just think the people component and looking at the impact on people and trying to get an equitable outcome is part of what we've got to aim to do… this whole social science aspect to the whole adaptation process is really important in terms of understanding the people involved and [that] they respond differently to different things. (EGSC2)*

The long timeframes associated with adaptation planning makes achieving distributive fairness challenging because of the uncertainty about the speed at which environmental changes will unfold and what the nature of impacts will be. To achieve fairness in the face of such uncertainty, the local governments suggested scoping what community wants, rather than simply being dedicated to the principle of distributive fairness:

*The concept of tolerance to more frequent events needs to be tested … if we don't know exactly what it means, what do the community think they can live with? (EGSC3)*

*[W]hat is the preferred outcome of this? What do we want people to be doing? Or what do we want to be happening in our communities in the various futures? And work backwards from there to a point where we can actually put – and what we do may be completely different to what the policy response might have been. (WSC4)*

In these last two quotes, distributive fairness blurs into concerns about procedural fairness.

## Informational fairness

Staff of both local governments placed importance on having the best available information on which to make adaptation decisions that are distributively fair:

*If people are going to be pointing the finger at us about getting it right then I think we need to be sure … that we've got it right, that we're making good decisions … there's some detailed information gaps that would be filled over time but at the moment we just need to demonstrate that we've used the best information that we've got … we've just got to make the best decisions that we can now using the information that we can and document what it is that we're doing. (EGSC2)*

Although staff aspired to use the best available information to inform their decisions, they had two key concerns about accessing and using such information. First, staff of both local governments spent considerable time talking about the sensitivity of information regarding climate change. Their primary concern was about providing information to communities in a timely fashion without causing unnecessary concern or unintended or unfair outcomes, such as increased insurance premiums, decreased property prices or increased home renovation costs:

> [W]e have to be very careful and conscious about when this information's released, how else it will be used? … So it's not just good information for future planning, it has an impact now … we're actually trying to deal with the impact of this [climate change] information in our communities right now. (EGSC2)

> Right now we are hamstrung in terms of what we can tell someone. An instruction or advice or assistance we can give people who want to develop, who want to do the things that realise their dreams and aspirations. (WSC2)

Second, staff expressed frustration in gaining access to information about the potential impacts of climate change that is available to the state government:

> There is one level of government that is working with a particular set of information and a particular set of knowledge that another level of government is not privy to and that level of government is at the front line of the adaptation discussion with the local community and therefore we are kind of having this argument with both our hands tied behind our back and hopping on one leg at the same time … it is an area that is preventing that really clear dialogue and discussion. (WSC2)

It is clear from all of these quotes that staff saw informational fairness as being essential for achieving procedural and interactional fairness; staff see transparency and prompt sharing of information with communities as the foundation for building working relationships with their communities, yet they felt that their ability to do this was constrained by the state government.

## Procedural fairness

One of the biggest challenges both local governments faced in engaging with their communities about sea-level rise came from the divergent views that members of their communities have about the dynamic nature of the coastal environment and whether climate change will cause significant impacts:

> [T]here's a lot of people in a lot of denial around sea-level rise right now. If you scratch any of the communities, Lakes Entrance, Port Albert, there'd be a lot of people saying it's not going to happen … In terms of getting an effective adaptation outcome when you've got a community that actually doesn't believe or doesn't understand the dynamics of the coast environment. (WSC4)

> There's a lot of confusion at community level around climate change and climate change adaptation. (WSC1)

> I think for our purpose it's about making sure that we can retain that stuff for the community, whether they are thinking about it [climate change] or not. (EGSC3)

Denial about climate change within the communities makes it difficult for local governments to engage a broad range of interests in meaningful discussions about the future that, as the above quotes indicate, also has repercussions for distributive fairness.

## Interactional fairness

Staff were keenly aware that their ability to engage with communities about a sensitive issue such as sea-level rise was hampered by the awkward relationship that exists between local governments and their communities, because staff live and work in these communities:

> It's almost a sport to target local government as ineffective and slow … There is that level of cynicism and almost resentment about having to not only pay a certain amount of money to this local agency, that is then charged to tell you what you can and can't do … it muddies the water when you come to putting in place some sensible contingencies to assist people to make choices around where and how they will develop their land, build their house … because we are such a close level of government to the people, it's that thing about well you're not the boss of me … you're just my next door neighbour or the people down the street, who are you to tell me what I can and can't do? (WSC2)

> [T]he community is pre-disposed to have some degree of contempt for local government. (WSC4)

These challenges to the local governments' authority make it difficult to establish trust and respect as well as achieve widespread participation and representativeness.

