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Published Version

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Arnall, Alex ORCID logoORCID: <https://orcid.org/0000-0001-6218-5926> and Hilson, Chris (2023) Climate change imaginaries: representing and contesting sea level rise in Fairbourne, North Wales. *Political Geography*, 102. 102839. ISSN 0962-6298 doi: <https://doi.org/10.1016/j.polgeo.2023.102839> Available at <https://centaur.reading.ac.uk/110263/>

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To link to this article DOI: <http://dx.doi.org/10.1016/j.polgeo.2023.102839>

Publisher: Elsevier

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## Full Length Article

# Climate change imaginaries: Representing and contesting sea level rise in Fairbourne, North Wales

Alex Arnall<sup>a,\*</sup>, Chris Hilson<sup>b</sup>

<sup>a</sup> School of Agriculture, Policy and Development, University of Reading, UK

<sup>b</sup> School of Law, University of Reading, UK



## ARTICLE INFO

**Keywords:**  
Geographical imaginaries  
Discourse  
Future  
Sea level rise  
Decommissioning  
Wales

## ABSTRACT

Geographical imaginaries – as discourses that are both representationally and performatively constituted – are vitally implicated in the making of the world and therefore profoundly political. In this paper we introduce the notion of the ‘sea level rise imaginary’ (SLRI) to explore the implications of these insights for how rising seas caused by climate change are being understood and acted upon in the UK. Drawing on empirical research undertaken in Fairbourne, a coastal village in North Wales that has become emblematic of sea level rise-induced population displacement, we consider the imaginary’s intersecting spatial, temporal and dramatic components. The findings, based on interviews, official documents and media reports, show how Fairbourne’s dominant, external SLRI, a primarily future-oriented discourse, is materialising in the present day via a series of institutional, economic and behavioural effects. However, it is also subject to political contestation and resistance by Fairbourne’s residents who put forward their own alternative SLRI – one in which the imagining of the village as an example of the local consequences of global climate change is countered by the situated representations and performances of community actors. In the end, the paper highlights the need for improved dialogue across contested SLRIs so that diverse perspectives are more effectively considered when anticipating and responding to climate change. This is potentially one way to minimise the present-day harms resulting from the projected effects of sea level rise and to imagine more open-ended, hopeful futures for affected coastal communities.

## 1. Introduction

In recent years, climate change and sea level rise have been escalated to environmental problems of crisis status in the public realm. This has, in turn, led to a wide variety of actors, including researchers, journalists, politicians and celebrities, seeking to illustrate present day and future climate change impacts by highlighting the risks posed to vulnerable populations in various parts of the world. Such activities raise awareness of the problem of global heating, thus potentially providing impetus to tackle the problem. However, there is also concern that this “struggle for proof” (Macnaghten, 2003, p. 65), whereby actors seek to demonstrate greater and greater harms being inflicted upon the environment, is misrepresenting countries and communities by portraying them as climate change victims that lack agency. For example, in the case of small island states, Perumal (2018, p. 45) has argued that portrayals of community vulnerability are based on “sensationalized, over-simplistic, and unrepresentative” media reporting. This reporting is focused on “expressions of crisis or extreme disruption” rather than effects on

day-to-day life (McMichael et al., 2019, p. 327), thus positioning the Pacific and Indian Oceans as sites “for climate catastrophe, rather than climate justice” (Shea et al., 2020, p. 161). Such perspectives contrast with those often held by people living in small island states, who refuse to accept that relocation is a foregone conclusion and who reassert their sovereign right to remain (McNamara & Gibson, 2009).

This paper aims to extend understanding of how these tensions are produced, and with what effects, by developing the concept of the ‘sea level rise imaginary’ (SLRI) and applying it to the case of Fairbourne, a small coastal village in North Wales that has become emblematic of climate change-induced population displacement in the UK. Imaginaries, according to Gregory (1994), are socially-shared but politically contested constructions of the past, present and future through which actors structure their understandings of how the world is and how they believe it should be. In the past few decades, such imaginaries have been explored in relation to a wide range of geographical issues and themes (Watkins, 2015). In the field of climate change, Brönnimann (2002) argued that the impacts of global heating on socio-ecological systems are

\* Corresponding author.

E-mail addresses: [a.h.arnall@reading.ac.uk](mailto:a.h.arnall@reading.ac.uk) (A. Arnall), [c.j.hilson@reading.ac.uk](mailto:c.j.hilson@reading.ac.uk) (C. Hilson).

a rich arena not only for procedures of knowledge gathering and fact-finding – the traditional pursuits of the physical and social sciences – but also for speculation and imagination by scientists, politicians, policymakers and the wider public. Building on this work, we advance the notion of the SLRI as society’s understanding of what the global phenomenon of rising seas is and how it should be anticipated and incorporated into social thought and action in specific places. When looked at in this way, a SLRI is not simply ‘made up’ or ‘unreal’; it is an emergent, collectively produced, often dramatic and nearly always disputed set of representations about the coastline and its future. And, as we argue below, these future depictions have the ability to influence and legitimise what people think and do in the present day while at the same time being shaped and transmitted themselves via everyday material practices.

The ideas presented above – and specifically those of the SLRI – are particularly relevant to Wales’ western coastline. The area falls under the West of Wales Shoreline Management Plan (SMP2), one of 22 SMPs that make up a national evidence-base for coastal policymaking in Great Britain. The first round of SMPs (SMP1), produced between 1996 and 1999, provided policy recommendations for 50 years, whereas a second generation of updated assessments (SMP2) incorporated the anticipated effects of climate change and sea level rise (DEFRA, 2006) for 100 years over three ‘epochs’, up to 2025, 2055 and 2100 respectively (Buser, 2020). These updated SMPs moved 95 coastal areas from a ‘holding the line’ policy (continued protection) to ‘no active intervention’ (do nothing) or ‘managed realignment’ (retreat) by 2100, with around 40 requiring the relocation of property.

