

FRAMING ADAPTATION

This report summarises University of St Andrews BSc dissertation research findings and is published by The Glacier Trust with permission from the School of Geography and Sustainable Development at the University of St Andrews.

The Glacier Trust is charity registered in England and Wales (no. 1124955). We enable climate change adaptation in Nepal. We do this through community led projects run in partnership with local NGOs and through our Higher Education programme that helps develop the next generation of climate change adaptation professionals in the UK and Nepal.

REPORT AUTHOR

Carys Richards (University of St Andrews)

For more information on the work of The Glacier Trust in Nepal, please visit our website: www.theglaciertrust.org

FOREWORD

Dr Antje Brown (University of St Andrews)

This much-need study captures a, to date, under-researched topic: the framing of climate change adaptation. As we continue to grapple with climate change, engaging with the notion and practicalities of adaptation is more important than ever. So far, adaptation has had a bad, somewhat defeatist, reputation. However, we are now coming to realise that adaptation is becoming increasingly vital for humanity as we seek to transform to more sustainable societies.

This analysis is not only timely, it also fills an important niche in that it focuses on the adaptation narrative and framing of it by NGOs in particular. NGOs are indeed the key players in our transformation process and it is therefore essential to research and understand how NGOs approach climate adaptation. The best starting point to do so is to conduct thorough documentary analysis of NGO documents and statements, which is exactly what this study has done.

There are many take-away findings from this study that the reader will find out for themselves. But the most immediate and striking finding is that we need to explore climate adaptation in more detail and in depth; we need to do so with our eyes wide open, with honesty and integrity and with all stakeholders of society in mind.

INTRODUCTION

In February 2019, The Glacier Trust published our first 'We Need To Talk About Adaptation' report. That report analysed 1,579 articles from the blog and news sections of five of the UK's leading environmental organisations. Our intention was to highlight the amount of coverage given to climate change adaptation among the wide variety of environmental and social issues covered.

We found that just 12 of the articles studied (0.75%) were focused specifically on adaptation, with only a further 71 giving a passing mention to either adaptation or the related subject of losses and damage.

The second annual report analysed a period (August 2018 - December 2019) that saw a significant upsurge in the public interest and media attention given to climate change. It was a period in which the language around climate issues was challenged, with terms such as 'breakdown', 'crisis' and 'emergency' increasingly used in place of the less urgent sounding 'change'.

Given this context, it is unsurprising to find that the five organisations we studied had increased the proportion of articles on climate change. In our 2017/18 report, 28% of the articles studied were on climate change specifically, this jumped to 51% in 2018/19; notably though, only 10% of these climate change articles referenced or mentioned adaptation or loss and damages; down from 16% in 2017/18.

Developing our research from quantifying the coverage of adaptation by five of the UK's largest environmental organisations in their media, our latest report has sought to explore the *framing* of adaptation, and how it has contributed to the adaptation *narratives* we see gaining traction. This report, 'Framing Adaptation', analyses the same data collected across the same timeframe (March 2017 - December 2019) of our previous reports, seeking to build a picture of *how* adaptation is framed by environmental organisations.

It is widely accepted that narratives shape understanding and it is important to understand these frames as they will impact on how adaptation is treated in policy and subsequently practiced in the real world.

This report aims to:

- (1) Identify the adaptation narratives that are most commonly perpetuated by UK NGOs in their media.
- (2) Explore the potential implications of these narratives on the understanding of and action taken on adaptation.
- (3) Give an example of a different adaptation narrative, one that can positively shape adaptation policy and action for the future.

METHODOLOGY

Our research looked at the news and blog outputs of five of the UK's largest environmental organisations; four NGOs and one political party.

Included in the study are:

- Friends of the Earth UK
- World Wildlife Fund UK (WWF UK)
- Greenpeace UK
- Royal Society for the Protection of Birds (RSPB)
- The Green Party of England and Wales

We reviewed **2,534** articles in total from two collection periods: (1) 10th March 2017 to 9th August 2018 and (2) 10th August 2018 to 31st December 2019.