## Temporal fairness

To some extent, concerns about temporal fairness were closely associated with concerns about informational and interactional fairness. Staff were keenly aware that information needs to be provided in a timely manner and that the community often perceives the local government to take too long to make decisions, which compromises the amount of trust and authority that the community invests in them. However, staff were also aware that if they proceed too quickly then meaningful community engagement would be compromised, and there may be greater resistance to proposed changes:

> If you've got the time to transition that's fine but if the impact of decision-making is that the impact is now then it becomes a much harder sort of exercise because we are going to try and rush to fill the gap now … you need time to bring the community along, to actually understand the impacts … I'm a bit worried at the moment that we're really going to rush that because everybody's anxious to get the answer. (EGSC2)

The other dimension of temporal fairness raised by staff pertained to the achievement of fair outcomes in a changing physical and social environment: outcomes that are considered fair today may not be considered fair in the future as the environment and community values change. For staff, this meant that adaptation plans not only need to be informed by current shared values, but that adaptation plans need to be revisited over time to ensure that they continue to deliver fair outcomes:

*It is an environment that is in transition … we proceed on that basis that it is a transitioning environment, and accept it for what it is … People's values change … and the State Government put a lot of money into coming up with a solution. They've come up with a solution, they've come up with an approach that is far more effective [and] they're still in the bad books. (WSC2)*

Overall, concerns about time relate to both procedural and distributive fairness.

## Spatial fairness

Some concerns about spatial fairness were identified in local government staff accounts of adapting to sea-level rise. Staff were keenly aware of the diverse needs of their residents, both within and across their jurisdictions. Thus sea-level adaptation planning cannot be a one-size-fits-all policy. It requires catering to the specific needs of communities:

*It'll be hard to get policy that suits lots of areas, unless it's well thought out and fluid enough to be delivered at a local level. (WSC1)*

Staff were also concerned about their ability to deliver adaptation solutions that do not exacerbate existing vulnerabilities or that are vastly different to adaptation solutions that are implemented in other parts of the state:

*Given the lower, poorer access to community infrastructure in the rural areas it will continue to be a challenge to the state and federal governments, how they can deliver equitable solutions that will not be seen as an abuse of the coastal community … because they're [local communities] going to suffer financial loss if, when they try to sell their block, they can't get the price they want … the city [coastal] councils there [in Melbourne] would have a little bit more money to develop asset solutions but we don't have the same level of privilege … if the Federal government expects us to provide the same level of protection or even to deliver equitable solutions they need to understand that we need help … there is a difference between different regions and if government is continuing to do anything else they need to address that disparity. (WSC3)*

Developing adaptation plans that are locally relevant and do not disadvantage regional coastal communities requires time and genuine community engagement, as well as support from higher levels of government; thus spatial fairness is intimately intertwined with the other dimensions of fairness.

## Fairness is in the eye of the beholder: comparing interpretations of fairness from above and below

The emphasis staff placed on informational, temporal and spatial dimensions of fairness in adaptation planning is largely consistent with concerns expressed by their local communities (reported in Graham *et al.* 2015). In the discussion that follows, consideration is given to the extent to which local government staff perspectives of fairness were consistent with community expectations and existing conceptualisations in the justice literatures. From this, we highlight how the informational, temporal and procedural dimensions of fairness require further deliberation by local governments to ensure they meet community expectations.

Local communities' articulated concerns about distributive fairness were largely focused on costs and compensation; they were concerned that adaptation policies were placing an unfair burden on local residents through increased construction costs and reduced expenditure on maintaining key infrastructure (Graham *et al.* 2015). While both local governments were concerned about the economic impacts of sea-level rise and adaptation on their communities, they were also concerned with non-material social impacts. To this end they were keen to understand the range of lived values – valuations that individuals make about what is important in their lives and the places in which they live (Graham *et al.* 2013) – of their residents, how these differ within and across communities, and how these values can be accommodated by adaptation policies. This reflects recent turns in climate justice more broadly that focus on how climate change makes human lives more vulnerable (Schlosberg 2012) and affects the social cohesion and functioning of communities (Schlosberg 2013). Such concern with non-material values is rarely mentioned in research on local governments' adaptation planning processes. Instead, local governments are often characterised as prioritising rates, roads and rubbish (Measham *et al.* 2011). This suggests the need for future research to broaden what is considered within the realm of local governments' climate adaptation planning and to go beyond material concerns regarding changes to property and infrastructure.

