The Social Amplification of Benefit: Risk, Identity and Renewable Energy

By Andrew James Roberts

Summary

Climate change and its impacts present an urgent need for transitions towards more low-carbon systems. Part of this transition entails changes in how we generate energy for our consumption, with renewable sources offering a potential solution. Within Wales and the UK, Government targets for the amount consumed and produced from low-carbon sources inevitably means the further deployment of renewables infrastructure. However, the deployment of this technology is not without controversy.

Opposition to renewable energy projects have been characterised as deviant and an obstacle to overcome (Aitken, 2010); with theorisations producing narrow understandings such as the Not-In-My-Backyard (NIMBY) paradigm (Burningham, 2000; Wolsink, 2007). However, more nuanced understandings are required of local opposition which account for how individuals attribute value and meaningfully connect with the world around them (Bell et al, 2013). There is a need to pay particular attention to the 'hidden losses' (Witter and Satterfield, 2014) which are difficult to articulate, yet remain important to the individual.

A promising lens through which to analyse these contestations is the concepts of risk and identity, particularly relational perspectives which give due consideration to social context (Boholm and Corvallec, 2011; Andersen and Chen, 2002). Similarly, the Social Amplification of Risk Framework (Kasperson et al, 1988; Pidgeon et al, 2003) presents a useful frame through which to understand this social context and how highly unique and personalised "discussion-scapes" surrounding individual projects can be built by individuals as active agents (Horlick-Jones et al, 2003) and how proposed 'benefit packages' (Walker et al, 2010) are understood. A 'risk to identity' perspective (Henwood and Pidgeon, 2013) pays attention to the "unsayable threats" which individuals are faced with when dealing with these issues, shining new light on the ethical dilemmas with which individuals are faced.

The study explores the Swansea Bay Tidal Lagoon, a proposed marine tidal project based off the coast of the city of Swansea in South Wales. Tidal lagoons present a promising new form of renewable energy infrastructure that can offer the production of a reliable source of clean energy, simply by harnessing the power of the tides. With some of the highest tidal ranges in the world the UK is well positioned to benefit from this technology. Utilising an interpretivist and relational approach, the study looked at the accounts of stakeholders, publics and local opposition groups. The study also used a number of cultural probes as means of engaging participants in meaningful discussion on a yet to exist technology. The research found that as the lagoon project became to be perceived as for the 'public good', a process of *social amplification of benefit* saw this narrative reproduced and perpetuated through the exploiting of pre-existing risk issues and narratives within Swansea surrounding unemployment and the economy.

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UK – United Kingdom of Great Britain and Northern Ireland

NRW – Natural Resources Wales

TLP – Tidal Lagoon Power

SARF – Social Amplification of Risk Framework

MCZ – Marine Conservation Zone

DECC – Department of Energy and Climate Change

BEIS – Department for Business, Energy and Industrial Strategy

RET – Renewable Energy Technology

CGI – Computer Generated Image

DECC – Department of Energy and Climate Change

1. Introduction

Climate change presents a series of global risks to the environment, its ecology and the human life it sustains. Moves to combat its harmful effects are now central features of government policy in most of the world, with the UK Government committing to net zero carbon emissions by 2050 (UK Gov, 2019). Part of the move towards this is the production and consumption of more energy from low-carbon sources. In particular, the production of energy from renewable sources is crucial to achieving these goals. However, two significant problems remain. In effectively siting renewables infrastructure proposals must contend not only with physical and economic elements, but also social ones. Despite high levels of broad support within the UK for renewable energy (BEIS, 2018), there remains significant local opposition to the siting of projects. Local publics being cast as overly selfish (Van der Horst, 2007), or characterised as somehow deviant (Aitken, 2010) presents limitations in our ability to effectively understand these controversies. Instead concerns are based around a number of contextual factors such as degradation of valued landscapes, community identity or a lack of local benefit (Pidgeon and Demski, 2012). Effectively siting projects remains problematic, and so more capable means of understanding local opposition is required (Walker, 1995); especially ones which take account of value and meaningful connectivity (Bell et al, 2013). The second problem for UK Government is that the intermittency of renewable energy remains a problem, as it maintains a commitment to ensuring secure electricity supplies for consumers and business (BEIS, 2019). Subsequently, there is a need for the provision of a reliable source of low-carbon (preferably renewable) energy on a regular basis.

Tidal lagoons are a type of renewables infrastructure which utilise variance between high and low tides to hold water in an artificial lagoon, creating a head differential either side of the breakwater wall. As the tide rises, the closed gates isolate the lagoon to prevent sea water from entering. Once the differential reaches a sufficient level, the gates are opened and sea water enters, generating electricity. Once the tide begins to ebb, there is a short period of pumping in order to obtain a maximum differential, before the process begins again. Lagoons are capable of providing a reliable source of renewable energy that is predictable far in advance; representing a useful technology for the UK's future energy mix.

Figure 1.1 – Proposed site of tidal lagoon within Swansea Bay. ***Source*** – Engineer.co.uk, 23/4/15.

Tidal Lagoons then are a potentially useful technology yet remain understudied. This study looks at the human dimensions of one lagoon proposal, located in Swansea Bay. Swansea is a city and county situated on the South Wales coast and home to around 240,000 people. The wider Swansea Bay region includes the neighbouring towns of Neath and Port Talbot to the East, as well as the Gower peninsula to the West. Formed in 2011, Tidal Lagoon Power began formulating the Swansea Bay Lagoon proposals in addition to six other proposed sites in the UK. The proposed lagoon site (Figure 1.1) occupied a central position in Swansea Bay, making landfall near the former docklands and situated between the mouths of the Tawe and Neath Rivers. Isolating 11.5km2 of enclosed water, the lagoon channelled water through 60m long draft tubes which would rotate the 16 bi-directional 7.2m diameter turbines (TLP, 2019). With capital costs of £1.3 billion (BEIS, 2018), and an installed capacity of 320 MW, the lagoon would be capable of generating electricity in four periods within 24 hours. Due to the reliability of the tide, the energy generation periods could be accurately predicted far in advance, allowing for improved grid balancing capabilities.

Figure 1.2 – Developer's promotional material showing CGI impression of lagoon wall. ***Source*** – Tidal Lagoon Power, 2019.

The 9.5km lagoon wall would require 5 million tonnes of varying quality of rock. Through the developer's sister company, the developer possessed access to 6.3 million tonnes of gabbro from Dean Quarry on the Lizard peninsula, Cornwall – although refrained from committing to using the site. The proposals also included a circular pathway (Figure 1.2), enabling pedestrians and cyclists to travel the entire length of the breakwater, and was intended to include artwork and other attractions such as pontoons and a visitor centre.

To explore these human dimensions the study adopts a risk to identity approach as an analytical focus. The study of identity has become increasingly relevant as it provides a means for understanding human actions in an era of looser social bonds and consumerism (Bauman, 2013). To understand how we may be able to transition to more sustainable, low-carbon systems of living, it is important to understand how these transitioning systems become shaped in ways that balance with people constructing meaningful lives (Henwood et al, 2016) and what impact these meanings have upon actions. Identity presents a 'powerful organising presence' (Leve, 2011; 513) which helps us navigate the demands of the modern world. Identity is not uniform, but instead fragmented and sometimes presents contradictory demands (Hall, 1992; 598) of the individual. These internal conflicts are inherently relational, as they demonstrate connectivity with other objects, people, places, imaginations and abstract concepts. The study of these conflicts is pertinent as there are often 'disconnects' (Shirani et al, 2013) between constructing meaningful lives in the present (e.g - consumptive habits) and responsibilities to others; particularly environmental (e.g - future generations). 'Relevant selves' is a way of understanding identity's role in helping individuals understand these various commitments and responsibilities (Andersen and Chen, 2002). It is a way of recognising that identity is active within particular contexts and settings" (Irwin, 2001; 109) and so provides a means of understanding commitments within specific settings.

In similar ways, risk also presents a means for understanding these very same human actions, particularly those in relation to climate change and sustainability. Risk is the perception of threat to something that is of value. Like identity, the act of classifying is central within the concept of risk (Boholm and Corvallec, 2011; 185). In the process of classification we attribute value to entities that are meaningful within our lives, as well as classify entities that we feel could bring harm to the valued entities. These valued objects and endangering objects are connected via a risk relationship, which constitutes individuals' understanding of how the one relates to the other. In these terms then, risk and identity are highly compatible concepts with which to construct an analytical focus.

Risk is a useful vehicle to explore siting contestations as it brings a focus on our understanding of what matters, why it matters and what actions to take (Boholm and Corvallec, 2011). Subsequently then human agency is a core aspect of risk (Boholm, 2015) and forms a powerful motivator within decision making. It is also an entity imbued with emotion (Lupton, 1999) and intuition (Slovic, 2000), and so contemporary understandings of risk are attentive to the subjective nature of the social world. The use of risk as a core analytical concept within siting contestations means a more level playing field between the competing parties and their relevant viewpoints. It does not privilege any form of knowledge, and so does not present opposing voices as irrational or uninformed. It deconstructs the idea of objective 'right' or 'wrong' in siting contestations, where the role of adjudicator is often assumed by the state (Boholm and Lofstedt, 2013). Through listening closely to the accounts of individuals and attempting to gain understanding of their concerns, risk as an analytical focus provides a framework capable of adequately explaining contentious issues.

If we consider identity to be our understanding of meaningful connectivity to the world which is embedded in sets of relationships, then risk to identity is how we understand these relationships to be threatened. This approach focuses on what individuals consider to be important within their lives, and how they understand entities which threaten these values; as well as the actions they take to maintain them. However, equally important is the issue of benefit and how it is seen to effect these meaningful connections. Both risk and benefit in relation to identity create a strong motivation for how individuals choose to communicate certain issues, which in turn helps shape perceptions. To understand these communicative issues this study draws upon the Social Amplification of Risk Framework (Kasperson et al, 1988; Pidgeon et al, 2003) and positing also that a Social Amplification of Benefit is an inter-connected process. Through the use of an identity risk approach in addition to taking account of this amplifying and attenuation process, it is possible to provide understanding of individuals as active communicators of both risk and benefit.