One such area is Fairbourne, which was built on newly reclaimed land during the late 19th and early 20th centuries as a seaside retreat for factory workers from England’s West Midlands. Fairbourne had a low media profile until 2014 when a BBC current affairs programme reported that local authorities had recommended ‘no active intervention’ to protect the village from the encroaching sea beyond 2054. This meant that the settlement would have to be ‘decommissioned’ before this date and its population relocated to a safer location. The story, which came as a surprise to Fairbourne’s residents, resulted in them being widely dubbed in local, national and international media as the UK’s ‘first climate change refugees’ and produced serious material, economic and social impacts on the village. To investigate this process of bringing climate change ‘home’ to the British public via a national rather than faraway example of sea level rise (Slocum, 2004), as well as the local responses that it produced, we carried out research on Fairbourne in 2021, including a fieldwork visit. We scrutinised media stories and official reports and interviewed residents about sea level rise and the proposed decommissioning. The research provided insights into how SLRIs involve reconciling what is both a globally-constituted phenomenon and one constructed and performed in relation to historically-specific and socially-situated places. Precisely how that reconciliation or translation takes place will, as we found, often be contested: the data analysis of our various sources helped us to identify both a dominant, external SLRI and a locally driven community one that challenged it.

In examining the case of Fairbourne in this way, this paper seeks to make three key contributions to academic and policy debates on sea level rise. First, we understand that imaginaries, as mentally-based representations of people and places in time, help actors to make ‘real’ the often-invisible future risks of sea level rise, thus allowing society to collectively visualise and think through the problem. However, we also recognise that imaginaries not only describe and teach but, in addition, are performative, which is often missing from or underplayed in debates on climate change. In other words, while we recognise the importance of social construction, we also want to emphasise the role of materialisation, whereby discourse stabilises over time to “produce the effects that it names” (Butler, 1993, p. 2). This opens up, in turn, the possibility of geographical imaginaries being created, sustained and changed through the material practices of affected populations. In these ways, we argue

that SLRIs are key factors in the making and unmaking of people’s lives and the coastal communities in which they live and envisage their futures (Amin, 2014).

Second, we draw a distinction between external SLRIs imposed from outside (by the media and external public officials) and locally-grounded SLRIs. As outlined above, one of the key concerns expressed by climate change scholars is that these external and typically dominant SLRIs obfuscate or overlook local capacity, agency and identity (Barnett et al., 2021). This further perpetuates the view of the poor – and particularly those located in the Global South – as victims, thus contributing to a growing sense of impending calamity in developing countries (Doulton & Brown, 2009). Moreover, as argued by McNamara and Farbotko (2017), studies of climate change impacts frequently overlook the role of activism by local communities despite their potential role in re-envisioning local futures with sea level rise. With these shortcomings in mind, in this paper we emphasise the ability of coastal communities on the ‘frontline’ of sea level rise to develop their own alternative SLRIs rooted in understandings of climate and place, using representations and practices to adopt, modify or replace external depictions of their lives.

Third, we are cognisant that geographical imaginaries frequently incorporate the dramatization of distance and difference (Said, 1978). In the case of the SLRI, we argue that dramatization involves playing out or reproducing the phenomenon of rising seas textually and visually while removing it from the mundane and day-to-day through the introduction of emotions such as fear, excitement or hope. The dramatization of future climate change impacts, particularly via stories in the media, helps to generate and maintain public interest in the phenomenon. However, we are also aware that dramatic devices can risk simply reproducing, in the words of Raynor (2019, p. 695), “institutional colonisations of voice” and end up reinforcing established social conditions rather than leading to progressive change. Given these concerns, we aim to make explicit the processes and effects of dramatization that are inherent in the social construction, performance and propagation of SLRIs, thus undertaking the important task of paying “attention to the emotional landscapes of climate politics and climate science” (Farbotko & McGregor, 2010, p. 163).

This paper is structured as follows. In the next section, we situate the paper and its arguments in the relevant debates, examining how imaginaries are constituted, how they produce material and institutional effects, and the ways in which they may be supported or resisted by local populations. Section 3 further sets the scene by providing background information on how Fairbourne has developed, the environmental risks that it faces, and how the village came to widespread attention. Information is also provided on the research methods that we employed. We present the empirical findings in section 4, exploring the intersecting spatial, temporal and dramatic dimensions of Fairbourne’s contested SLRIs. Finally, in the conclusion, we critically reflect on the implications of these insights for anticipating and responding to sea level rise in the UK and beyond.

## 2. Geographical imaginaries and sea level rise

One of the challenges of studying geographical imaginaries is that scholars view them in different ways depending on their particular disciplinary interests and philosophical positions (Watkins, 2015). Imaginaries are not explicit, easily-identifiable doctrines that people choose to accept or reject (Mayes, 2014). Instead, they are made possible “by a complex assemblage of ... academic publications, think tank reports, planning policies, practices of big data collection and algorithmic inventions, newspapers’ and social media’s stories and images” (Davoudi, 2018, p. 102). In one sense, imaginaries are mentally-constituted, enabling but frequently unacknowledged symbolic systems within which people think collectively about the world (Gaonkar, 2002). In another sense, imaginaries are performative in that they produce the effects that they name (Bialasiewicz et al., 2007),

shaping “how people act and make their own places and relations with others ... via consumption and investment decisions, voting patterns, and telling stories about who and how we are” (Howie & Lewis, 2014, p. 134). According to this latter perspective, imagination is not external to the object of study but rather actively creates it, being vitally implicated in the material making of the world (Gregory et al., 2009). This does not mean, however, that practice always follows representation in the temporal sense. As argued by Watkins (2015), material practices themselves communicate, create and change spatial imaginaries. These processes are inherently geographical, being spatially and temporally organised, and often play out publicly in the form of a spectacle or drama. Below, we examine these distinct but overlapping components in greater depth with respect to imaginaries, climate change and sea level rise.

Jasanoff (2010, p. 237) reminds us that climate is not spatially bounded but instead “everywhere and nowhere” and therefore relatively inaccessible to imaginations that are situated in particular places. In other words, it is de-territorialised. Modern computer science, however, as the dominant means of producing contemporary climate predictions, is increasingly capable of territorialising climate change by tying it to particular localities based on downscaled general circulation models (GCMs) overlying field-based research on social and environmental change and human vulnerability (Mahony & Hulme, 2018). This research may then be used to produce maps of climate change ‘hotspots’, defined as specific localities thought to be particularly vulnerable to the projected effects of global heating (de Sherbinin, 2014). Such places might act as harbingers of climate change and its local consequences, signalling the approach of even greater impacts with continued warming (Manzo, 2010). In some cases, these places, as local ‘syndromes’ of the wider ecological crisis (Lüdeke et al., 2004), might be predicted to become altogether uninhabitable. This can result in the forced migration or resettlement of entire communities to other locales that are understood to be safer (Barnett & O’Neill, 2012).