Differences between local community and local government perspectives on informational fairness were the most striking. For communities, informational fairness was about receiving information about adaptation planning while it was underway – they wanted to be told what is happening and how decisions are changing, rather than finding out about decisions once they have been made (Graham *et al.* 2015). Thus, for residents, informational fairness was closely associated with procedural fairness concerns. However, both local governments were reluctant to include communities in their adaptation planning deliberations. Such reluctance to create a dialogue with communities about climate change planning is evident elsewhere in Australia (MacCallum *et al.* 2014) and abroad (Marino and Ribot 2012). Clearly, this is a key area where local governments could achieve greater informational fairness in the eyes of the community.

Both local governments were concerned with informational fairness but their focus was on demonstrating that their decisions were made on the best available information and that care was taken in sharing information pertaining to climate predictions. While local communities were concerned about the stigma attached to their communities as a result of climate predictions, this informational concern was not attributed to local governments, but to the media (Fincher *et al.* 2015). Considerable attention has been given to understanding the challenges local governments face in accessing local-level information on the vulnerability of their municipalities to climate images (Measham *et al.* 2011) and how they can source such information through modelling and hazard mapping (Mukheibir and Ziervogel 2007). Given that this does not align with the informational fairness concerns of local communities, future research may benefit from not only considering informational limitations facing local governments, but also informational fairness challenges.

With regard to procedural fairness, local communities were concerned about how adaptation decisions were being made and by whom. They believed that they should be given the opportunity to participate and have their local knowledge incorporated into climate decisions (Graham *et al.* 2015). Despite this expressed willingness on the part of residents to participate, councils indicated that they found it challenging to talk to communities about adaptation because a large proportion of the community does not believe climate change is happening. Our own research indicated that many local residents

questioned the validity of sea-level rise predictions (Barnett *et al*. 2014a). To overcome this barrier to engagement, we have proposed elsewhere (see Barnett *et al*. 2014b) that a staged approach to adaptation is required, where temporary plans are put in place until such time as a social trigger occurs in which communities can see that changes need to be made and will agree to initiating the next plan and continuing to prepare for the future.

Local governments and their communities agreed that more could be done to achieve a working relationship between them. Local government perceptions of the lack of respect that their communities hold for them was confirmed by local residents' accounts of their councils. Local residents believed that they were treated with 'contempt' by local government and that an 'authentic' relationship was lacking (Graham *et al*. 2015). Although local governments explained that this unworkable relationship existed because they were too institutionally close to the residents, the residents believed that local governments created too much distance between them; despite living in the region, staff do not really understand the nuances between the different communities and what they need. This community perspective fits with broader concerns in the climate justice literature regarding the lack of recognition of a link between environmental conditions and everyday life (Schlosberg 2013). Local governments need to find a way of demonstrating that communities are being heard, not ignored, are recognised (Schlosberg 2012), and are treated with dignity and respect (Chapter 3).

Perceptions of temporal fairness differed significantly between communities and their local governments. Communities were focused on making sure the timing of decisions reflects the rate of environmental change, so that they are not forced to bear the burden of adapting to future climate change impacts now (Graham *et al*. 2015) that is, they were concerned about intergenerational equity. Staff, on the other hand, were concerned about the pace of decision making to ensure that they maintained legitimacy with their communities and so that communities would appreciate the reason why decisions were being made – that is, that they made proportional decisions and did not overreact (Driessen and van Rijswick 2011). Local governments were also concerned about changing community values and the effect this would have on long-term planning. Communities, on the other hand, tended to emphasise how little things changed over time where they lived (Fincher *et al*. 2014). Communities' desire for stability and reluctance to acknowledge the need to begin adapting to sea-level rise now poses a significant challenge to local governments who wish to be seen to be making decisions that are temporally fair in the eyes of their communities. However, we believe the staged approach to adaptation (Barnett *et al*. 2014b) will not only be beneficial for achieving procedural fairness, but temporal fairness as well.