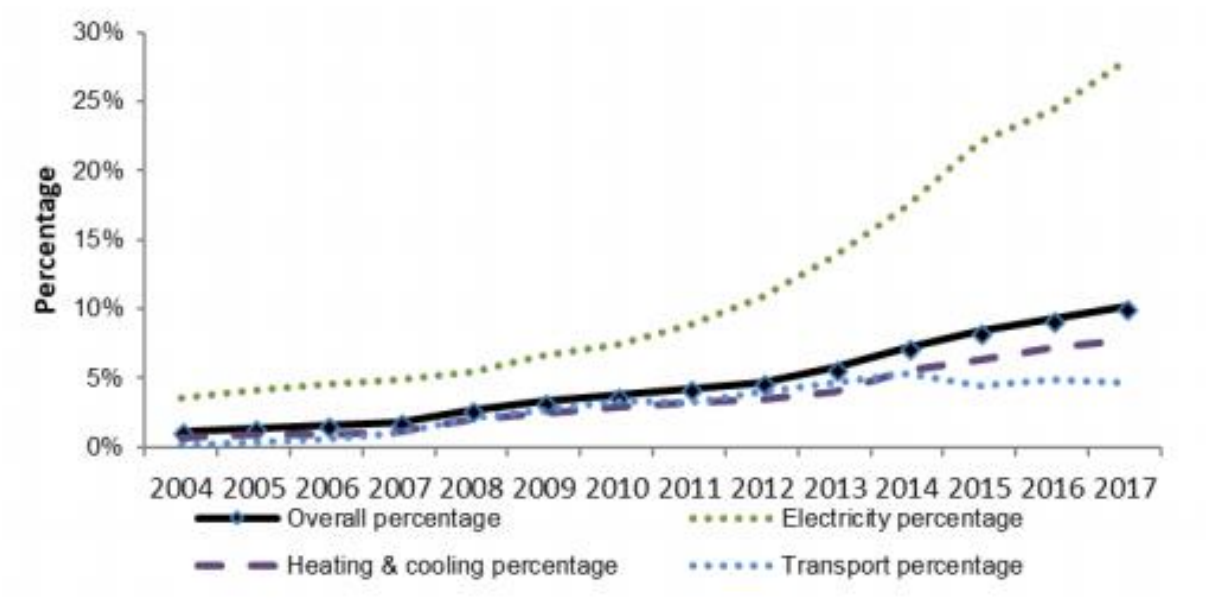

Figure 2.1 – UK consumption from renewables. ***Source*** – BEIS, 2018.

Climate change presents a considerable problem to national governments worldwide as they aim to reduce CO^2 emissions and limit harmful environmental impacts. In Western countries, part of this drive has seen efforts to reduce waste and change consumption in order to reach these goals. However, barriers to doing so remain (Lorenzoni et al, 2007), as consumption practices and

behaviours hold meaning to individuals (Groves et al, 2017) and are intricately interwoven into understandings of meaningful lives. The UK Government initially committed to transitioning to a low-carbon economy (Climate Change Programme, DETR 2006) and set goals (Climate Change Act, 2008) to achieve an 80% reduction in national greenhouse gases by 2050 (against 1990 baseline) – a target which is now net zero carbon emissions. Attempts to achieve this have been grounded within changing energy supply systems towards low-carbon alternatives.

Renewable sources are seen as an increasingly important part of the UK's energy mix. Prior to the lagoon's planning, the UK government committed to supplying 15% of energy demand from renewables by 2020 – with 10% of transport demand, 12% of heat demand and 30% of electricity demand (DECC, 2011). The Welsh government set additional targets of creating twice the energy it currently used from renewable sources by 2025 (DECC, 2011), along with deriving 4GW from marine sources. Beyond this the UK government had broad goals for 2030 of 30-45% total consumption provided by renewables. By 2017, renewables accounted for 27.9% of the UK's electricity generation, and supplied the equivalent of 48% of electricity consumption in Wales (BEIS, 2019). Also, the UK possessed one of the largest installed capacities of offshore wind in the world, and UK government remained keen to further develop the sector to help reduce energy costs while attaining emissions targets (BEIS, 2017). However, marine renewable energy supplied less than 1% of the total share of electricity generated (BEIS, 2019).

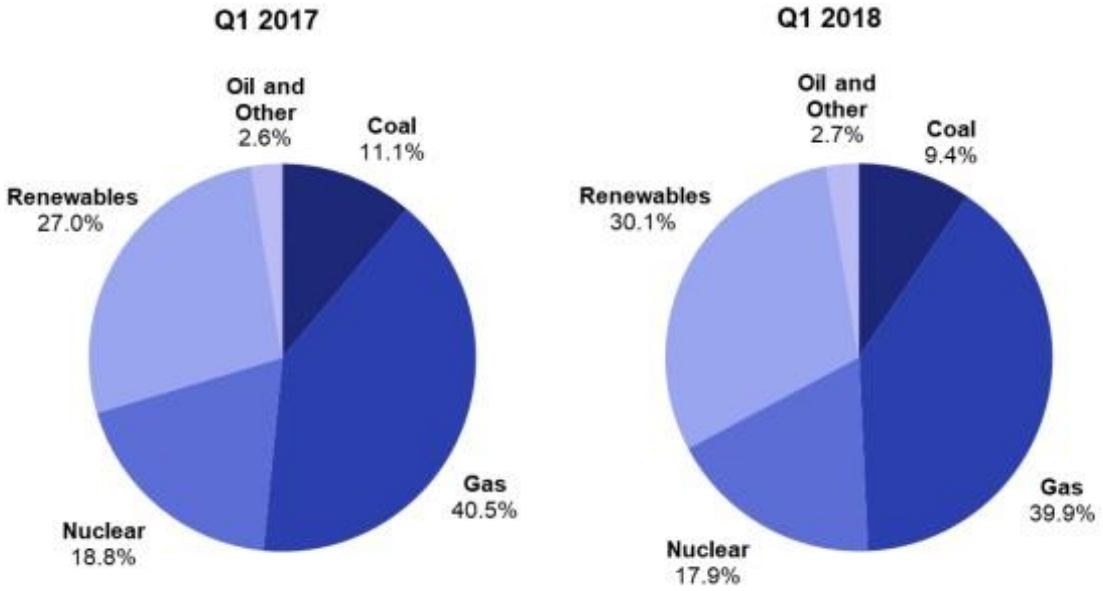

Figure 2.2 – UK electricity generation sources Q1 2017 vs Q1 2018. ***Source*** – BEIS, 2018.

While the UK has made progress towards achieving its renewables targets, the technology's intermittency remains a problem. The volatility and unpredictability of wind and solar present difficulties to the UK National Grid's attempt to balance supply with demand, and subsequently fuel-burning methods remain important to energy security. The need for a reliable source of renewable energy is a central concern for UK government. Methods such as Pumped Hydroelectric Storage are in regular use yet contribute very little towards the UK's energy mix. As such, tidal energy presents a potential answer to this problem by providing a reliable and regular renewable source.

1.1 Deployment and Controversy

The deployment of renewables infrastructure within the UK has not gone by without controversy. Instead it has become an issue that has garnered significant media and political attention and research exploring the issue. In the past two decades the UK has made steady progress towards its 2020 goals (Fig. 2.1), but fuel-burning sources (Fig. 2.2) retain a significant share due to the intermittency of renewable sources such as wind and solar – which had seen large increases (Fig. 2.3) since circa 2010. By 2018 (Renewable UK, 2018) the UK was home to 7,178 onshore and 1,934 offshore wind turbines – the vast majority of which had been constructed in the previous two decades. The UK was also home to 963,764 solar installations (UK Gov, 2018) with the technology's installed capacity having increased significantly since 2010. The marine and tidal energy sector was also highlighted by the UK Government (DECC, 2013) as holding critical importance due to a potential capability of accounting for 20% of electricity demand – with the government retaining hopes of the UK becoming a world leader in the development of the technology.