This process of ‘embedding’, whereby the global idea of sea level rise is turned into specific material and organisational realities on the ground (Milkoreit, 2017), is not neutral but is, rather, highly political. Tensions may arise when “the impersonal, apolitical and universal imaginary of climate change projected by science” comes “into conflict with the subjective, situated and normative imaginations of human actors engaging with nature” (Jasanoff, 2010, p. 233). Conflict in this scenario is not inevitable as scientific and lay knowledges are capable of co-constructing a shared imaginary of climate and its changes (Brace & Geoghegan, 2010). More likely, however, is the production of a ‘translation zone’ (Barry, 2013) – a political space where some knowledges are capable of coexistence and coevolution but others are disputed and therefore remain distinct. In these spaces, the SLRI ‘forces thought’ (Stengers, 2005), whereby the knowledge claims of experts and the resulting practices and interventions come under intense political scrutiny by an increasingly varied set of actors (Whatmore, 2013). This scrutinising process is likely to be particularly strong when local identities are strengthened by what are perceived to be external threats (Barnett et al., 2021).

As well as being spatially structured, SLRIs are inherently temporal, describing what might be and what ought to be attained. Both prediction and anticipation are central to this shared but disputed social process. As Milkoreit (2017, p. 3) states, climate change science “continuously develops information about possible futures in the form of modelling results, temperature graphs, sea-ice measurements and descriptions of past worlds whose climatic conditions might have been similar to the ones we are currently moving towards”. This strengthens the role of nature, which actively shapes what can be and is imagined, both in terms of human impacts on the shared environment and environmental impacts on the human experience. At the same time, equipped with the scenarios of predictive science, politicians not only urge wider public participation in shaping futures by intervening in the present day (Yusoff & Gabrys, 2011) but also seek to “create a future that suits their interests and

represents their values” (Milkoreit, 2017, p. 9). This does not mean, however, that the future’s hold over the present in this manner is inevitable. As noted by Yusoff and Gabrys (2011), while predictions of sea level rise can often inadvertently become taken as solid and authoritative statements of the future, and therefore what to do in the present, they might also be challenged by actors representing and performing more open-ended futures in which alternative outcomes are possible. Clashes might be particularly evident between scientific and policy-based accounts of the future and the futures imagined by local populations (Fincher et al., 2015). Resistance is likely when external imaginaries foresee and plan for what Paprocki (2019) terms the ‘anticipatory ruination’ of local places and livelihoods.

In addition to these spatial and temporal components, SLRIs often involve drama or spectacle. According to Said (1978), the dramatization of other places is a key element of the geographical imaginary. This is reflected, for example, in the idea of the ‘island laboratory’ whereby the islanders’ experience of sea level rise is reduced to “a space where the fate of the planet is brought forward in time and miniaturised in space, condensed to a performance of rising seas and climate refugees played out for those with most control over the current and future uses of fossil fuels” (Farbotko, 2010, p. 54). The imaginary of the real-life laboratory in climate change studies is an attractive one due to the role that it supposedly plays in producing discrete, controlled knowledge as opposed to the more commonly encountered ‘messiness’ of the world (Collins & Evans, 2002). As such, islands, or other localities being ‘the first’ to experience sea level rise, such as coastal communities, are locally positioned but imagined universally to prompt others to act on climate change issues. However, this risks such places not being valued in and of themselves but only in relation to the role that they play in enabling society to understand the wider crisis.

The spectacle of being ‘the first’ is further heightened by the strong emotional dimensions of environmental imaginaries (Harris, 2014), especially when such imaginaries resonate closely with how people experience everyday life (Macnaghten, 2003). One common emotion is fear: the expectation of crisis and loss providing an important rationale for political action in the present (Milkoreit, 2017). Stories of present-day and future loss in the face of sea level rise might involve a cast of characters, including heroes, villains and victims (Adger et al., 2001). Victims, who are connected to the places that they inhabit through meaning-making processes, sensory encounters and emotive attachments, can experience grief as lives and livelihoods are disrupted or ended (Lim, 2020) and the things that they value are taken away from them (Barnett et al., 2016). Affected populations, through local political action, might seek to utilise and demonstrate these emotions in their efforts to attract attention, recognition or resources to their cause. The counterpoint to fear, however, is hope – a risky and complex process of possibility (Head, 2016). Thus, social actors might resist fear in the face of the dominant SLRI via the envisagement and strategic deployment of diverse conditions of hopeful possibility despite the dangers that they face (Green et al., 2012). These hopes, foreseen and enacted in the face of adversity, might lead to local activism, as affected people seek new open-ended futures that lie outside the scope of those imagined as part of conventional political discourse (Kleist & Jansen, 2016).

Overall, the significance of the geographical imaginary lies in its ability to actively produce the world while at the same time being prone to modification via the collective material practices of actors. In the case of sea level rise, much of this transformative agency stems from the imaginary’s potential to embed global, scientific ideas into local institutional and material arrangements and to lay claim to the future, hence shaping present-day action. However, the juxtaposition between the production of abstracted climate change knowledge and meaning-making processes within historically-specific, socially-situated communities means that the imaginary’s establishment and enactment will nearly always be contested. SLRIs, moreover, are often characterised by drama or spectacle, commonly playing out publicly in the media and frequently evoking strong emotions among stakeholders. The aim of the



next section is to begin exploring these themes empirically in the context of Fairbourne.

### 3. Sea level rise and decommissioning in Fairbourne

Positioned on an area of low-lying saltmarsh facing towards the Irish Sea, Fairbourne is bordered by the Mawddach Estuary to the north, Snowdonia National Park to the east, and the Cardigan Bay coastline to the west. Two rivers, the Afon Henddol and the Afon Morfa, flow through or near the village and into the Mawddach Estuary via tidal gates. The building of the village, which began following the arrival of the Coast Railway in 1864, was led by Sir Arthur McDougal, a Victorian entrepreneur who wanted to establish a holiday village for industrial workers. Today, Fairbourne is made up of around 460 properties, with about one quarter of these being holiday lets. There are approximately 700 permanent residents, although the village's population can increase to 3000 in the summer, with an additional 25,000 day-trippers annually. The village is defended from the sea by a naturally formed shingle bank that was reinforced with a crest wall in 1977 (Fig. 1) and is protected from the estuary by a tidal embankment that was originally built by McDougall in 1868. Extensive work was conducted on the village's rivers and drainage system in the 2010s to mitigate the threat of flooding from surface runoff and elevated groundwater levels.