Articles were analysed to determine their content and categorised as follows:

- Other environmental, social or economic issues
- Climate change general (no mention of adaptation / losses and damage)
- Climate change (with passing mention of adaptation)
- Climate change (focused on adaptation)
- Climate change (focused on losses and damage)

From 10th March 2017 to 9th August 2018, 1579 articles were collected, with 51 articles mentioning adaptation, but only 12 adaptation focused.

From 10th August 2018 to 31st December 2019, 857 articles were collected, with 42 articles mentioning adaptation, and 7 adaptation focused.

This report only comments on the **19 adaptation focused** articles, and aims to elucidate the adaptation narratives that these articles are contributing to.

HOW IS ADAPTATION FRAMED?

The considerable interest in 'framing' climate change has developed a small division of research into 'framing' of climate change adaptation specifically (Dewulf, 2013; Lakoff, 2010; Lockwood, 2011; Romsdahl et al., 2017). Arguably, the first frame of adaptation originates from biology, with 'adaptation' tied to theories of evolution and natural selection (Schipper and Burton, 2009).

Adaptation has a legacy of being used interchangeably with the concepts of resilience and resistance, particularly when operationally framed in policy (Carr, 2019). It is important to outline the differences between these concepts: resistance as the ability of a system to withstand disturbance without loss of function, and resilience as the ability of a system to cope with a disturbance and return to a particular state (Carr, 2019).

Furthermore, resilience and adaptation need to be clearly distinguished, as resilience is often indiscriminately used as an 'adaptation panacea' (Williams, 2012). Davies' paper argues that the difference between resilience and adaptation is that adaptation is not about coping, it is about *transformation* (1993).

For this report, we first identified three key adaptation narratives from a paper by Dewulf (2013), and supplemented these with another narrative that emerged after conducting an extensive literature review on the framing of adaptation in UK NGO media.

The frames explored are as follows:

- 1. the 'mitigation' frame
- 2. the 'security' frame
- 3. the 'techno-scientific' frame
- 4. the 'ecological' frame

ADAPTATION NARRATIVES & EXAMPLES

(1) MITIGATION V ADAPTATION

A major theme visible throughout adaptation literature is the tension between adaptation and mitigation (Vignola et al., 2009). The IPCC defines mitigation as policies that will reduce greenhouse gas emissions (IPCC, 2007). This is opposed to adaptation which is focused on reducing the vulnerability of systems to climate change (IPCC, 2007). There are some critical tensions here, particularly across a temporal scale; whilst mitigation policy has a clear goal, there is no well-defined end point for adaptation (Ruhl, 2010). Some have felt that adaptation is too accepting that climate change is unavoidable, and seems to suggest that mitigation efforts are cursory or even futile (Schipper and Burton, 2009).

Two articles considered to be using the 'mitigation frame' were produced by the Friends of the Earth in the summer of 2019. An article was published in May 2019, which featured Mike Childs, from Friends of the Earth commenting on the Environment Agency's strategy to tackle flooding (Friends of the Earth, 2019a). He suggested that "smarter adaptation" is important but he asserted that the focus must be on "slashing emissions" (Friends of the Earth, 2019a). The micro-scale analysis of the language choice points to the framing of adaptation being in relation to mitigation. Adaptation is positioned as a competitor to mitigation, which is an example of the legacy that adaptation harbours as a lesser companion to mitigation (Schipper and Burton, 2009).

Friends of the Earth published another article in July 2019 which could also be categorised as having a 'mitigation frame' (Friends of the Earth, 2019b). The central conceit is using reforestation in the UK as a way to adapt to the increasing frequency of heatwaves (Friends of the Earth, 2019b). The mitigation framing is identified by its focus and reiteration on the need for the UK to "cut emissions", and its glossing over of adaptation (Friends of the Earth, 2019b). The meso-scale analysis suggests that perhaps Friends of the Earth are reinforcing the rift between adaptation and mitigation through how they are framing adaptation (Schipper and Burton, 2009).