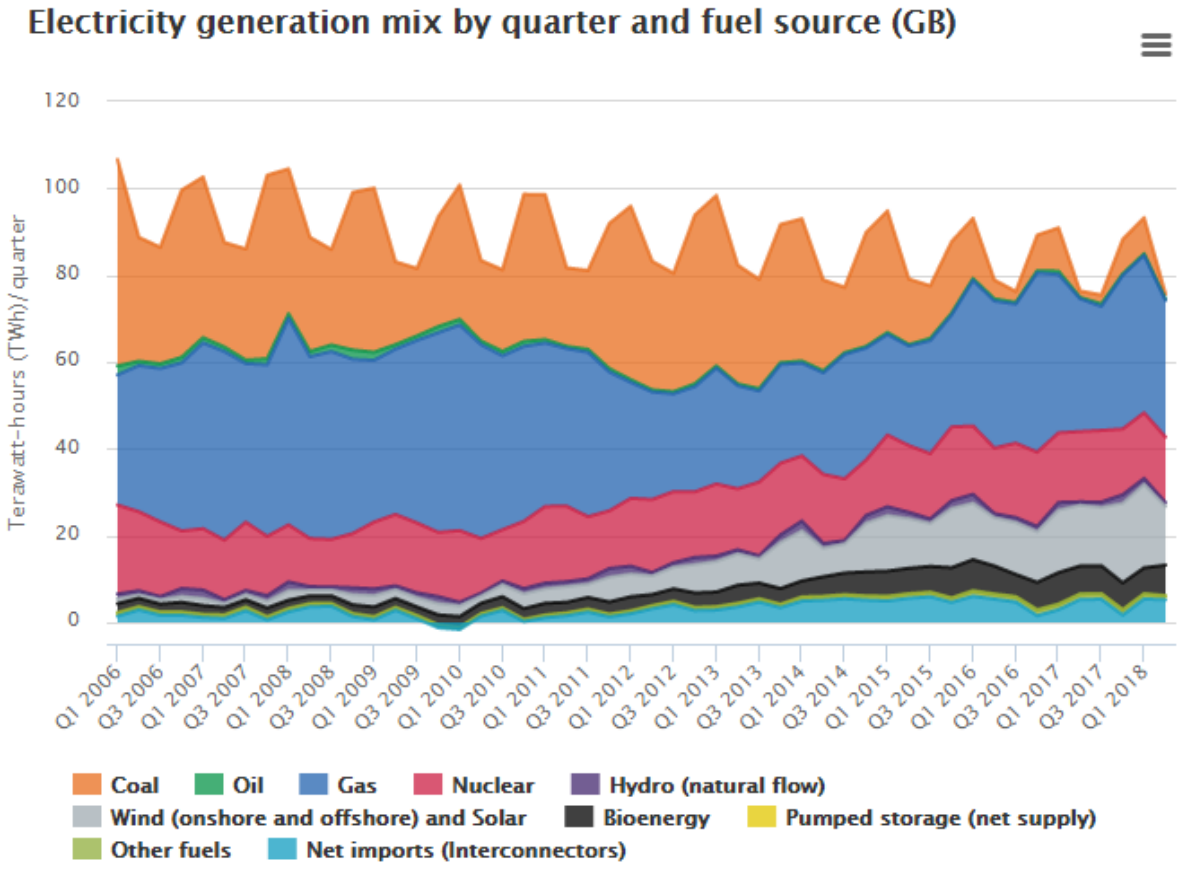

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Figure 2.3 – UK electricity generation sources 2006 – 2018. ***Source*** – OFGEM, 2018.

The population of the UK has become relatively accustomed to the sight of renewable energy infrastructure. However, despite nationwide attitudes towards renewable energy showing high levels of support (BEIS, 2018) and very minimal levels (1% strongly opposed) of opposition, the siting of onshore infrastructure has been fraught with significant local opposition; particularly in rural locations (Pidgeon and Demski, 2012). Effectively siting infrastructure onshore has been a less than straightforward task, with the lack of clear and coherent criteria for locating projects (Baban and Parry, 2001) being seen as problematic. For example, onshore wind application rejections within England rose from 24% in 2009 to 57% in 2014 (Guardian, 21.1.15). The lack of clear strategy and

support from UK government has been highlighted in the press as creating a 'hostile environment' for renewables by industry representatives (Independent, 19.5.18), while global investment in renewables also saw decline (Guardian, 17.7.18).

"In the past we had a few small farms and turbines: we could accept them. But now we're talking 120-metre-tall turbines and giant pylons. It is an environmental disaster."

Extract taken from an online news article of a national paper on opposition to wind energy in Mid-Wales. ***Source*** – Guardian, 28.2.12.

The successful siting of installations is reliant on social dimensions as well as the physical means of energy production. Research exploring renewable energy technology and social space (particularly within the UK) has been predominantly focused on onshore wind energy – largely due to proximity to human occupied spaces and landscapes. As such, there is little by the way of assessment of social factors in relation to marine energy (Jenkins et al, 2018) albeit with some notable exceptions (Devine-Wright, 2011; Wiersma and Devine-Wright, 2014; Bonar et al, 2015; Johnson et al, 2013; Kolios and Read, 2013) to be discussed later.

2. Literature and Rationale

Initial work on wind energy pointed to the existence of an apparent 'social gap' (Bell et al, 2005) between nationwide quantitative studies highlighting support for renewable energy and the opposition to projects experienced at host locations. This 'gap' was later asserted across countries including the USA (Phadke, 2011), Australia (Hindmarsh and Matthews, 2008) and New Zealand (Graham et al, 2009). Public perceptions are important within the discussion on renewables (Flynn and Bellaby, 2007) and the assumed acceptance (Batel et al, 2013) of renewable energy projects. This assumed acceptance, based on a lack of visible opposition (Rau et al, 2012), was posited as detrimental to the long term sustainability of renewables deployment by setting up these technologies to be disputed and contested in the long term (Wustenhagen et al, 2007).

Early research posited a 'democratic deficit' (majority of supporters being overruled by fewer opposition), or 'self-interest' manifested as NIMBYism (Not-In-My-Back-Yard) as primarily responsible (Bell et al, 2005) for the gap problem. The public then were viewed as a problem and were presented as unaccepting of the solutions that science had provided (Felt et al, 2007). Local opposition were viewed as having 'selfish' motivations (Van Der Horst, 2007), being viewed as something to be overcome (Kahn, 2000; Bell et al, 2005). Case studies (Devine-Wright, 2009; Hall et al, 2013; Anderson, 2013) also highlight that forcing renewable energy projects on the local population has led to considerable "backlash".

There have been calls then for more nuanced approaches towards understanding local opposition (Walker, 1995). Of particular interest has been how infrastructure fits into landscapes (Wustenhagen et al, 2007) which have not been fully understood, as objections to projects occupy a broad scope of concerns including aesthetic, cultural and historical grounds (Pasqualetti, 2011) spread across diverse landscapes. Simplistic and 'monolithic' representations of local communities offer no substantive explanation of the issue (Devine-Wright, 2005), as do binary "anti" and "pro" representations (Pidgeon et al, 2008). A paradigm shift is required which instead views these perspectives as ones of both "responsible citizens" and concerned local residents (Mouro and Castro, 2012), both with legitimate concerns.

2.1 The Risk to Identity Approach

The majority of the population in Wales acknowledge the existence of anthropogenic climate change (Capstick et al, 2012) yet the country is host to a variety of siting contestations regarding energy infrastructure. This remains problematic, considering the Welsh Government's stated aim of increasing renewables generation capacity. There is a need to understand the social and individual "gaps" (Bell et al, 2005) between expected support for renewable energy projects and the reality of local opposition. Groups of individuals who perceive certain risks (e.g - local opposition group) yet remain a minority within a larger population (e.g - the local community) have been highlighted as highly capable of effectively opposing projects (Anderson, 2013). These 'risk minorities' then are a sub type of what Witter and Satterfield (2014) refer to as "project-affected peoples". However, not all effects of a project are experienced in a negative way (see benefit chapter), and so it is important to differentiate between these experiences. Risk minorities then are "*at risk*" (i.e they perceive risk in a project) individuals who have been cast as deviant, and largely viewed as something to be overcome (Aitken, 2010). This is problematic as their opinions, knowledge and experience are not taken seriously (Demski, 2011), and so are likely to be poorly understood. Risk minorities are not a singular group with any single attitude type (Bell et al, 2013; 130) but rather represent diverse opinions and value sets. Analytical focus then is required at the individual and social levels, as it is capable of capturing and understanding these opinions and value sets – providing more nuanced insight into previously poorly understood individuals.

As studies on the human responses to climate change grow, the focus on the role of identity in determining human actions has become a growing concern (Bauman, 2013). Within these socio-technical transitions to low-carbon systems we find 'disconnects' (Shirani et al, 2013) between our understandings of ethical responsibilities to future generations and finding meaning and value in how we live our lives in the contemporary world (Henwood et al, 2016). Since the diminishing of fatalism as a dominant concept, Western society has edged towards what Giddens (1999; 3) describes as "a society increasingly preoccupied with the future, which generates the notion of risk". The "risk society" (Beck, 1992) is how modern society organises itself in response to the pressures of modernity (including climate change). Our critical nature and self-conscious attitude towards development, coupled with our potent ability to change our surroundings (Dupras and Williams-Jones, 2012) means that a growing focus of public policy is on our long-term future as opposed to the present. However, securing well-being into the long term future is a contested concept and there are also issues to contend with in the present. Important questions remain surrounding how we can foster temporal connections between contemporary times and the future (Henwood and Pidgeon, 2013) and how we may maintain meaningful 'lives worth living' (Henwood et al, 2016) and our duty to future generations.

This thesis proposes a risk to identity approach as a more nuanced vehicle for exploring siting contestation issues. By bringing together two fundamental concepts within the fields of psychology and sociology, this approach aims to present a usable theoretical framework through which to explore complex issues across multiple contexts. This approach has achieved some success in exploring questions of energy consumption and behaviour stemming from the *Energy Biographies* project (Henwood et al, 2016) and linked works (Henwood et al, 2016; Shirani et al, 2016; Groves et al, 2017; Thomas et al, 2017; Roberts and Henwood, 2018).

2.2 What is Risk?

The following section outlines this thesis' approach to understanding the term risk and its usage. It begins by discussing the origins of the term and outlining early contributions to its contemporary understanding. It then looks at more socially receptive theories that originate primarily from socio-

anthropological backgrounds and discusses their relevance to the case study, before making a case for relational approaches which are attentive at the individual level. It also outlines what the thesis considers to be five core components within risk – loss, value, context, relationality and subjectivity.

Early Theorisations

A concept that emerged during the medieval period, risk was born out of a primarily economic framing. The term is thought to have derived from an Arabic word (*rizq*) pertaining to chance and wealth (Boholm, 2015), which evolved into Latin terms (*resicum and resecare*) related to 'something that cuts'. Early European understandings of the term revolved around seafaring and unwanted outcomes, mostly in relation to the loss of ships and trading goods. The first core aspect of risk is the concept of loss, or more precisely a negative outcome as a result of contingency (Rescher, 1990). For loss to be meaningful something has to be at stake (Luhmann, 2017), making value a second core entity of risk. Conceptually risk was for a long time aligned with probability, statistics and outcome – particularly around decision making with regards to potential loss and gain. Subsequently, human agency is also seen as central to our understanding of the modern concept of risk (Boholm, 2015).

Much of early 20th century thought on the concept of risk was derived from the natural sciences, geography and mathematics, hence it was understood in relatively absolutist terms. The work of Gilbert White (1945) on human adjustments to floods proved foundational in US federal environmental management, while also outlining the role of human decision making in response to hazards. This work also highlighted how these responses can form an integral part of culture as they are adopted over time (Burton et al, 1993). Furthermore, these early ideas put forward by White underlined that responses to hazards are not neutral, but instead recognise state actors as embedded within the social context of the issue (Kates and Burton, 2008; 481). This way of thinking about risk has been noted as highly influential within the early work of other prominent risk research – particularly in the push to study risk within its real world setting (Slovic, 2000).