While the probability of a major flooding incident occurring in present-day Fairbourne is viewed by local and national authorities as relatively low, the updated SMP guidance, which was signed off by the Welsh Parliamentary Assembly in October 2014, raised the prospect of this probability significantly increasing over the next few decades due to sea level rise. According to Gwynedd Council, this change requires the village to be 'decommissioned' by 2054. Although little explanation of what decommissioning will entail has been provided by the local authorities, it is generally accepted that it will involve demolishing Fairbourne's buildings and infrastructure and relocating the village's population.

Recognising the challenges that decommissioning will entail for residents and local authorities, Fairbourne Moving Forward (FMF), a multi-agency project led by Gwynedd Council, was established in 2013 with the role of overseeing the process. There was consultation at the time with Fairbourne's residents, including a presentation to the local Arthog Community Council (ACC) and a public meeting held in the village. Although due process was broadly followed in adopting the SMP guidance, the Council's consultation was nonetheless considered insufficient by most residents. Indeed, as noted above, the first time that many residents heard about the proposed decommissioning was via a 2014 BBC Wales programme 'Week in Week Out', which sensationalized Fairbourne's future demise. The programme raised the village's media profile, with stories about Fairbourne subsequently appearing in newspapers, television and radio and featuring on numerous news, campaign and media websites. It also produced an overwhelmingly negative impact on residents, reportedly causing a sharp drop in house prices by up to 40% in some cases (Forgrave, 2022), and severely affecting local people's financial and retirement plans, including equity release. It also



Fig. 1. Fairbourne's shingle bank and reinforced crest wall.

made it impossible to raise a mortgage, which prevented younger people from purchasing Fairbourne property and was thought to have led to an increase in the age composition of the local population, as incoming retirees with pension pots could afford to buy without a mortgage (Forgrave, 2022). Our interviews revealed that these changes caused serious wellbeing and mental health issues among community residents. Fears were also expressed of a disordered breakup of the village in which a dwindling population faced the closure of local amenities and shops, and where people forced to move away lost touch with family and friends.

In response, a local community action group, Fairbourne Facing Change (FFC), was established, which aimed to maximise the voices of residents. FFC had a seat as an official observer on FMF but not membership status as the latter position was seen by the action group as potentially compromising its independence. In 2015, FMF began production of a Preliminary Coastal Adaptation Masterplan for the village's decommissioning, which did not include compensation for residents. This resulted in FFC consulting a lawyer in 2016 with a view to launching a legal challenge against Gwynedd Council, although this was eventually dropped due to costs concerns. The preliminary Masterplan was released in July 2018 followed by 'Fairbourne: A Framework for the Future' (FMF, 2019), a public consultation document, in autumn 2019. By this point, the FFC group had dissolved, with several key members becoming disillusioned with the lack of progress and moving out of the local area. Accordingly, ACC, which was already a part of FMF, became the main body representing community interests.

To better understand these issues and events, we conducted research on Fairbourne in 2021, collecting data from official policy reports, online media sources, and face-to-face and online interviews. Analysis of textual representations made in these sources formed the main way of discerning the relevant external and local imaginaries, with the interviews providing greater depth on specific themes and topics of interest. We were particularly interested in online media reporting on Fairbourne given the prolificacy of this format and its strong influence on how sea level rise and climate migration issues are perceived in the UK (Parsons, 2021). To gather the report data, we examined seven policy documents produced by FMF, 12 FFC newsletters, and three transcripts of British Parliamentary debates dating back to 2019 in which Fairbourne was discussed. Five documents produced by government agencies with a direct interest in Fairbourne, such as Natural Resources Wales (NRW) and Network Rail, were also consulted to develop a wider picture of policymaking on UK coastline management.

To collect media sources, an internet search consisting of the words 'Fairbourne' and 'climate change' was conducted and the first 20 relevant online articles to appear in the search results were scrutinised for evidence of how Fairbourne has been portrayed in the print media and how any villagers interviewed by them had responded. These articles consisted of four overseas sources, five UK national sources, and eleven Welsh or local sources. Seven written outputs and three documentary films produced by international and UK campaign groups, such as Greenpeace, were also examined, as was the village's 'I Love Fairbourne' Facebook site.

To conduct interviews, we undertook a one-week field visit to the village in August and September 2021 during which three face-to-face interviews with permanent residents were carried out. This was combined with numerous informal, unstructured discussions with permanent residents, residents staying in second homes and tourists, as well as direct observation of the settlement, its flooding defences, and daily life. In addition, three online interviews with key stakeholders, including two permanent residents and a national MP, were undertaken before and after the field visit and emails were exchanged with an additional two. These interviews and discussions followed ethics approval from our institution. To integrate and analyse the data, both inductive and deductive means were used, with codes produced and then gathered into themes, and interpretive links being made to the existing literature (Lapum et al., 2015). This process allowed insights to emerge into the

constitution and effects of Fairbourne's competing SLRIs.

#### 4. Constructing and contesting Fairbourne's sea level rise imaginaries

This section presents the empirical analysis of the SLRIs in Fairbourne. It examines the imaginaries' intersecting spatial, temporal and dramatic components, paying particular attention to the diverse and contradictory representations and performances provided by different actors along these dimensions. Section 4.1 examines how the future threat of sea level rise has emerged in Fairbourne, focusing on the imaginary's spatial and temporal dynamics and how the prospect of relocation away from the coastline has 'forced thought' among villagers. In Section 4.2, the imagining of Fairbourne as a real-life laboratory is explored followed by consideration of how residents have contested their designation as an example of the local effects of sea level rise to the UK and beyond. Finally, section 4.3 examines the dramatic, theatrical dimensions of Fairbourne's SLRIs, looking at how imagined, external representations of loss primarily generated by the media have been countered by local practices of hope. In the sub-sections that follow, quotations from local authorities and community members have been anonymised. Quotes from newspapers and websites are referenced in author, source and date format.