The scale of spatial fairness concerns differed slightly for communities and local governments. Although communities were primarily concerned with not being treated differently from communities beyond their region, such as Melbourne (Graham *et al*. 2015), local governments were also concerned about fairness within their jurisdictions, recognising that what may work for one place may be maladaptive for another, which is consistent with concerns raised in the broader adaptation literature (e.g. Barnett and O'Neill 2010). To some extent, local communities perceived that the local governments treated them similarly to other coastal towns within each municipality, which they perceived to be fair. Thus if local governments implement appreciably different adaptation policies across their jurisdictions they will need to carefully justify how they are enabling each place to meet the values of each community – that just adaptation is achieved by being context specific (Brisley *et al*. 2012).

Local communities expressed concerns about being excluded from decision-making spaces. Although this could be considered to be a spatial fairness issue, it is also closely related to procedural, interpersonal and informational fairness. In the climate justice literature, consideration is given to the negative consequences of non-recognition (Schlosberg 2012) that arises from being excluded from decision making (Schlosberg 2013). Thomas and Twyman (2005) discuss the need for 'head room' – that is, the right kind of space to enable fair adaptation – if communities are involved in decision-making spaces then they are more likely to have the information required to make autonomous decisions (Brisley *et al.* 2012). Thus, local governments need to consider the ways in which communities are provided opportunities to genuinely engage in the development and implementation of adaptation plans, so that they not only perceive the process to be fair but can also create fair outcomes for themselves.

## Conclusion

Local government staff perspectives on what constitutes fairness in adaptation planning were largely consistent with what is expected of them from their communities when it comes to developing working relationships (interpersonal fairness) to deliver fair outcomes (distributive fairness) across their jurisdictions (spatial fairness). Yet, despite considerable agreement about these three of the dimensions of fairness, our analysis points to some mismatch between the theory and practice of informational, temporal and procedural fairness in adaptation planning. In Gippsland East, the communities attached greater significance to the prompt sharing of information than their local governments. This not only had ramifications for informational fairness but also procedural and temporal fairness. Clearly such misalignment needs to be rectified if adaptation to sea-level rise is to be accepted, or at best embraced, by local communities.

Of the six dimensions of fairness considered here, informational fairness is rarely considered in the climate, or even environmental, justice literature, yet it was of key importance to the two councils studied here. Given the extent of climate change denial in regional Australia, and the significant impacts that climate predictions and adaptation policy can have for current generations, we argue that informational fairness merits further consideration and theorisation.

## Acknowledgements

## References

Adger WN, Nelson DR (2010) Fair decision making in a new climate of risk. In *Climate Change, Ethics and Human Security*. (Eds KL O'Brien, AL St. Clair and B Kristoffersen) pp. 83–94. Cambridge University Press, Cambridge, UK.

Barnett J (2009) Justice and adaptation to climate change. In *Climate Change and Social Justice*. (Ed J Moss) pp. 131–143. Melbourne University Press, Melbourne.

Barnett J, O'Neill S (2010) Maladaptation. *Global Environmental Change* **20**, 211–213. doi:10.1016/j.gloenvcha.2009.11.004

Barnett J, Graham S, Mortreux C, Fincher R, Waters E, Hurlimann A (2014a) A local coastal adaptation pathway. *Nature Climate Change* **4**, 1103–1108. doi:10.1038/nclimate2383

Barnett J, Fincher R, Hurlimann A, Graham S, Mortreux C (2014b) 'Equitable local outcomes in adaptation to sea-level rise: final project report'. The University of Melbourne, Melbourne.

Bradley M, van Putten I, Sheaves M (2015) The pace and progress of adaptation: marine climate change preparedness in Australia's coastal communities. *Marine Policy* **53**, 13–20. doi:10.1016/j.marpol.2014.11.004

Brisley R, Welstead J, Hindle R, Paavola J (2012) *Socially Just Adaptation to Climate Change*. Joseph Roundtree Foundation, York, UK.

DCC (2009) *Climate Change Risks to Australia's Coast*. Department of Climate Change, Canberra.

Dow K, Kasperson RE, Bohn M (2006) Exploring the social justice implications of adaptation and vulnerability. In *Fairness in Adaptation to Climate Change*. (Eds WN Adger, J Paavola, S Huq and MJ Mace) pp. 79–96. The MIT Press, Cambridge MA, USA.

Driessen PP, van Rijswick HF (2011) Normative aspects of climate adaptation policies. *Climate Law* **2**, 559–581.