We have presented only two examples of mitigation framing but this is by no means restricted solely to Friends of the Earth media. It is important to note that we found references of this narrative in all five organisations studied, but these examples were the most illustrative of this frame.

(2) SECURITY

A frame that has resurged in the last few years has been climate change as a security issue (Grove, 2010). Grove outlines that there are two types of security threat that climate change poses: (1) a state security risk, with the potential to undermine interstate relations and increase resource conflicts; (2) a human security risk that does not distinguish between borders (Grove, 2010).

This frame seemed to be the most common frame used by the organisations studied, with six examples found in the literature. The WWF published two articles about the impact on the UK economy if "actions are not undertaken to curb or adapt to environmental changes" in September 2017 (WWF, 2017a; WWF, 2017b). The language choice here of "curb or adapt" could suggest a mitigation frame, however, when understood in terms of the context, these examples were indicative of the security frame of climate change and presented adaptation as a strategy to prevent catastrophic damage to the UK economy (WWF, 2017a). The content of these articles is focused on addressing the risk of climate change and the threat that it poses to economic security, perhaps revealing that in the UK, the security framing of climate change, is permeating through to the meta-framing of climate adaptation (Dewulf, 2013).

Another article published by the WWF in 2017 titled "Africa's Watershed Moment" made brief reference to the "looming climate adaptation challenges" that face Africa, in the context of the continent's water management (WWF, 2017c). The report focused on the critical investment that Africa needs to make into its freshwater infrastructure, and was framed as an urgent situation, highlighted by the fact that Africa is poised at this "watershed" (WWF, 2017c). Using micro-scale analysis, the language choice of "looming" is suggestive of a security frame, framing adaptation in the context of an impending disaster (Dewulf, 2013).

(3) TECHNO-SCIENTIFIC

A common narrative is that adaptation is a techno-scientific strategy to reduce the impact of climate change (Rothman et al., 2013). Klein et al. argue that the dominance of the scientific framing of climate change means that the scope of climate adaptation has been too constricted, with technological strategies considered the optimal choice (2007). Adaptation has been seen as a way to retrofit existing development projects, with the focus on rather static, technological solutions such as irrigation schemes in drought-prone regions, or hard engineering structures like sea walls, in areas prone to coastal flooding (O'Brien et al., 2007).

Whilst UK NGO media had a strong focus on flooding in the UK covering often controversial technological interventions like dredging, we found very few mentions of adaptation in relation to this, and therefore limited indications of a techno-scientific framing. This is in contrast to a recent paper by Harcourt et al., which looks more generally at adaptation narratives in UK newspapers (2020). Their study found numerous examples of the techno-scientific framing of adaptation with articles referring frequently to the need for built flood defences to cope with issues like flooding, or developing of new drought-tolerant seed varieties to cope with changing environmental conditions (Harcourt et al., 2020). This suggests that perhaps in contrast to UK newspapers, UK NGOs are not essentialising adaptation as a technological fix, but instead are more focused on adaptation as a strategy to enhance human security.

(4) ECOLOGICAL

Rather than centring humans in adaptation, this narrative focuses on ecosystems that are autonomously adapting to our changing climate. Harcourt et al., report this narrative in their recent paper, where they suggest that nature is cast as the 'active agent' in adaptation, for example with some species adapting to warmer temperatures by changing their habitat location (2020: 10). The paper goes further and shows that in adapting to climate change, nature is presented as having 'winners and losers' in the UK media, with humans cast in a passive role reporting on these events (Harcourt et al., 2020: 10).

There were notable examples of 'ecological framing' of adaptation in our own research. In July 2018, Olly Watts published a post through the RSPB blog covering how Sanderlings are struggling to survive because of climate change (Watts, 2018). Watts asserted that research is needed to understand how ecological mechanisms are impacted by climate change, and that it is only then we can develop "adaptation responses and conservation measures that can address the problem" (2018). These articles illustrate that adaptation is not just a concept limited to humanity (Stein et al., 2013). This framing is reminiscent of the original identity of adaptation which was as a biological concept (Stein et al., 2013). These articles suggest that adaptation is not exclusively an anthropocentric concept but there is an ecological dimension to its framing, an idea perhaps overlooked by human-focused adaptation literature.