##### 4.1. The spatial and temporal emergence of threat

A key component of the external SLRI in Fairbourne, rooted in official public policy documents, is the significant climate change impacts that the village is anticipated to experience in the coming decades because of its physical and socioeconomic setting. As FMF explained in its recent public consultation document, 'Fairbourne: A Framework for the Future' (FMF, 2019), while there are many places in Wales where coastal erosion is occurring, Fairbourne is "different" (p.9) given the village's low-lying position and its numerous potential sources of flooding. According to the document, the village is located around 2.5 m above sea level but will typically be below this twice a month during spring tides. This is much lower lying than nearby coastal settlements like Barmouth and Aberystwyth, which are 3.5–4.5 m and at least 6 m above sea level respectively. Moreover, as the document goes on to note, during extreme weather events, the tidal level is more than 1.5 m above Fairbourne, which is high enough for waves to overtop the seawall in some sections. FMF's 2019 document further points out that the village's reinforced shingle bank, estuarine tidal embankment, and river drainage system frequently require maintenance due to their vulnerability to storms and tidal surges.

At present, it is estimated that these existing flood protection measures each provide a T200 Standard of Protection (SoP) (Guthrie & Phernambucq, 2018), meaning that there is a 0.5% chance that they will fail to prevent flooding in any given year. This standard is anticipated to deteriorate with climate change. According to the 2011 SMP2, sea levels in Wales are projected to rise by around 1 m by 2115 (Guthrie & Cliphsham, 2011). In terms of recent Assessment Report 6 (AR6) IPCC guidance, this figure closely corresponds to a 'very high' GHG emissions scenario, under which the IPCC expects global mean sea level to rise by up to 1.01 m by 2100 (IPCC, 2021). In SMP2, "international flood defence experts" (FMF, 2019, p. 11) have territorialised the UK coastline into 'policy units', defined as stretches that have similar characteristics. In Fairbourne's policy unit, FMF (2019, p. 11) reports that "the engineering and financial challenges of protecting the village are likely to become insurmountable sooner than in other areas". The specific threats identified are a breach to the sea and tidal defences because of the above projected sea level rise and more severe storms, flooding from Fairbourne's waterways due to increased backing up of the rivers from the ocean, and the raising of the groundwater table due to increased rainfall and seawater inundation of the saltwater marsh (Bennett-Lloyd et al., 2019). These threats have been broken down and tabulated according to

'source and pathway' and 'changing risk' and the resulting possible extent of flooding mapped from the present day to 2093 (FMF, 2018). For example, Guthrie and Phernambucq (2018) reported that, with 0.75 m sea level rise, the SoP in Fairbourne's coastal area could be at a T1 level (i.e. failing once per year) without any improvement to coastal defences.

This elevated level of exposure is compounded by the high sensitivity of Fairbourne's buildings and structures and the imagined vulnerability of its residents. In 2011, the consultancy firm Jacobs (2011) estimated that a serious breach of the village's tidal embankment could result in economic damages to the community of £70 million. A similar impact would occur if there was a major break in its seawall. Many of Fairbourne's permanent residents are retired or elderly, with 62% aged 55 or older and 83% owning their properties outright (FMF, 2019). This demographic increases the risk of loss of life given that older people, many of whom live in single-floor bungalows, are less mobile and unable to reach safe ground in the event of an inundation. The presence of tourists in Fairbourne further enhances the threat because most of them "would be unaware of the flood risk and evacuation measures ... if a breach was to occur" (FMF, 2018, p. 20). Together, these factors mean the potential for defence failure leading to "severe consequences including risk to life" (Bennett-Lloyd et al., 2019, p. 15). The steep slopes of Snowdonia national park to the rear of the village mean that there is no obvious opportunity for the 'rollback' of the community to a safer position further away from the coastline. Moreover, the considerable costs involved in reinforcing the shingle bank and seawall indefinitely into the future are viewed as prohibitive. As a result, the relocation of the entire village to a completely new location at some stage is seen as the only viable option by local authorities.

This assemblage of interlocking factors is the basis of a powerful SLRI in Fairbourne, which has taken on a particular solidity and authority as a statement of the future and thus what to do in the present (Yusoff & Gabrys, 2011). Village residents have questioned this external, top-down scientific and policy process with their own subjective, situated and normative imaginations. They question the use of the 1 m by 2115 sea level rise projection used in SMP2, pointing out that it corresponds to the 'very high' GHG emissions scenarios referred to above and arguing that more probable 'intermediate' scenarios projecting around 0.5 m rise should be used instead. Countering this, in 2019 local authorities pointed out that tide gauges located near Barmouth indicate an increase in average sea level of approximately 4.7 mm per year, which, the council claimed, is "in-line or slightly above the predicted trends" of 1 m rise by 2100 (FMF, 2019, p. 7). But many Fairbourne residents doubt the reliability of the tidal data due to the considerable fluctuations in sea level that they witness everyday with the coming and going of the tide and the movement of the waves. To illustrate, one local businessowner argued that locals are being asked to trust that "there are gauges out there and you can tell a 3-mm rise when the waves are doing this [moving] all the time". Indeed, a recent study of the Barmouth data by Phillips et al. (2017) stated that, even though mean sea level rise between 1990 and 2015/16 was as much as 4.6 mm per year, more recent data (2000–2015) show a slowing to 2.6 mm per year. This, according to the authors, demonstrates the "unpredictability of SLR [sea level rise]" (p.94), an observation that seems to support the businessowner's argument.

Residents also question the use of the 2115 timeframe used in the SMP2, pointing out that, in the second half of this century, "predictions become highly unreliable as much depends on political decisions by countries around the World, along with developments in technologies to reduce carbon emissions or even remove carbon from the atmosphere" (Hall, 2021, p. 5). As one community leader explained, "We did contest the massive range of sea level rise in the SMP ... We didn't expect precise modelling accuracy, but the range and vulnerability assessments are over-cautious and also too broad". Residents also question the 'arbitrary' 2054 village protection cut-off date, which corresponds with the end of the second SMP2 epoch, arguing that the wide range of estimates for sea

level rise over the next few decades generated by computer simulation software provide a poor basis for planning. There is particular concern that sea level rise projections give little indication of when a large-scale breaching of Fairbourne's flood defences might occur or when residents will need to start relocating out of the village.