With early practitioners having been merchants or military commanders, then being replaced by gamblers or accountants, risk largely remained understood within quantifiable terms. Early studies exploring risk sought to understand which risks were seen as acceptable (Starr, 1969) and assumed actors to weigh all evidence and knowledge 'rationally' before arriving at decisions. This assumed rationality presented decision making as largely devoid of emotion, an entity which we now hold as crucial to the contemporary understandings of risk (Lupton, 1999; Slovic et al, 2004).

Later studies (Tversky and Kahneman, 1974) sought to explain why people perceived risks differently - positing that variations in perceptions could be attributed to a set of heuristics and biases. However, these biases were deemed to be too vaguely specified, like "Rorschach inkblots: [where] A researcher can read into them what he or she wishes" (Gigenrenzer, 1996; 593). From this work emerged prospect theory (Kahneman and Tversky, 1979) and cumulative prospect theory (1992), highlighting the shift in individual cognition towards loss aversion and the "underweighting" of common events (driving a car) but "overweighting" of unlikely events (nuclear disaster). Criticism levelled at prospect theory notes that it assumes that when presented with identical binary choices, individuals will make the same decision (Timmermans, 2010). A number of studies highlight evidence to the contrary (Hey and Orme, 1994; Camerer, 1998; Ballinger and Wilcox, 1997).

The Psychometric paradigm sought to determine the varying levels of acceptability in different risks. It posited risk as quantifiable (Slovic, 1987), somewhat predictable (Slovic, Fischhoff and Lichtenstein, 1980) and attributable to an "affect heuristic" (Finucane et al, 2000) where emotions impact the cognitive process. The largest contribution the psychometric paradigm made to the field

of risk research was highlighting the strong role that intuition and emotion play in the risk perception process (Slovic, 2000). The paradigm furthered understandings of lay risk perception beyond an assumed deficit of technical knowledge. It outlined that although lay individuals lack technical knowledge of certain hazards, their basic conceptualisation is richer and includes entities often omitted from expert risk assessment (Slovic, 1987; 285). However, its use of aggregated data in analysing hazards has been criticised as leading to the neglect of risk perceptions at the individual level (Siegrist et al, 2005).

More Cultural Theories

Early theorisations of risk viewed it in black and white terms – thus a distinction between hazard and risk is important. While hazards remain absolute in the capability to cause physical damage, risk carries with it social elements from the culture within which it is embedded. A second core characteristic of risk then is context, particularly pertaining to culture and space. Born from a socio-anthropological perspective, Cultural Theory views attitudes towards risk as not homogenous but varying due to cultural biases (Pidgeon et al, 1992). Launched in a series of works by Douglas (1966, 1978) and Douglas and Wildavsky (1983), the expressed aim of Cultural Theory was to be able to predict and explain which groups of people perceive which risks and how large those risks are (Wildavsky and Dake, 1990; 42). Risk was seen to be primarily determined by socio-cultural factors (Johnson, 1987), breaking from the Psychometric Paradigm's focus on the individual.

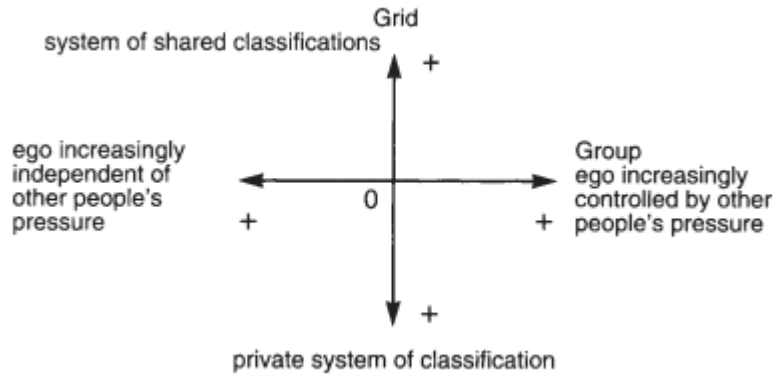


Figure 2.4 – The Grid-Group approach outlined in Douglas' *Natural Symbols.*

Source – Douglas (1996).

The theory utilised a grid-group approach (Douglas, 1970) with four major "cosmologies" (hierarchists, egalitarians, fatalists and individualists) being seen as a loose categorisation system, with individuals selecting certain risks in order to conserve their preferred lifestyle whilst attributing blame to other groups (Thompson et al, 1990). Critics of cultural theory point out that a grid-group approach can oversimplify what is a very complex set of social relationships (Johnson, 1987; Funtowicz and Ravetz, 1985). It was highlighted that there is need for a greater understanding of the dynamics of social interaction, including the reasons why individuals might move from one risk culture to another (Bellaby, 1990). In addition, the available evidence has been argued to not fully support cultural theory's hypothesized explanations (Sjoberg, 1997). Cultural theory highlights the importance of relationships within the concept of risk. Not only in the sense that there needs to be *something threatening something of value*, but also in how relationships between individuals, organisations and cultures hold influence and impact perceptions. Therefore, relationality is a third core characteristic within the contemporary concept of risk. However, it is also important to mention here that these relationships relate not only to risk but also benefit, and that risk and benefit are interrelated concepts.

Largely conducted within academic silos, and amidst calls for closer integration between the two (Rayner, 1992; Slovic, 1999), new theories that combined psychological and socio-anthropological thought soon emerged. Into this gap stepped Cultural Cognition theory, which initially tackled the issue of gun control within the United States (Kahan and Braman, 2003) before later focusing on climate change (Kahan et al, 2011). It looked to answer the question of why we perceive risk differently particularly given overwhelming scientific evidence. It posits that individuals systematically amplify messages of scientific evidence that align with their cultural predisposition (or worldview) based on their tendency to recall instances of scientific evidence or expert endorsement that align with their thinking. Whereas previously the public indifference towards climate change was attributed to an inability to comprehend technical data and evidence, Cultural Cognition theory instead posited that the polarisation in belief over climate change stemmed from personal interest (Kahan et al, 2011). Born of an American political background, the theory is most adept at explaining risk perceptions within a polarised political climate where cultures and worldviews have an overbearing impact upon the social background within which risk is embedded. Critics highlight a failure to properly explain views on gun rights utilising a worldviews model (Fremling and Lott, 2002), with findings from the initial study (2003) indicating that only 1.6% of opinions could be explained using the original model (2003). The impact of organisations and media linked to the individual, combined with the messages and the way that these messages are carried, are likely to be more influential in forming views (Fremling and Lott, 2002; 1348); a point later acknowledged by the authors (Kahan et al, 2011). Cultural Cognition theory has also been criticised (van der Linden, 2015) as not presenting a theory on culture or cognition but instead an explanation of the polarised opinions of American political, religious or social groups on particular issues.

Risk theories utilising a worldview approach account for only a very small percentage of all risk perceptions (Sjoberg, 1998; 150), with cultural biases representing only a minor influence in risk perception and trust holding greater influence in surveys. Subsequently, Cultural Cognition theory posits that trust is influenced by cultural bias, with individuals amplifying the messages they receive from media and individuals within their cultural sphere and attenuating the messages of those external (Kahan et al, 2011; 154). In addressing why individuals hold views contrary to overwhelming scientific evidence and consensus, Cultural Cognition theory neatly outlines how significant a role meaning and relationality play in risk perception. It is important to note that the amplification and attenuation of risk is an action that carries with it some benefit for the communicator, as a motivation to engage in such actions. Understanding these perceived benefits requires an understanding of how individuals derive meaning in the world and the reasons they attribute particular value(s) towards objects and actions.

The Case for a Relational Approach

Conceptualisations of local opposition to renewable energy projects have presented them as statistical minorities (a 'democratic deficit'), 'self-interested' (NIMBY) or contingent supporters (Bell et al, 2005). While studies support the assertion of contingent supporters (Jones and Eiser, 2009), these presentations fail to capture complex and dynamic social connectivity (Agterbosch et al, 2009). For example, it has been highlighted that the identities of some indigenous peoples are intrinsically interlinked with places – particularly the environmental wellbeing of these places (Witter and Satterfield, 2018; 6). Losses involving aspects of identity are often "invisible" ones (Witter and Satterfield, 2014), as what is at stake is generally difficult to communicate and does not easily translate into some sort of quantifiable value. This thesis proposes the use of a relational approach to both risk and identity as a means of understanding threats to these types of meaningful connectivity.

The past cannot be considered to be prologue (Ram, 2015). As research on RET issues increasingly focuses on non-technical issues (Wrozynski et al, 2016), a new approach to siting controversy and contestation is needed that aims at understanding concerns at the individual and social levels. The lack of attention to local and individual risk concerns (Burningham, 2000; Wolsink, 2006) continues to be problematic as risk minorities prove highly capable of preventing projects from actualising (Anderson, 2013). Worldview approaches remain limited in their scope to assess issues at this level – displaying a need for situational risk research to address this problem (Horlick-Jones et al, 2003). A need for more interpretivist means of inquiry is necessary to capture the complexities and nuances that go unnoticed through more quantitative means (Krimsky and Golding, 1992). Understanding these complexities is important for seeing beyond the simplistic binary of "pro" and "anti" (Pidgeon et al, 2008), where the assumed acceptance of technologies (Demski, 2011) means that risk minorities and at risk individuals are in some way classed as deviant or an obstacle (Aitken, 2010). Interpretivist thinking is necessary to explore the "extramaterial" kinds of losses that are often "invisible" and difficult to communicate (Witter and Satterfield, 2014). Only through exploring subjective experience and meaning making can we fully elucidate how projects are seen as affecting individuals in specific situations.