IMPLICATIONS OF THE NARRATIVES

(1) MITIGATION V ADAPTATION

The framing of adaptation, in the best case as the lesser companion to mitigation, and in the worst case, undermining it, has meant that it struggled to be adopted into mainstream climate policy, and now that it has, it harbours a legacy of doubt. Arguably, this frame is the hegemonic framing of adaptation, at least at a conceptual level, and adaptation's association with mitigation, seems to be its biggest hurdle to overcome (Bosomworth, 2015). This positioning of adaptation as of inferior importance to mitigation reinforces its smaller space on the political agenda, particularly in the UK context, and does a disservice to those actively campaigning for adaptation action. This is not the sole example we found whilst researching what our environmental organisations are talking about in their media, highlighting that this is a pervading issue in the sector that would be valuable to address.

(2) SECURITY

Despite the thin coverage of adaptation in the media of five of the largest environmental organisations in the UK, the macro-scale analysis suggests that organisations are largely framing climate change as a threat to security, and asserting the urgency of adaptation measures to help enhance human security.

Framing climate change as a threat to security heightens its political priority to the state, as it is seen through a lens of fear, and this frame also has a lasting impact on how adaptation is perceived, as a tool for the state to regain 'control' over climate change (Dewulf, 2013). Spence and Pidgeon refer to this as "fear framing", which provokes a much stronger emotional response, particularly from the public who may not be exposed to alternative frames of climate change (2010: 659). As controversial as it appears, fear framing may be useful as it motivates behaviour change and cultivates a sense of urgency, which is needed after years of inaction within climate policy (Hulme, 2008; Risbey, 2008, Spence and Pidgeon, 2010).

Whilst adopting this security frame intensifies the attention given to climate change and adaptation in politics, it could lend itself as an excuse for states to withdraw and adopt a more insular, nationalist politics, which undermines the importance of climate change adaptation as a collective response (Dalby, 2013). This framing is indicative of the wider rift in politics between globalism and nationalism with climate change often confronted at a disjointed national level, in spite of its transboundary impacts (Grove, 2010).

Despite this, O'Brien argues that by framing adaptation within planes that international politics tends to operate along, as a way to enhance security, that it will reframe adaptation, so that it is no longer seen as the 'soft' or 'weak' alternative to mitigation (2010). The literature suggests that the securitisation framing of the climate change discourse has begun to leave its mark on the adaptation discourse, with adaptation increasingly understood in relation to its impact on national security (Kahn, 2016; Ford and King, 2015; Grove, 2010).

(3) TECHNO-SCIENTIFIC

These techno-scientific adaptation strategies likely decrease the vulnerability of systems to climate change, but in some cases these strategies may be problematic (Brooks, 2003). Technological adaptation is one of many pathways, and it might be that these solutions increase inequality between individuals and communities, if the socio-political dimension is overlooked in favour of what is considered scientific (O'Brien et al., 2007). The dangers of this is that the techno-scientific frame bridges over the essential nuances that need to be considered in order for a successful response to climate change (Dalby, 2013; Rothman et al., 2013). In concurrence with what the Harcourt et al. paper suggests, focusing on the 'hard' technological interventions can restrict the scope of adaptation, lending itself to accidental maladaptation of society, rather than transformation (2020).

(4) ECOLOGICAL

This frame is unique in that it highlights that adaptation is not just a human process, it is an autonomous process that has been happening for millions of years across the natural world. Ecosystems are facing unprecedented pressures from the changing climate, but many species are adapting; changing habitats and behaviours. This does not make better the sixth mass extinction that our environmental abuse and exploitation has triggered, but provides some necessary decentring of humanity from climate change, and climate change adaptation. It is positive to see that our UK environmental organisations are witnessing adaptation happening in our ecosystems, and reminding us that adaptation is occurring independent of our governance. However, it is important to note that environmental organisations often use examples of animals adapting as proof of climate change, so this ecological framing is not explicitly advocating for climate adaptation, but instead serves to strengthen the case for mitigation.