In addition to scrutinising the science, Fairbourne's residents are challenging the views of flood defence experts by questioning the idea that protecting their village with sea defences is not possible in the long term. Some residents believe that the scientific focus on the stability of the shingle bank and seawall is misplaced, arguing that the main risk to the village is fluvial flooding from the mountains behind the community rather than coastal flooding. Indeed, residents point out that, while there have been major flooding incidents elsewhere along the West Wales coastline, Fairbourne has never experienced a large-scale inundation from the sea. Another resident argued that Fairbourne has the "best sea defences in the whole of Wales". To support these claims, ACC recently commissioned its own scientific study of Fairbourne's sea defences, which was undertaken by a UK-based engineer and Fellow of the Geological Society. In this study, an alternative plan for the protection of Fairbourne is proposed based on the construction of 700 m of new flood embankment across agricultural land, the restoration and extension of the village's network of drainage ditches, and the creation of a temporary water storage pond (Hall, 2021). According to ACC, modelling studies applied to this hypothetical setup conclude that the proposed scheme would protect Fairbourne in a worst-case flood scenario until 2065.

In questioning the scientific data and expertise in this manner, Fairbourne's residents insist that they are not climate change sceptics or deniers. They acknowledge that climate change and sea level rise are important phenomena that are posing problems for coastal communities around the world. However, in this translation zone, where the global scientific imaginary of climate change is meeting local imaginings rooted in experience and tied to specific places, residents are resisting council plans for their community by subjecting SMPs and related processes to "intense political interrogation" (Whatmore, 2013, p. 39). Community leaders are developing and advancing their own situated knowledge of the local area and its physical dynamics as part of a more locally rooted SLRI based on a different imagining of the future and its effects on the present.

#### 4.2. Imagining laboratory status

The various documents, maps and schematics described above imagine Fairbourne as a real-life laboratory, a spectacle of climate change where the predicted effects of sea level rise are miniaturised in space and brought forward in time (Farbotko, 2010). A key component of this laboratory status is the notion of being 'the first': "the first community in the UK to be decommissioned as a result of climate change" and "Britain's first climate refugees" (Wall, *Guardian* 18.05.19). This situates Fairbourne on "the frontline of the climate crisis" (Humphreys, *Guardian*, 20.11.19), providing evidence that, "Climate change is at our door. Not in the future, not in the abstract, but in our flooded roads and railways, in our overburdened emergency services" (Womack, *The Ecologist*, 5.03.20). Moreover, Fairbourne is a harbinger of sea level rise and its local consequences for other British coastal settlements. This is illustrated by a British MP's statement in a parliamentary debate on climate change in May 2019: "Do not switch off, because what is happening in Fairbourne will be happening in other communities around the United Kingdom and around Wales in the years to come ... Fairbourne is what a climate change emergency looks like. It is slow, but it is happening, and we have little response to it" (Saville-Roberts, Hansard, 1.5.19). The village, then, represents "a wake-up call for the country" as the "difficult choices" surrounding Fairbourne are ones that "other parts of the UK may soon have to face" (Wall, *Guardian*, 18.5.19).

The translation of the local effects of sea level rise into a phenomenon of wider significance gives rise to another core component of

Fairbourne's laboratory status: the production of learning opportunities. Indeed, as a "test case" village (Thomson, *Channel Four*, 23.9.19), the community is imagined by local authorities and the media as providing unique insights of national importance into how to manage sea level rise. This opportunity is exemplified by the FMF's 2018 Coastal Risk Management Learning Project report, which aimed to learn "from the experience of Fairbourne ... so that key findings could be applied to other vulnerable coastal areas of Wales facing similar challenges" (Bennett-Lloyd et al., 2019, p. 6). According to the report, FMF's work "has broken a great deal of new ground and learning has been continuously evolving" (p.3). This learning, it follows, can be applied to "support the planning and implementation of community and stakeholder engagement in other coastal communities" (p.6) that are facing, or will face, similar challenges. Such lessons might also lead to wider changes in SMP policy, the Fairbourne case providing "a basis to progress new and inclusive ways of working to deliver complex and long-term adaptive changes" (p.10). They might even, according to the BBC, "affect the whole way we think about adapting to flooding and climate change" (Baker, *PM*, 2.03.20), producing "a blueprint for future UK coastal strategy" (Whyld, *CNN*, 9.6.19). Raising awareness, especially within local and national authorities, is key to making the most of this opportunity. For example, in May 2017 FMF held a meeting in the Fairbourne Golf Club to which members of the Welsh Government, Gwynedd Council and Natural Resources Wales were invited. FMF's aim was to raise "awareness of the project and Fairbourne at a senior level, ensuring that we attract the right level of attention which will enable key decision makers to be more informed when allocating budgets and contributing to future legislation" (FMF, 2017).

The imaginary of Fairbourne's potential as a vehicle for wider learning is exemplified by the idea, primarily expressed in FMF's Masterplan document, that the village can be formalised as a 'model' or 'showcase' for adaptation to climate change. There are various roles that the settlement can play in this respect. Fairbourne can be used simply to "show the impacts of climate change and flooding in real life" or, more ambitiously, as a "feasibility study to identify whether some properties at risk could be adapted to remain in a semi-tidal environment" (FMF, 2019, pp. 21-22). This latter idea, "drawing upon examples and initiatives being developed worldwide as communities face up to climate change", would involve turning Fairbourne into an 'amphibious' village by floating properties or placing them on stilts, thus "providing benefit to elements of the Fairbourne community and developing, more broadly, the capacity for adaptation" (FMF, 2018, p. 22). An Adaptation Centre could also be established in the village, "providing an important resource and focus for addressing issues around climate change adaptation" and therefore securing the village's place as "an example community for decades to come" by "creating opportunities for education and engagement locally and nationally" (FMF, 2018, p. 55). This imagined Centre could even play a role in helping to secure Fairbourne's long-term future by attracting scientists, policymakers and tourists interested in learning about the village's story. This would create business opportunities for a community marketed internationally as a place to learn about 'Tourism of the Future' or the 'Village beyond Climate Change' (FMF, 2018).