The study of context and meaning making, while crucial to addressing the issue, is only a part of the answer. As Bell et al (2013; 130) highlight, more nuanced understandings are required which are capable of exploring concepts of valued and meaningful connectivity, and how this connectivity is understood to be threatened by projects. In the case of indigenous identity and its connection to land and environmental wellbeing (Witter and Satterfield, 2018), meaning making and perception of threat are inherently relational. While understanding risk entails a focus on meaning making, it also entails an understanding of the entities involved and the social context within which the situation is embedded. Relational thinking then helps explore these "place-protective" attitudes that urgently need understanding (Devine-Wright, 2009) by elucidating the relationships between the individual and Valued Objects.

Interpretivist thinking and its associated methods remain central within qualitative social science concerned with risk and energy transitions (Henwood, 2019). However, in addition to Interpretivist thinking it is also important to consider how relationships effect perceptions of risk and benefit, enabling the exploration of issues critically relevant to the study of sustainable transitions. Such issues may be temporal, spatial, emotional or symbolic and incorporate issues such as connectivity between people and place, abstract concepts of justice/fairness or concepts which border both (e.g – the environment). Important within this is understanding how these sets of relationships impact thinking not just on what is of immediate concern, but also beyond the confines of this immediate relationship. Understanding such 'symbolic tangles' (Horlick-Jones et al, 2003; 284) is crucial to explaining the accounts of at risk individuals and risk minorities, and provides insight into their responses to project siting contestations. It is also worth noting that this relational thinking should not just focus on the negative alone, but also focus on the positives to help understand how individuals construct "lives worth living" (Henwood et al, 2016). This is particularly important in attempting to understand how individuals/groups attempt to make sense of change and maintain positive place-identity (Devine-Wright, 2009; 435). For example, understanding how individuals/groups construct positive relationships between themselves and place is reliant on an understanding of the symbolism inherent within their relationships with other individuals/groups. Understanding why a community being home to a champion sports team, or a city being viewed as trendy and fashionable, are positive place-identity attributes is contingent on understanding how these attributes are seen by others.

Relational Theory

Risk is a relationship between something of value and something that endangers it, embedded within time and space (Boholm and Corvallec, 2011). In opposition to early theorisations that saw risk as some kind of practice of the 'rational' chancing of outcomes, risk is a phenomenon imbued with emotional perceptions (Lupton, 1999) which are socially constructed through shared understanding and experience (Lupton, 1998). A highly subjective entity (Bartlett, 1980), risk is not restricted to hazard or catastrophe but instead a part of the everyday (Tulloch and Lupton, 2003). This thesis adopts an approach to risk that is consistent with, and attentive to, these factors. Relational Theory (Boholm and Corvallec, 2011) posits that the individual perception of risk is created through the relationship of a *Risk Object* (more commonly referred to as a hazard or danger) and an *Object at Risk* (something with subjective value). Binding these is a *risk relationship* contextually embedded in time and space within the individual's social and cultural surroundings, joining other leading risk theorists (Slovic et al, 2007; Pidgeon et al, 2003) in acknowledging the powerful role of socio-cultural factors. Relational Theory presents a usable model for understanding risk when we consider that it "is constructed differently depending on the story told" (Fuentes and Fuentes, 2015; 13) and that there exists a reflexive relationship between controversies and lay publics – who are risk handlers and not merely passive nodes (Horlick-Jones et al, 2003).

$$[\text{Risk object}] \leftarrow (\textit{Relationship of risk}) \rightarrow [\text{Object at risk}]$$

Figure 2.5 – Schematic definition of *Relational Theory*. ***Source*** – Boholm and Corvallec (2011)

The *Object at Risk* is a valued entity which is deemed "ought to be allowed to last" (Boholm and Corvallec, 2011; 180). Like all aspects of risk it is situated in time and space, meaning that what might be of value to an individual now might not necessarily be so in the future. For an *Object at Risk* to exist there must be an opposing *Risk Object* that threatens the valued entity. In this sense the *Risk Object* must be perceived as capable of doing some form of harm to the *Object at Risk*. The idea of harm as a central feature in risk has been prominent in previous literature (Kaplan and Garrick, 1981), leading to the important link between risk objects and objects at risk (Kendra, 2007) being overlooked. A useful example through which to demonstrate identity risk from a relational perspective is wind technology. Studies have shown (Van der Horst, 2007 and Hall et al, 2013) how the relationship between people and place is fundamental within some individual's lives. Changes to this relationship from the insertion of wind turbines has proven to be a significant influence on how individuals come to see wind projects and the technology more broadly (Van der Horst, 2007). A relational approach to identity risk then is useful in exploring how these relationships inform risk perceptions and subsequent behaviour.

"I sat on the beach and gazed at the horizon, and just couldn't believe my luck. It was August, and the sea and sky were bright blue. There was nothing but water and sky for as far as I could see. I could almost feel my pulse rate slowing, my lungs filling with air. There is nothing like a sea view for creating a sense of calm and freedom, and looking out over a wall of turbines just isn't the same"

Alice O'Keeffe, Guardian, 11/9/17

The quote above is taken from a news article on the Rampion offshore windfarm near Brighton, England. Using a relational risk approach with an identity focus, the endangering *Risk Object* in this situation is the introduction of wind turbines. The *Object at Risk* is the author's connection to the sea

(place attachment), the feeling of tranquillity imbued from the place as well as their conceptual understanding of place.

The identification of risk is foregrounded within practices, experiences and social institutions (Rappaport, 1996). Subsequently then "risk cannot run counter to natural laws or ignore established principles of scientific discovery" (Boholm and Corvallec, 2011; 179), but the knowledge that constitutes scientific discovery may be questioned and interpreted differently (Kahan et al, 2011). It is crucial to obtain understanding of the *risk relationship* and the social dynamic/conditions within which it is embedded. The *risk relationship* can be seen as 'expressions of cultural preference' (Boholm and Corvallec, 2011; 181). Returning to the example of the Rampion wind farm, the risk relationship within this scenario represents the accumulated knowledge that the author maintains on the issue. This is inclusive of emotion, subjective opinion and abstract feelings about things. In this case the wind farm is viewed as degrading the connectivity that the author shares to a valued place and landscape through its alteration.

The *risk relationship* is a semantic connection (Van Loon, 2002) and a critical reflection of the observer's knowledge of both the *risk object* and the *object at risk* (Shaw, 2000). There is a bounded rationality - a limitation on an individual's knowledge and information available to them in the amount of time they have in which to make a decision (Gigerenzer and Selten, 2002). The *relationship* is highly contingent (Boholm and Corvallec, 2011) and so there must be a degree of uncertainty within the mind of the observer to bring it about. It relates the *risk object* to the *object at risk* in a causal manner, addressing questions which establish the existence of the risk and so it is a driving force behind the decision to take action (Boholm and Corvallec, 2011).

The act of classifying (consciously or otherwise) lies central to *Relational Theory* (Boholm and Corvallec, 2011; 185) by bringing focus to our understanding of what matters, why it matters and what actions to take. This focus on what matters to the individual is useful considering that practices and beliefs hold meaning that may contravene established ethics and morality (Henwood et al, 2017) particularly in relation to our carbon footprint. It allows us to explore concepts that may have previously slipped past previous risk research (such as identity) as forms of "invisible loss" (Satterfield and Witter, 2014) as well as the psychological investments and meaning-making within the everyday (Henwood et al, 2016).

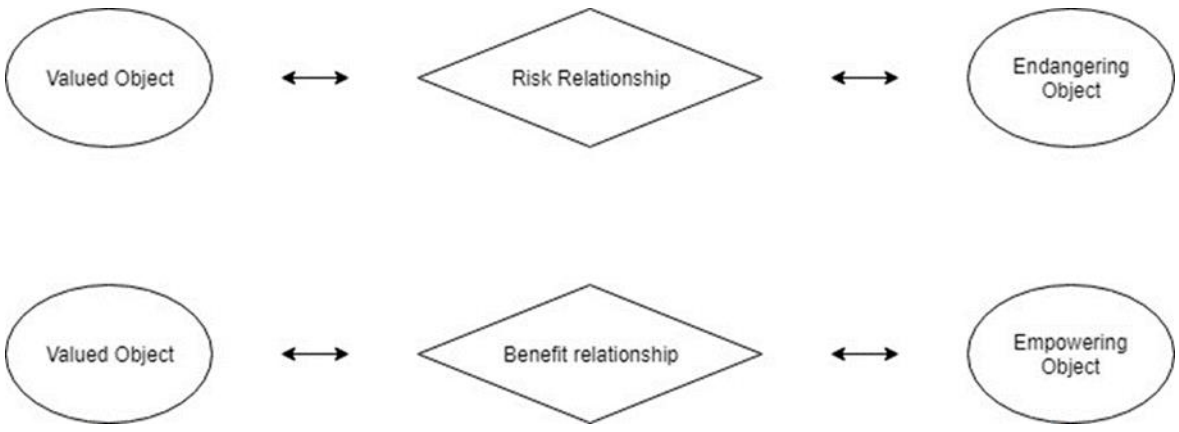


Figure 2.6 **-** Boholm and Corvallec's Relational theory of Risk model (2011) with modified terminology (top) conceptually expanded to incorporate thinking on benefit and its presentation.

As discussed further in the analysis of this thesis (see benefit chapter), the lagoon case study presented an intricate and dynamic relationship between risk and benefit. Many of the perceived benefits that arose in relation to the lagoon were predominantly concerned with addressing pre-existing and underlying risk issues already embedded within Swansea and South Wales. While Boholm and Corvallec's tripartite relational model (2011) is useful in elucidating risk, it lacks scope in fully incorporating the dynamic interplay between risk and benefit. This thesis proposes an expanded thinking upon the application of this theory, so that it may more adequately enable understanding of instances where benefit and risk are more intricately intertwined.

Starting with the term *Object at Risk*, Boholm and Corvallec (2011) utilise this term to present a threatened value. Here the term *Valued Object* is preferred as it serves the same purpose theoretically but is more flexible in its usage. The use of this term enables the acknowledgement of the relationship between risk and benefit in this situation as more dynamic and fluid, with each affecting the other. The term *Risk Object* is substituted for '*Endangering Object'*, while its Benefit equivalent is termed the '*Empowering Object'*. Risk is a threat to existing value, and so the status quo is seeking to be maintained. However, benefit is concerned with attaining a desired outcome, and so an *Empowering Object* is an entity that is seen as capable of enabling the desired outcome. The Risk and Benefit relationships are the understanding of how *Valued Objects* are related to *Endangering/Empowering Objects* - contextually grounded in culture, time and space.