A NEW ADAPTATION NARRATIVE?

The future of adaptation, vital for humanity to *transform*, not just cope with our changing environment is dependent on action, which is ultimately shaped by our understanding. This understanding is constantly evolving, influenced heavily by the media we consume; what we hear and what we see. Therefore, it is imperative that we take care when communicating on adaptation, we must choose our framings carefully in order for informed adaptation decisions to be made by governments, businesses, institutions, communities and individuals.

We argue for adaptation narratives, that not only show adaptation as a priority, but that showcase adaptation through a 'multidimensional frame', incorporating the frames addressed above and more.

MULTIDIMENSIONAL FRAMING

Friends of the Earth published an article in November 2017, announcing their organisational position on adaptation; this was the most direct reference made to adaptation in our research. The article constructed adaptation from more than just one frame, reinforcing adaptation as a multi-dimensional concept. The article partially framed adaptation from a techno-scientific angle, for example through a section subtitled "facts about climate change adaptation", which included commentary on their proposed government expenditure on flood defences (Friends of the Earth, 2017).

The article bridges the gap between the *techno-scientific* framing of adaptation with the more marginal *socio-political* framing of adaptation, where it discusses *"how climate change affects people"* (Friends of the Earth, 2017). The socio-political framing of adaptation directs attention towards the dimensions of justice, equity and power relations. Friends of the Earth highlight that *'the poorest will suffer most'* from climate change, suggesting adaptation is a strategy which can be used to level the playing field (Friends of the Earth, 2017). Furthermore, they call for the involvement of more women in climate change adaptation planning which is critical if adaptation is going to be incorporated effectively into environmental governance (Friends of the Earth, 2017).

Additional frames that this article alludes to include the *mitigation* frame, albeit only a brief mention; the article states the adaptation is not about letting climate change "spiral out of control", and that "mitigation is crucial" (Friends of the Earth, 2017). What is critical here, and different from other articles studied, is that mitigation is only mentioned in passing, and whilst the article acknowledges that both strategies require each other, adaptation is not overshadowed, which lends itself to reshaping the adaptation narrative.

Dewulf (2013) argues that communicators on adaptation should take care not to overuse one particular frame. He suggests that the friction created by using multiple frames creates opportunities for innovative adaptive strategies to be adopted, and for a deeper understanding of policy issues to be developed.

CONCLUSIONS

This report has sought to shed light on the framing of adaptation, particularly its meta framing in the UK context and how this narrative is contributed to by environmental organisations. 'Frames', 'narratives' and 'discourses' are powerful because they are easily normalised and often left unchallenged. When frames are confronted, this creates friction and reflection, allowing for the development of alternative constructions of social reality that can shape how we think and act.

This research began with an understanding from previous investigations that UK environmental organisations are not talking enough about adaptation. Despite this deficiency, this report shows that when they do talk about adaptation, these organisations are most often framing it as a security issue.

It is reassuring to see that the lingering discourse of adaptation as pitted against mitigation is not as dominant as it has been in the framing of adaptation by these organisations. UK environmental organisations, notably the WWF, RSPB and Greenpeace, have suggested that adaptation is more than just an anthropocentric concept, and are also framing it in relation to its ecological importance.

Ultimately, emphasising the importance of adaptation to ecology and humanity requires an intensification of coverage across all platforms, and a framing that shows just how urgent adaptation is across multiple domains. The framing of adaptation will be critical now, if it is to garner more attention, more investment and a truly equal footing with mitigation in climate policy.

This report urges UK environmental organisations to contribute to the adaptation narrative and consider how they frame these contributions. Let's consciously frame adaptation. Let's actively drive the conversation.

For those millions of people already feeling the devastating impacts of climate change, and for the billions more who will, we need more than international meetings, National Adaptation Agendas, small-scale NGOs and individual voices; we need our largest environmental organisations to talk about adaptation.