The rise of Fairbourne in the past ten years to the status of proof of the global climate crisis has been swift, with considerable buy-in from political and environmental stakeholders at both local and national levels. This process has played a key role in stabilising the dominant, laboratory SLRI in Fairbourne. Nonetheless, the village's positioning in this manner is contested via residents' own imaginary rooted in a place known by them. Residents counterargue that the media and local authorities have used global science to unfairly single Fairbourne out as 'the first', despite numerous other coastal communities in North Wales being identified in the SMP as also requiring resettlement due to managed realignment. For example, one resident commented that, if the village is eventually washed away, then "it'll be in 100-200 years and by then Lincolnshire, London, the Somerset Flats will have gone first".



Residents contend that, despite being in a comparable situation to many other UK coastal settlements, Fairbourne has been “picked out” and “experimented upon”, treated like it is in a “petri-dish” or like the “guinea pig” of coastal village decommissions”. This singling out, it is suggested by some, is motivated by malicious intent, the local authorities actively setting out to “destroy the village”. As one resident asked, “There are a lot of canaries [in the coalmine] out there. Why us?” There is suspicion among some villagers that the Welsh nationalist party running Gwynedd Council, Plaid Cymru, has targeted Fairbourne due to its English name and population. To illustrate, one resident stated, “What the Council have done to this village, I think it’s political ... Dare I say, look on the map. And you tell me how many other English-named villages there are”. Another resident suggested that people in Fairbourne are not capable of making the “‘middle class fuss’ that a richer community would have done ... There is no one important in the community or with council connections”. These political and economic disadvantages make it easier, according to the community, to appropriate the historically specific and socially situated village to serve external aspirations to identify and demonstrate the real-life impacts of the globally imagined climate crisis.

#### 4.3. Mobilising stories of loss and hope

The spectacle of Fairbourne in being the UK’s ‘first’ community of climate refugees is heightened by the powerful stories of loss and hope that are mobilised and counter-mobilised as part of the village’s contested SLRIs. The most striking of these, which mainly originate in media reporting, aestheticize the village’s landscape, thus rendering its loss all the more shocking (Doyle, 2007). Numerous media sources emphasise Fairbourne’s ‘beautiful’, ‘dramatic’ and ‘pastoral’ setting before contrasting this with the village’s fate. The “green and misty” (Whyld, CNN, 9.6.19) mountains that surround Fairbourne and that “rise up behind the picturesque village” (Harries, *Wales Online*, 10.10.20) are a key part of the beauty imagery, as are the village’s “attractive sandy beaches” (Greenpeace, 13.3.20). As one resident commented, such descriptions create the imaginary of Fairbourne as a “picture-perfect spot” or “a little piece of paradise”. Other media sources heighten the drama of Fairbourne’s dominant SLRI by highlighting the “rugged” nature of the mountains that surround the village and that “slope dramatically” towards the “slate-grey” Irish Sea (Wall, *Guardian*, 9.6.19). These images contrast with Fairbourne’s association with an evocative range of death-related adjectives. For example, *Wales Online* (Harries, 10.10.20) stated, “The harsh and unforgiving word ‘decommission’ has been banded [sic] about – the death of a community facilitated by its inhabitants being forced to move out, its shops closed down, its houses demolished to make way for salt marsh”. Fairbourne is thus “doomed” (Forgrave, *Mirror*, 27.1.20), “dammed” [sic] (Spillett, *Mail Online*, 12.2.19), “condemned” and “to be made extinct” (Forgrave, *North Wales Live*, 26.01.20).

Among Fairbourne’s residents, there is qualified support for the mobilisation of these dramatic stories and images. Fairbourne’s profile has been raised via local, national and international media and the work of campaign organisations, with some residents becoming recognised media figures. Some in the village believe that this attention has helped hold Gwynedd Council to account. For example, one long-term resident and businessowner argued that the extensive exposure received has “been very, very good for the village” because “the media coverage has blunted Gwynedd Council’s action towards us. It has made them talk to us, not at us. The attitude change is unbelievable”. There is also hope that Fairbourne’s status will attract support from the Welsh and UK Governments. For example, one resident promoted the idea of villagers as ‘climate change refugees’ to the media and national politicians to maximise public interest in Fairbourne’s predicament. In 2021 the MP for the region, Liz Saville Roberts, did indeed raise the issue of Fairbourne in a UK Parliamentary debate on climate change and refugees, stating, “These are people who do not know where their homes will be,

and what the value of their community is, *per se*. Will they be kept together? How will the infrastructure be dealt with, and what remains of that community? What are the rights of these people?” This statement, one villager commented, was a deliberate tactic to raise awareness about Fairbourne by communicating “the plight of the people in the village that are going to lose their houses and receive nothing in return”.

Despite this exposure many residents in Fairbourne are, according to another villager, “a bit miffed about being called a climate change refugee”. This is due to the negative connotations of the refugee term and the implication that, by accepting the label, the displacement of Fairbourne’s residents becomes a *fait accompli*. Indeed, far more common among residents is the reimagining of Fairbourne as a positive, lively place through everyday representations and practices of hope. This represents a key attempt by residents to destabilise the dominant SLRI. To illustrate, many villagers emphasise the togetherness and spirit of the community, countering the dramatic discourse that it is ‘blighted’, ‘wearing down’ or ‘finished’. Some speak about how peaceful Fairbourne is and the value that residents place on their rural way of life. They describe their village as ‘positive’, ‘vibrant’ and ‘together’, a place where people leave their front doors unlocked when away from their homes and where the local postal worker helps older residents with their DIY projects during their rounds. Moreover, the threat of decommissioning has strengthened community identity, with one resident asserting in response to the Council’s attempt to “break local spirits”:

“They failed. They failed dismally. They didn’t think of the resolution of the people that actually live here. And how much I love living here, because it’s got what nobody else has got ... Get up in the morning, you walk the dog on the beach, walking up the mountains. Peace, security, it’s got everything.”

This defiant reimagining of Fairbourne by its residents has also been represented visually. During the FFC’s campaign, for example, ‘I Love Fairbourne’ wristbands, car window stickers, homemade greetings cards, fridge magnets and keyrings were produced and distributed around the village. An ‘I Love Fairbourne’ Facebook page was created with requests for photos of ‘special places’ or news about events in the local area to be posted. In September 2021, a mural was added to the toilets in the village centre depicting Fairbourne’s shingle bank and seawall as viewed from the ocean-side. A large image of the ancient Greek god Poseidon was added to the right of the mural, gesturing at the seawall and giving the structure his blessing. Community events were also organised to promote “Fairbourne itself as a vibrant and successful village with a socially active community” (FFC, 2015a, p.2), including rock concerts and a Fairbourne Festival attended by local politicians. The aim of these events was to perform “a show of strength and solidarity to impress upon all those who have been involved in the process just how strongly we object to their proposals, and also to the way in which the residents of Fairbourne have been treated” (FFC, 2014, p.1).