"a daily reminder that . . progress is being made . . and that there are people out there finding solutions"

"offshore developments such as Rampion might form an important part of a greener future for the UK."

"When I look at the turbines, I appreciate them as a landmark, a sign of hope"

"I'm happy and proud to be part of a city that is, for the most part, cheerfully willing to do its bit for a brighter future. In fact, I now can't wait until those giant blades start turning"

Alice O'Keeffe, Guardian, 11/9/17

Returning to the example of the Rampion wind farm, the above comments outline how the author's original perceptions of the project changed over time. Having originally viewed the project largely as a risk issue, with the wind farm a firm *Endangering Object*, they eventually came to view the project positively. Subsequently, the wind farm has changed from an *Endangering Object* to an *Empowering* one – no longer threatening but instead enabling a desired outcome. The *Valued Object* in this situation is changed as a consequence. Originally threatened were the concepts of place attachment, conceptual understandings and the "feel" of place. The new *Valued Objects* then hold some similarity in that they are mostly intangible notions that positively benefit one's identity. However, in this case the new *Valued Objects* are positive associations between individual and place (place identity), symbols of progress and development, as well as reassurances of positive actions towards lowering emissions. The *Benefit Relationship* within this example then is that the wind farm is viewed as positive to the author's identity because it *a*) is a symbol of hope for the future, *b*) a positive association between the individual and their valued place/community and *c*) a reassurance towards the addressing of climate change. Within this *Benefit Relationship, a* and *c* show some signs of the dynamic between benefit and risk, with the benefits perceived mainly addressing pre-existing risk issues.

Social Amplification of Risk Framework

A majority of our knowledge is second-hand (Pidgeon et al, 1992), provided to us through an amalgam of signals, signs and images that we decipher and in turn pass on. It is important then to understand the means by which risk information travels between individuals, for without communication any risk issue or event would be localised in its impact (Luhmann, 1979; Kasperson et al, 2003). The Social Amplification of Risk Framework (SARF: see Kasperson et al, 1988) presents a basis from which to understand risk communication effectively as well as to bridge social and individual perspectives on risk perception.

Any "risk event" without the interaction and communication of a community of individuals would be localised in its impact (Luhmann, 1979; Kasperson et al, 2003). Each hazard, or risk event, has an assigned signal value (Slovic, Lichtenstein and Fischhoff, 1984) that we attach (sometimes subconsciously) in the form of images, signs and symbols. These vary greatly between individuals, societies and cultures, and so are subject to transformation at each station they pass through via the psychological, cultural, institutional and social processes that amplify or attenuate certain aspects of the original message (Kasperson et al, 1988; Pidgeon et al, 1992). SARF draws upon communications theory for influence and metaphor. Within communications theory, amplification is the process whereby signals are either intensified or attenuated when they are being transmitted from an information source to a receiver through an intermediate transmitter. This process involves the information source sending out a cluster of signals, which are then altered by each intermediate transmitter they pass through until they are decoded by the signal receiver. Similarly, social interactions convey messages on risk through multiple nodes – each of them impacting upon the original message as they pass through.

SARF is intended to describe both the social processes of intensification and attenuation (Kasperson and Kasperson, 2005; 222) – concepts which originate from communications theory (Shannon and Weaver, 1949). However, the language used in the framework has been highlighted as potentially displaying bias, with Rip (1988) arguing that the concept of 'amplification' leans towards a focus on exaggerated issues, while Rayner (1988) points out that amplification might imply the existence of some form of baseline risk. Broadly, where publics perceive risk as greater than expert assessment suggests we have intensification, and where it is perceived as less than expert assessment we have attenuation (Breakwell and Barnett, 2003; 100). While SARF acknowledges no "baseline" of risk (Pidgeon et al, 2003), intensification may be seen as an "overreaction" to risk while attenuation is a "downplaying" (Kasperson and Kasperson, 2005; 222).

The Goiania nuclear incident provides a useful example of risk amplification (Kasperson and Kasperson, 1996; 101). A stolen medical cylinder containing radioactive material contaminated a number of people in the Brazilian city in September 1987. While initial local reporting was small scale, the story was picked up three weeks later by a Sao Paulo broadcaster who produced a "sensational and lengthy" piece on the incident. This instigated a period of dramatic and exaggerated media coverage, resulting in perceptions of enormous risk to individuals with no contact with contaminated persons or materials. The initial impacts of amplification saw over 100,000 people wait in line to be monitored with Geiger counters for indication of external radiation. In this case, expert risk assessment concluded that these individuals faced little risk from radiation, yet the intensification of risk messages by the broadcaster resulted in an "overreaction" to the risk. However, SARF also takes a layered approach to analysing risk, looking beyond the initial risk impact of the event towards secondary and tertiary stages (Kasperson et al, 1988). A poignant case is the effect on world markets in the aftermath of the 9/11 terrorist attacks in the USA (Slovic, 2002), where the actions of a few individuals had wide reaching physical, social, cultural, economic, political and psychological consequences. For example, secondary economic impacts included sharp

declines in the stocks of airlines, such as American and United, while tertiary economic impacts include the changes in the USA domestic airline industry in the wake of the attacks (Bureau of Transport Statistics, 2017).

The social process of transmission is far more complicated than the technical process (Kasperson et al, 1988; 180), as the meaning intended to be conveyed to the receiver is embedded within sociocultural contexts. Messages conveyed also come in a range of forms with the signals taking the form of signs, symbols, images and words that each come with their own semantic, factual and value-oriented attachments. The signals that constitute these messages are amplified through intermediaries, meaning individual's cultural idiosyncrasies, embeddedness and bounded rationality play pivotal roles in how they are received. It has been highlighted (Horlick-Jones et al, 2003; 284) that the framework posits individuals as passive nodes and ignores that lay audiences "have the capacity and inclination to engage in active interrogation of risk-related information". It has also been pointed out that the framework holds limited capacity to understand how risk controversies can grow beyond and become distinct from the initial risk objects (Horlick-Jones et al, 2003; 285). This blindness to 'symbolic tangles' is problematic considering the thesis' approach to exploring the individual's agency, cultural embeddedness and social context in relation to risk issues. Subsequently, it is important that we recognise these critiques and seek to produce an analysis that holds a good understanding of the individual and their values.

2.3 What is Identity?

The following section outlines this thesis' definition of identity and outlines how it will be used. It draws from different bodies of work representing contrasting thinking on how we as individuals come to understand ourselves and discusses how these conceptions of self are intricately tied in with symbolic processes of meaning making. Finally it discusses how risk will relate to identity within this thesis before moving on to discuss issues that have been raised in previous energy siting contestation literature.

Understanding Identity and Risk

Identity as a term is utilised in multivariate ways and its meaning depends on "how it is thought about" (Lawler, 2015; 7). Identity partly entails categorisation of the individual, such as "the way individuals and groups define themselves and are defined by others on the basis of race, ethnicity, religion, language, and culture" (Deng, 2011; 1). However, this does not present an inclusive enough set of concepts for understanding identity, particularly for this thesis. Identity and our understanding of it are fairly recent advancements within the social sciences with twentieth century 'social thought' being seen as forcing attention towards its study and understanding (Hall, 1992). Due to the steady loosening of once rigid social patterns that bound individuals in Western societies, identity has become an increasing area of research and practical interest due to the presumed role that it plays in our actions in an era of consumerism, instant gratification and looser, more fluid social bonds (Bauman, 2013).

Identity is constructed and exists within culture, "*creating meaning through symbolic systems of representation*" (Woodward, 2002; 2). Culture shapes identity by giving meaning to experience (Woodward, 2002; 15), and identity reaffirms culture through "*subjective conformity*" with the "*needs*" of that culture (Hall, 1992; 598). Every social landscape, or "cultural field", has its own expectations and imaginaries (Woodward, 2002; 23) through which this conformity and reaffirming is derived and reconstituted. There is a need to understand identity as situated within these social landscapes, constituting places, culture and social relationships; embedded and entangled. In many definitions, identity is an understanding of the self over time, which is by no means static. Rather it is

"mutually constructed and evolving representations of self and other" (Katzenstein, 1996; 59). The role of the other in identity is not just a means by which we see our own practices more clearly (Roberts and Henwood, 2017), but also the emotional bonds and 'entanglements' (Andersen and Chen, 2002) that we do not want to (or indeed cannot) remove ourselves from.

These entanglements and emotional bonds guide us through understanding the situations and ethical dilemmas we face, as relational to the interdependencies that are important in our social relationships; particularly surrounding energy usage and notions of care (Henwood et al, 2016). As a result, identity could be viewed as a resource by which we make sense of the world, or as Taylor (1989; 27) puts it - "My identity is defined by the commitments and identifications which provide the frame or horizon within which I can try to determine from case to case what is good, or valuable, or what ought to be done, or what I endorse or oppose". As identity becomes more fragmented, contradictory and unresolved (Hall, 1992; 598), these entanglements and points of difference become increasingly difficult to navigate.

Identity is about using "*the resources of history, language and culture in the process of becoming rather than being*" (Hall, 2003; 4). Depictions of identity and the self in this way render them fluid entities. However, critical debate remains on whether identities are "relatively stable, role-specific understandings and expectations" (Wendt 1992, 397) or far more fluid and changing entities. Lawler (2015; 3) considers this stability a 'hoax', and that the instability has been rendered 'obvious' due to issues such as globalisation and shifts in family form. The analytical framework for this study considers both answers to be adequate while also not entirely encapsulating of critical commentaries on identity (de)stabilisation as one of the cultural conditions of contemporary life (Henwood et al, 2002; Henwood, 2008). While identity may be seen as more fluid, with 'compartmentalised' identity forming "mosaics" (Thompson et al, 1990), it is also an "attempt to fashion relatively integrated and coherent subjectivities" (Harré and Gillet, 1994; 180).