Adaptation is positive transformation, it is not just coping.

REFERENCES

Primary Sources:

- Friends of the Earth. 2017. *Climate Change Adaptation: Our Position*. [online] Available at: https://policy.friendsoftheearth.uk/policy-positions/climate-change-adaptation-our-position [Accessed 15 March 2020].
- Friends of the Earth. 2019a. Friends Of The Earth Reacts To Environment Agency's Strategy To Tackle Flooding And Coastal Change. [online] Available at:

 https://friendsoftheearth.uk/climate-change/friends-earth-reacts-environment-agencys-strategy-tackle-flooding-and-coastal-change [Accessed 2 March 2020].
- Friends of the Earth. 2019b. *UK Gears Up For Hottest Ever Day, Friends Of The Earth Calls For More Trees To Protect Us From Extreme Heat*. [online] Available at:

 https://friendsoftheearth.uk/trees/uk-gears-hottest-ever-day-friends-earth-calls-more-trees-protect-us-extreme-heat [Accessed 2 March 2020].
- Phillips, M., Bridewell, A. and Richards, C., 2019. We Need To Talk About Adaptation. [online]
 Available at:
 https://static1.squarespace.com/static/54b52dbde4b09c18186752fd/t/5e5930cf9df53f4eb327f8ca/1582903509597/We+need+to+talk+about_2ndEdition_Final.pdf [Accessed 9 February 2020].
- Phillips, M., Richards, C. and Bunk, P., 2020. We Need To Talk About Adaptation (2nd Edition). [online] Available at: https://static1.squarespace.com/static/54b52dbde4b09c18186752fd/t/5e5930cf9df53f4eb327f8ca/1582903509597/We+need+to+talk+about_2ndEdition_Final.pdf [Accessed 12 March 2020].
- Watts, O., 2018. Sanderlings Struggling With Snow And You Can Help Climate Change Our Work The RSPB Community. [online] RSPB Blog. Available at: https://community.rspb.org.uk/ourwork/b/climatechange/posts/sanderlings-struggling-with-snow-and-you-can-help [Accessed 14 March 2020].
- WWF. 2017a. Tens Of Billions Of Pounds To Be Lost By UK Economy Due To Extreme Weather-WWF Report Warns. [online] Available at: https://www.wwf.org.uk/updates/tens-billions-pounds-be-lost-uk-economy-due-extreme-weather-wwf-report-warns-0 [Accessed 4 March 2020].
- WWF. 2017b. *Developing And Piloting A UK Natural Capital Stress Test.* [online] Available at: https://www.wwf.org.uk/updates/developing-and-piloting-uk-natural-capital-stress-test [Accessed 4 March 2020].
- WWF. 2017c. Africa's Watershed Moment. [online] Available at: https://www.wwf.org.uk/updates/africas-watershed-moment [Accessed 4 March 2020].

SECONDARY SOURCES:

- Bosomworth, K., 2015. Climate change adaptation in public policy: frames, fire management, and frame reflection. *Environment and Planning C: Government and Policy*, 33(6), pp.1450-1466.
- Brooks, N., 2003. *Vulnerability, Risk and Adaptation: A Conceptual Framework*, Working Paper 38, Tyndall Centre for Climate Change Research, Norwich, UK.
- Carr, E., 2019. Properties and projects: Reconciling resilience and transformation for adaptation and development. *World Development*, 122, pp.70-84.
- Dalby, S., 2013. Climate Change: New Dimensions of Environmental Security. *The RUSI Journal*, 158(3), pp.34-43.
- Davies, S., 1993. Are Coping Strategies a Cop Out?. IDS Bulletin, 24(4), pp.60-72.