Fincher R, Barnett J, Graham S, Hurlimann A (2014) Time stories: making sense of futures in anticipation of sea-level rise. *Geoforum* **56**, 201–210. doi:10.1016/j.geoforum.2014.07.010

Fincher R, Barnett J, Graham S (2015) Temporalities in adaptation to sea-level rise. *Annals of the Association of American Geographers* **105**, 263–273. doi:10.1080/00045608.2014.988101

Fritze J, Wiseman J (2009) Climate justice: key debates, goals and strategies. In *Climate Change and Social Justice*. (Ed J Moss) pp. 187–211. Melbourne University Press, Melbourne.

GCB (2008) 'Climate change, sea level rise and coastal subsidence along the Gippsland Coast: implications for geomorphological features'. Gippsland Coastal Board, Bairnsdale.

Graham S, Barnett J, Fincher R, Hurlimann A, Mortreux C, Waters E (2013) The social values at risk from sea-level rise. *Environmental Impact Assessment Review* **41**, 45–52. doi:10.1016/j.eiar.2013.02.002

Graham S, Barnett J, Fincher R, Mortreux C, Hurlimann A (2015) Towards fair local outcomes in adaptation to sea-level rise. *Climatic Change* **130**, 411–424. doi:10.1007/s10584-014-1171-7

Grasso M (2007) A normative ethical framework in climate change. *Climatic Change* **81**, 223–246. doi:10.1007/s10584-006-9158-7

Huq S, Khan MR (2006) Equity in national adaptation programs of action (NAPAs): the case of Bangladesh. In *Fairness in Adaptation to Climate Change*. (Eds WN Adger, J Paavola, S Huq and MJ Mace) pp. 181–200. The MIT Press, Cambridge MA, USA.

Hurlimann A, Barnett J, Fincher R, Osbaldiston N, Mortreux C, Graham S (2014) Urban planning and sustainable adaptation to sea level rise. *Landscape and Urban Planning* **126**, 84–93. doi:10.1016/j.landurbplan.2013.12.013

MacCallum D, Byrne J, Steele W (2014) Whither justice? An analysis of local climate change responses from South East Queensland, Australia. *Environment and Planning. C, Government & Policy* **32**, 70–92. doi:10.1068/c11295

Macintosh A (2013) Coastal climate hazards and urban planning: how planning responses can lead to maladaptation. *Mitigation and Adaptation Strategies for Global Change* **18**, 1035–1055. doi:10.1007/s11027-012-9406-2

Marino E, Ribot J (2012) Special issue introduction: adding insult to injury: climate change and the inequities of climate intervention. *Global Environmental Change* **22**, 323–328. doi:10.1016/j.gloenvcha.2012.03.001

McKenzie F, Frieden J (2010) *Regional Victoria: Trends and Prospects*. Department of Planning and Community Development, Melbourne.

Measham TG, Preston BL, Smith TF, Brooke C, Gorddard R, Withycombe G, *et al.* (2011) Adapting to climate change through local municipal planning: barriers and challenges. *Mitigation and Adaptation Strategies for Global Change* **16**, 889–909. doi:10.1007/s11027-011-9301-2

Mukheibir P, Ziervogel G (2007) Developing a municipal adaptation plan (MAP) for climate change: the city of Cape Town. *Environment and Urbanization* **19**, 143–158. doi:10.1177/0956247807076912

Paavola J, Adger N (2006) Fair adaptation to climate change. *Ecological Economics* **56**, 594–609. doi:10.1016/j.ecolecon.2005.03.015

Pasquini L, Ziervogel G, Cowling RM, Shearing C (2015) What enables local governments to mainstream climate change adaptation? Lessons learned from two municipal case studies in the Western Cape, South Africa. *Climate and Development* **7**, 60–70. doi:10.1080/17565529.2014.886994

Schlosberg D (2012) Climate justice and capabilities: a framework for adaptation policy. *Ethics & International Affairs* **26**, 445–461. doi:10.1017/S0892679412000615

Schlosberg D (2013) Theorising environmental justice: the expanding sphere of a discourse. *Environmental Politics* **22**, 37–55. doi:10.1080/09644016.2013.755387

Thomas DSG, Twyman C (2005) Equity and justice in climate change adaptation amongst natural-resource-dependent societies. *Global Environmental Change* **15**, 115–124. doi:10.1016/j.gloenvcha.2004.10.001

Usmani S, Jamal S (2013) Impact of distributive justice, procedural justice, interactional justice, temporal justice, spatial justice on job satisfaction of banking employees. *Review of Integrative Business and Economics Research* **2**, 351–383.