Identity scholars moved to understand how identity could be considered to be this relatively stable entity through time, considering that identity represents a continually unresolved question (Hall, 1989). Building from the works of Erikson (1980), who saw identity as perceptions of persistent sameness with oneself, and Bandura (1977), who saw individuals to consider themselves capable (or to have "self-efficacy"), the work of Breakwell's (1986) Identity Process Theory sought to understand this continuity. It viewed identity as a dynamic product of the interactions between capacities of memory, consciousness and organised construal as well as the physical and societal structures that constitute the social context (Breakwell, 1986). However, Breakwell's theory can be seen as placing too much focus on the individual instead of the socio-cultural and emotional connectivity within which individuals are embedded – most particularly issues of ethics and morality (Mason, 2004; 163). For example, it has been highlighted that the consumption of fuel in the home can carry intrinsic meaning to individuals' identities, particularly in relation to notions of care (Henwood et al, 2016). Identity Process Theory then retains focus on explaining the individual as relatively stable across situations, and so an explanation of the relationship between individuals may go unnoticed.

More Relational Approaches

The reducing of 'fixed social signposts' which help determine roles and actions (Beck, 1992), as well as greater emphasis being placed in a "civilizing process" (Elias, 1994 [1939]) whereby value is placed in self-control and an ability to "manage" oneself, has led to an internal ideal of oneself. The creation of these internal ideals led to individuals seeing self-perception as "what is hidden from all others, and often as the true self, the core of individuality (Elias, 1994; 211) – presenting a perception of detachment between the individual and the world around them. However, while "Westerners" may

think of themselves as detached, there is a "suppression of an alternative perception" which understands the individual in relational terms with identity "formed between rather than within persons" (Lawler, 2015; 17). The "gaze of individualisation" (Mason, 2004; 178) can create images of individual selves and narratives, but the individual remains inherently relational. Continuity could be considered to be the individual seeing themselves "unfold across situations" (Andersen and Chen, 2002; 638), with the assumptions and experiences from relationships with "significant others" (Andersen and Glassman, 1996) resurfacing in new sets of relationships. In recognising that identities are "embedded in sets of relationships" (Mason, 2004; 177) we must also recognise the dynamic of the self being reconstructed to fit differing contexts (Smith, 1996; Read et al, 1997), meaning that 'relevant selves' come to the forefront in the appropriate contexts (Andersen and Chen, 2002).

Multiple sets of relationships between individuals, often involving places, activities, languages, religion and ethnicity, provide understanding of self through a "socially derived psychological process reflecting knowledge of one's group memberships and their associated value and emotional significance" (Tanti et al, 2011; 556). These group memberships are established when "three or more people construe or evaluate themselves in terms of shared attributes that distinguish them collectively from other people" (Hogg, 2006; 111). They have been posited as core components of pride and self-esteem (Tajfel and Turner, 1979), allowing easier identification between different individuals. A focus on social identity is to form an "analysis of intergroup relations and social change as a function of positive distinctiveness" (Hogg, 2006; 111).

Identity is a 'powerful organising presence' (Leve, 2011; 513) by which we attribute meaning to our social connections and "the ways in which individuals and collectivities are distinguished in their social relations" (Jenkins, 1996; 4). This "sense making" of the world is a "process of active construction within particular contexts and settings" (Irwin, 2001; 109). Indeed, White posits that identity could be considered (1992; 6) "any source of action not explicable from biophysical regularities, and to which observers can attribute meaning". As such, identity is an organising process by which we understand our own actions, emotions, thoughts and those of the individuals around us.

Identity and Meaning

Establishing meaning through the process of identity is an exercise in attributing value and deriving meaning from the actions, practices and relationships that form our lived experiences. In seeking to understand and make sense of social experiences, identity derives meaning in practices from culture. Identity unfolds through the *"language and symbolic systems through which they are represented"* (Woodward, 2002; 8), and is "*constituted within representation*" (Hall, 2003; 4). Practices are a part of this representation, and while symbolic practices are important in shaping identity, mundane ones (particularly involving energy) do also as we come to understand what constitutes a meaningful life through them (Henwood et al, 2016).

We build bonds with practices, such as gardening (Kiesling and Manning, 2010) or mundane energy practices in the home (Hobson, 2003), and provide them with meaning through both representation and psychological investment over time. In the contemporary era it can often lead to a sense of disconnect with the future, as we struggle with the ethical conundrums between understanding valued practices in the present and ethical responsibilities towards future generations (Shirani et al, 2013). Identity becomes a central actor in the tussle of ethics between practices for the common good and those of individual interest (Groves et al, 2016a). One response to these disconnects is an attempt to align oneself across events in a manner which is coherently 'pro-environmental' to the

individual, as they project themselves into 'environmentally-significant behaviour' (Whitmarsh and O'Neil, 2010).

Meaning within identity is not constituted through physical interaction alone, but is also partly imaginary (Hall, 2003; 4). It is important then to differentiate between these two types of meaningful connectivity. First, there is the connectivity between the individual and cultural imaginations, where we "*project ourselves*" into cultural identities (Hall, 1992; 598) through aligning with these imaginations. Imagination in relation to identity is a useful cultural tool, particularly within the concepts of nationalism and community. "Imagined Communities" (Anderson, 1983) are a means of maintaining bonds (i.e national identity) to people we have not met or do not understand by imagining the individuals to live lives much the same as we do. Such links may also exist temporally. Examples of historical links include narratives of national identity and culture, re-shaped in the contemporary to bring meaning to certain events. They can also extend into the future, such as connectivity and responsibility to future generations. Second, there is the more personal relational connectivity which is constituted through psychological investment over time – such as an identifying with place (Venables et al, 2012; 372). Places assume meaning to individuals as they understand their constructed realities through them (Anderson, 2004), creating kinds of emotional connectivity. Both are inherently meaningful to the individual and their identity, yet constitute different types of meaning and experience. It is important then to recognise identity as both symbolic and social (Woodard, 2002; 8).

Understanding "common good" and its parameters is similarly a practice of meaning making and positive association. However, in acknowledging fragmented identity with its (at times) contradictory demands (Hall, 1992; 598), understanding the concept of common good is far from straight forward. As the analysis of this thesis later outlines (see benefit chapter), commitments to less tangible types of meaningful connectivity (e.g - connection to imagined communities or future generations) may infringe upon more tangible connectivity (e.g - valued practices, entangled relations or valued place). Understanding these conflicts and tensions that arise between social expectations, norms and valued connectivity are crucial to understanding responses to siting contestations.

To summarise, identity could be considered to be how we as individuals understand ourselves and how we connect and relate to the world around us, both physically and emotionally. Our identities are fluid understandings of how we think we should act, how others should act and how the world around us should operate. This thesis understands identity as inherently social and relational, corresponding to numerous sets of relationships laden with emotion and value between ourselves, other individuals, places and practices which are embedded in context. Risk to identity then is a threat to a valued aspect of a relationship that an individual holds between themselves and a person, a place, a practice or indeed how they continue to understand themselves in relation to these relationships. Previous research has highlighted that risk to identity may comprise a threat to a significant other and their emotional bond to that individual (Irwin, 2001). It also may consist of a degradation in the perception of capability in terms of fulfilling a particular role towards another individual (e.g - being a father), and the subsequent emotional impact on the individual and the significant other (Baxter and Britton, 2001). Similarly, a risk to identity may involve the degradation of a relationship between the individual and a significant other or social group as perceptions of their role (or those of others), or the knowledge comprised in the relationship, changes (Baxter and Britton, 2001). Therefore, an important concept within risks to identity is the extent to which we see ourselves as 'entangled' (Andersen and Chen, 2002) with other individuals. Within energy contexts, these have been noted as ways of underpinning our understanding of meaning within the practice of

energy consumption and understandings and expectations of self in relation to others (Henwood et al, 2017).

2.4 Renewable Energy and Risk

This section addresses some of the issues that have been raised with regards to energy siting contestations in previous research. Much of this body of work is in relation to wind energy (particularly onshore) but also features work from other renewables, nuclear energy and a small body of work that has looked at marine renewables specifically. There were three main preferences for the studies which feature in the following section. Firstly, the following cases were primarily chosen in order to present a broad range of issues that have arisen from project siting contestations. While these case studies are in relation to low-carbon energy projects, they do not present the full breadth of low-carbon energy technologies. As such, the following section is arranged thematically in relation to the kinds of issues that arise, with each case study being chosen based on how it highlights certain issues. This method was preferred as it was deemed that a review of the potential issues that may arise was a more useful for the study, particularly in order to help inform the initial lines of enquiry (see 3.3 Sampling and Recruitment). Second, there was a preference for studies to be focused on developed countries in order to highlight similar relevant socio-economic issues. Third, there was a preference for studies to be focused on a UK and Irish setting, so as to find evidence most closely aligned with the local culture of South Wales. However, much of the work is global in its span, with a predominant focus on Anglophone countries. Particularly prominent in this following section is the work of Hall et al (2013), who's work on collating evidence on responses to wind turbine placement from Australian case studies highlight some of the core issues surrounding RET siting contestations.

Trust

Trust is a key issue within facility siting contestations (Wustenhagen et al, 2007), with developers aims, attitudes and competency coming under inspection. Created slowly but destroyed quickly (Slovic, 1993), trust between developers and the local community is of key importance to successful siting (Walker et al, 2010) and cannot be assumed between differing contexts. Trust between local publics and professional actors has also been highlighted as holding importance (Huijts et al, 2007) particularly in relation to new technologies. Subsequently arguments have been put forward (Walker et al, 2010) calling for project developers to undertake trust-building exercises with local publics and communities from the earliest stages.