Residents have also attempted to address what they view as “irresponsible” reporting by the media having become, as one local resident commented, “tired, weary and wary of the inaccurate and negative press that Fairbourne continually gets” as part of the external imagining of their village. Effort over the past ten years has been particularly directed towards correcting ‘misinformation’ and ‘misperceptions’ about house prices, home insurance and flood risk, with local estate agents being asked to share community-provided information with prospective buyers. For example, FFC tried to ensure that online searches for house purchases in Fairbourne did not reference the SMP. The campaign group also met with local estate agents in 2015 “to discuss house valuations/sales in Fairbourne with a view to counteracting any negativity existing within the profession locally” (FFC, 2015b, p. 4). These meetings were reportedly both “informative” and “positive”, with the estate agents concerned agreeing “to put links on their websites to the FMF website, where we’ll have a special section entitled ‘Thinking of moving to Fairbourne – want to know more?’”. FFC stated in its newsletter that these activities led to several enquiries from prospective buyers. It was

taken as a good sign that people were approaching the community directly for information about the village rather than relying on internet sources and ‘local gossip’. In these ways, locally situated villagers have resisted the external imagining of their community as a place doomed by sea level rise by representing and performing Fairbourne as a viable and thriving coastal community.

## 5. Conclusion

A SLRI is a socially constructed vision of the past, present and future that shapes what is seen as attainable and how life ought (or ought not) to be lived in coastal settlements under threat from climate change. In this sense, the term ‘imaginary’ does not indicate something as being ‘false’ or ‘invented’ but rather recognises that the global, abstracted phenomenon of sea level rise will mean different things to different people as it is incorporated into social thought and action in specific places. Imaginaries are not only socially constructed but also construct the social. In other words, imaginaries do not simply describe and teach but are also generative and productive, imposing and maintaining a particular socioeconomic order in time and space and embedding sea level rise across a range of political and institutional dimensions. This is clearly the case in Fairbourne, where a dominant SLRI has emerged framed by scientists and local government and popularised in the media. This imaginary identifies a threat, principally in the form of sea and river flooding, thus signalling the future demise of the village and triggering a series of pre-emptive actions by local authorities in the present. In this way, the imaginary has produced profound and wide-ranging effects on residents as their subjective, situated visions and aspirations are fundamentally challenged by the local territorialisation of a global, spatially unbounded problem.

And yet, despite the power of this SLRI, the version of the future that it presents is not inevitable but disputed. Contestation is possible because the production of an imaginary and its effects is ongoing – not ‘found’ but continually ‘made’ as part of a historically specific and socially situated set of representations and practices (Castree & Braun, 1998). In other words, Fairbourne’s future is not yet fixed. This is because, while imaginative geographies are constructions of space and time that are scripted, their outcomes are not fully determined (Gregory, 2004), with every performance of the present carrying with it the possibility of undoing the envisaged future (Butler, 1993). Fairbourne, then, is at the centre of a struggle over representation and performance between residents, public authorities and the media, albeit one occurring within unequal relations of power. This is shown by the ways in which villagers have scrutinised the science of sea level rise and its application to their community and reinterpreted the future viability of their sea defences. It is seen in how residents have questioned their imagined laboratory status as an example to the rest of the UK and challenged Fairbourne’s designation as a national emblem or icon of the local effects of a wider problem. And it is evident in how, in place of fearful and doom-laden predictions for their community, villagers have mobilised their own dramatic devices – local practices of hope – to present a more optimistic vision of Fairbourne as somewhere that is capable and resilient. Thus, on the one hand, Fairbourne’s dominant SLRI has gained a certain degree of stability from the legitimating weight held by “a variety of scientific and policy endeavours together in a common envelope of interpretation” (van der Sluijs et al., 1998, p. 312). However, the village’s fate is, at the same time, an “ongoing performance of the world” such that there is no determined or final meaning (Barad, 2003, p. 824) and the villagers’ own SLRI is part of an attempt to unsettle the dominant version.

As Farbotko (2005) has argued, climate change imaginaries are often constructed at a distance from countries with the greatest control over present day and future use of fossil fuels, with the most polluting societies looking to other places for evidence of the materialisation of climate change and its consequences. Indeed, the idea of sea level rise is well established in places such as small island states located in the

Pacific and Indian oceans, at least from an external perspective. This reflects Orlove et al.’s (2014) analysis of the historically-grounded, uneven distribution of concern about climate change impacts. Fairbourne, however, in the words of Yusoff and Gabrys (2011, p. 2) “entails an imaginative recasting of climate change as something that is not ‘out there’ (located in a global imaginary or in distant places such as the Arctic or sub-Saharan Africa), but as something ... ‘in here’, entangled in contemporary practices and future possibilities”. As such, people living in the UK are being asked to grapple with a newer, less well-formed set of representations and performances that are situated ‘closer to home’ and therefore potentially infringing upon their day-to-day lives in a more immediate fashion. Even so, in drawing the object into greater geographical proximity to the subject in this manner, there remains a risk of the residents of communities like Fairbourne being excluded from processes of knowledge production. As shown by Hurlimann et al. (2014), this lack of local ownership, collective action and trust building is highly likely to lead to a planning response that is unsustainable. Under such circumstances, coastal communities are likely to emphasise local resilience and give priority to immediate economic considerations around property prices (Bowden et al., 2019). Ultimately then, in the “struggle for proof” of climate change (Macnaghten, 2003, p. 65), this study highlights the importance of establishing mechanisms that enable improved dialogue between different groups of people and the imaginaries that they hold, so that diverse perspectives are considered. This is potentially one effective way of bringing sea level rise closer to home while avoiding the production of detrimental impacts on people’s lives and livelihoods in the present day.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data that has been used is confidential.

## Acknowledgements

The authors are very grateful to the people of Fairbourne who provided their perspectives on, and experiences of, the effects of sea level rise and decommissioning on their village.

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