- de Wit, S., 2018. A clash of adaptations: How adaptation to climate change is translated in northern Tanzania. In: S. Klepp and L. Chavez-Rodriguez, ed., *A Critical Approach to Climate Change Adaptation: Discourses, Policies and Practices.* New York: Routledge, pp.37-52.
- Dewulf, A. 2013. Contrasting frames in policy debates on climate change adaptation. *Wiley Interdisciplinary Reviews: Climate Change*, 4(4), pp.321-330.
- Ford, J. and King, D., 2015. Coverage and framing of climate change adaptation in the media: A review of influential North American newspapers during 1993-2013. *Environmental Science & Policy*, 48, pp.137-146.
- Grove, K. 2010. Insuring "Our Common Future?" Dangerous Climate Change and the Biopolitics of Environmental Security. *Geopolitics*, 15(3), pp.536-563.
- Harcourt, R., Bruine de Bruin, W., Dessai, S. and Taylor, A., 2020. What Adaptation Stories are UK Newspapers Telling? A Narrative Analysis. *Environmental Communication*, pp.1-18.
- Hulme, M., 2008. The conquering of climate: discourses of fear and their dissolution. *The Geographical Journal*, 174(1), pp.5-16.
- IPCC, 2007: Summary for policymakers. In Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J. and Hanson, CE.(eds). *Climate Change 2007: Impacts, Adaptation and Vulnerability.*Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press, pp.7-22
- Kahn, M., 2016. The Climate Change Adaptation Literature. *Review of Environmental Economics and Policy,* 10(1), pp.166-178.
- Klein, R., Eriksen, S., Næss, L., Hammill, A., Tanner, T., Robledo, C. and O'Brien, K., 2007. Portfolio screening to support the mainstreaming of adaptation to climate change into development assistance. *Climatic Change*, 84(1), pp.23-44.
- Lakoff, G., 2010. Why it Matters How We Frame the Environment. *Environmental Communication*, 4(1), pp.70-81.
- Lockwood, M., 2011. Does the framing of climate policies make a difference to public support? Evidence from UK marginal constituencies. *Climate Policy*, 11(4), pp.1097-1112.
- O'Brien, K., Eriksen, S., Nygaard, L. and Schjolden, A., 2007. Why different interpretations of vulnerability matter in climate change discourses. *Climate Policy*, 7(1), pp.73-88.
- O'Brien, K., St. Clair, A. and Kristoffersen, B., 2010. *Climate Change, Ethics And Human Security*. Cambridge: Cambridge University Press, pp.83-92.
- Risbey, J., 2008. The new climate discourse: Alarmist or alarming?. *Global Environmental Change*, 18(1), pp.26-37.
- Romsdahl, R., Kirilenko, A., Wood, R. and Hultquist, A., 2017. Assessing National Discourse and Local Governance Framing of Climate Change for Adaptation in the United Kingdom. *Environmental Communication*, 11(4), pp.515-536.
- Rothman, D., Romero-Lankao, P., Schweizer, V. and Bee, B., 2013. Challenges to adaptation: a fundamental concept for the shared socio-economic pathways and beyond. *Climatic Change*, 122(3), pp.495-507.
- Ruhl, J., 2010. Climate Change Adaptation and the Structural Transformation of Environmental Law. *Environmental Law*, 40(2), pp.363-435.
- Schipper, L. and Burton, I., 2009. *The Earthscan Reader On Adaptation To Climate Change*. Sterling, VA: Earthscan.
- Spence, A. and Pidgeon, N., 2010. Framing and communicating climate change: The effects of distance and outcome frame manipulations. *Global Environmental Change*, 20(4), pp.656-667.
- Stein, B., Staudt, A., Cross, M., Dubois, N., Enquist, C., Griffis, R., Hansen, L., Hellmann, J., Lawler, J., Nelson, E. and Pairis, A., 2013. Preparing for and managing change: climate adaptation for biodiversity and ecosystems. *Frontiers in Ecology and the Environment*, 11(9), pp.502-510.
- Vignola, R., Locatelli, B., Martinez, C. and Imbach, P., 2009. Ecosystem-based adaptation to climate change: what role for policy-makers, society and scientists?. *Mitigation and Adaptation Strategies for Global Change*, 14(8), pp.691-696.
- Williams, J., 2012. Adaptation to Climate Change: From Resilience to Transformation. *Scottish Geographical Journal*, 128(1), pp.83-86.