Distribution of Benefits

An equitable distribution of the benefits stemming from projects (including financial) has been highlighted as a contentious issue in renewables siting as there remains a tendency for only site hosts to receive any project benefits (Hall et al, 2013). Projects where developers avoid being portrayed as outsiders exploiting local resources (Huber and Horbaty, 2010) have been viewed as more desirable. Unequitable distribution has been highlighted as holding the ability to fracture community well-being (Gross, 2007), and so benefits should be spread amongst those 'experiencing or anticipating the creation or exacerbation of social divisions' (Hall et al, 2013; 204). Use of financial means to ease social acceptance of RET projects has been criticised as furthering the core assumptions of NIMBYism in self-interest and personal gain (Wolsink and Devilee, 2009). Landscapes are deemed to have irreplaceable qualities which places a lot of symbolic meaning within them, meaning they have great influence on social acceptance of RET projects (Wolsink, 2007). Assumptions that a price can be placed on these connections can be offensive and create perceptions of a lack of understanding of the local community (Satterfield and Witter, 2014).

Employment benefits stemming from RET projects have also been posited in instances as similar or greater than those from fossil fuel projects (Tourkolias and Mirasgedis, 2011) and have been posited as favourable development policies to pursue. Subsequently it has been viewed as a means of addressing unemployment issues in economically disadvantaged regions, especially considering its status as a "high value knowledge based" activity (Johnson et al 2013).

Procedural Justice

Issues of justice have been seen as sometimes side lined within the energy sector (Murphy and Smith, 2013), with a "streamlining" of planning procedures creating an "accelerated process for infrastructures which has been explicitly designed to put through proposals without the need for lengthy local planning enquiries" (Blowers, 2010 p 167).There have also been observations (Woltjer, 2002) that participatory planning processes are far more likely to be used in instances where acceptance seems likely, and avoided in projects where it is expected that unwelcome results might arise. These instances have limited the role of the community in the decision making process, with developers aiming to push through projects as efficiently as possible (Anderson, 2013) on the grounds that public acceptability of projects is a constraint to deployment (Walker, 1995). These "top-down" (Wolsink, 2007) approaches to RET siting where the site has often been determined ahead of any consultation appear artificial (Hall et al, 2013) which can be highly detrimental to the levels of trust that locals have in developers (Anderson, 2013) as well as government (Hindmarsh and Matthews, 2008).

The framework for participatory planning processes has sometimes been deliberately designed in order to bypass subjects that developers believe will evoke strong emotion from locals (Cass and Waker, 2009), who are often characterised as irrational. However, these efforts to deliberately avoid issues of contention largely only serve to exacerbate conflict (Hall et al, 2013; Anderson, 2013). There has also been discussion on the framing of the discussion between stakeholders and developers, with research finding that a majority of developers adopt a science communication approach that frames the individual as a non-scientific lay person (Maranta et al, 2003) based on assumptions, which can often alienate community members (Barnett et al, 2012). Perceptions of justice and honesty within the planning process are vital components in the successful siting of projects (Gross, 2007), with the flexibility to accommodate local concerns (Ashworth et al, 2012) being valuable. It has been noted that involving stakeholders at early stages of the planning process (Renn and Webler, 1994) would be beneficial and that methods should value the various levels of knowledge that multiple stakeholders bring to a discussion, as a means of finding solutions to problems that may arise (Simao et al, 2009).

Place

The effect of place, attachment to it and identities linked to it have also been outlined as a powerful driving force behind objection to developments (Van der Horst, 2007; Devine-Wright, 2009), and even more so in areas of outstanding natural beauty (Devine-Wright and Howes, 2010). Individuals can be highly loss averse to place disruption, to the extent where mitigation and compensation is not tolerable (Hall et al, 2013). It has also been found that individuals with a more active attachment to place tend to also possess higher levels of social and cultural capital (Lewicka, 2011), enhancing the likelihood of a strong and well organised opposition (Anderson, 2013).

Place is space that is attributed meaning (Tuan, 1979) – a value which can constitute a valued object within *relational theory*. An "incarnation" of the experiences and aspirations of people (Tuan, 1979; 387), place is an experience that needs to be understood in semantic terms from the people who

attribute meaning as well as its spatial dimension. If we consider experience to be the “cover-all term for the various modes through which a person knows their world” (Tuan, 1975; 151), then we can acknowledge place as the spatial mode of experience.

Place plays a prominent role in our perceptions of how space should be utilised, with competing notions of place as holding aesthetic value and space for development (Phadke, 2011) sometimes colliding. As such, the issue of place in the planning process is of integral importance with regards to RET infrastructure projects (Wustenhagen et al, 2007), with symbolic meanings and ideas of place (Devine-Wright, 2010) having significant impacts on perceptions. Symbolic understandings of place may generate one “type” of value in a place, while the felt connection that an individual may have to a place represents another. Studies (Swofford and Slattery, 2010; Anderson, 2013; Wolsink, 2007) have highlighted the reflexive relationship between individual perception of place and the planning process, indicating that perceptions and ideas of place should be a key area of study for any RET development. However, this has not always been the case. This inattentiveness to the meaning and value that is imbued within place, in addition to the “entangled” relationships (Andersen and Chen, 2002), is problematic for planning professionals, developers and government to address (Cowell, 2007). These issues are contingent on a particular viewpoint and so ‘the planning problem’ (Ellis et al, 2009) of RET developments is heavily contingent upon perceptions; particularly of ideas and the role of place.

The conceptual thinking which informs how places are shaped is not just based on interpretations of that place, but also through the linking of similar places (Davis, 2005). A growing body of literature (Kempton et al, 2005; McLachlan, 2009; Devine-Wright and Howes, 2010) has examined the relationship between the symbolic meanings of place and renewable energy technology, particularly focusing on how each “fitted” the other. Individual’s attachment to places of symbolic meaning for themselves and their communities are powerful connections that can help shape our identities (Knez, 2005). They tend to have a large amount of value attached to them, making individuals highly averse to any disruption of that attachment (Brown and Perkins, 1992).

The work of Mc Lachlan (2009) found that some of the logic for support and opposition to offshore RET projects was based around symbolic understandings and interpretations of the ocean as a place of nature - echoing work (Kempton et al, 2005) finding that individuals regarded the ocean as somewhere special that should be kept free from technology. Similarly, the work of Lilley et al (2010) found that individuals viewed certain stretches of coast as more appropriate for development than others, drawing upon the symbolic meaning of a bay or sound as somewhere of topographical significance where the landscape should be preserved. As such, ‘sensitive’ and protected landscapes are likely to be contested places in which to develop (Betakova et al, 2015) with publics feeling that valued landscapes should remain unchanged (Pasquelleti, 2011). Symbolic understandings of place are not just limited to those seen as purely “natural”, but also those with human input. Cultural landscapes then are natural landscapes modified by a cultural group (Sauer, 1925) and incorporate symbolic meanings into them (Schmidt, 2018; 237).

Certain projects (particularly marine renewables) have been noted as fostering place-distinctiveness within local communities and individuals (Devine-Wright, 2011) in certain circumstances. Wind turbines have also been posited (Lothian, 2008) as having positive impacts on ‘low quality’ landscapes, while some energy projects carry with them a sense of “ordinariness” in some places (Venables et al, 2012; Pidgeon et al, 2008) as local communities grow used to their presence. Hence it has been proposed that siting infrastructure within ‘stigmatised’ places (Van Der Horst, 2007) may be more amenable to local publics as such places are deemed as somehow tainted by human activity already. It has been argued that the discourse on the impact on place attachment and identities

from developments has been heavily focused on negative responses, with little attention being paid to neutral and positive responses (Devine-Wright, 2011).

Place identity

Place identity (or place-based identity) acknowledges the meaning of place in developing one's self concept. When we consider 'who we are' we often first look to where we are and the places we inhabit for answers (Dixon and Durrheim, 2000). Studies have highlighted a number of ways in which individuals associate themselves and establish a sense of belonging to places (Proshansky et al, 1983), with the variance largely depending upon the societal roles and settings we find ourselves embedded within. A sense of self is also created by the reflexive nature of ourselves and social interactions in our surroundings (Chu, 2004), with our understanding of place and self (Massey, 2013) contingent on their situation in time and place. The 'belonging' that an individual established between themselves and place creates a description of their identity (Hernandez et al, 2007).

Place identity can carry significant meaning within certain groups, particularly within groups of culture, ethnicity or nationality as it enhances the distinctiveness and specialness of one's group (Twigger-Ross and Uzzell, 1996). The spatial bonds between a person and place which symbolise an individual or a group's place identity often only exist because of the social bonds of a group (Lalli, 1992). Relational thinking on risk and identity helps elucidate these relationships between people and place, as well as unearth the "symbolic tangles" (Horlick-Jones et al, 2003) that help better explain issues. For example, degradation of the environment carries evident ecological hazards, but concepts and values that are woven into landscapes and their environments such as belonging and continuity also carry with them pertinent identity risks (Witter and Satterfield, 2018).

Place Attachment

Place attachment is an affective bond between individuals and places of meaning (Hernandez et al, 2007) that is established through emotion (Florek, 2011) and the experience of the individual (Lewicka, 2011). It has been highlighted (Manzo and Perkins, 2006) that place attachment plays a highly influential role in planning procedure, with planners and developers being aware that success, failure and public backlash are all possible outcomes that are partly triggered by how "in keeping" a development is with publics' place attachment. Attachment to place has been shown to have a particularly strong influence over individuals' identities during childhood years (Chawla, 1992), as well as after retirement (Rubinstein and Parmalee, 1992); mainly as the places we become attached to in later life are a strong reflection of how we tend to view ourselves and the meaning in our lives.

At group level, place attachment is comprised of a shared understanding of symbolic meaning of a place within a particular social group (Low, 1992). Group level place attachment is observable across different cultures, genders and religions, and "links members to place through shared historical experiences, values and symbols" (Scannell and Gifford, 2010; 2). Some have posited (Kasarda and Janowitz, 1974) that place attachment is inherently social, and therefore is instrumental in helping establish a sense of community (Perkins and Long, 2002). As Woldoff (2002) points out, place attachment often carries the underlying notion of attachment to the social bonds that also exist within that place.

A multi-dimensional and multi-level understanding of place attachment is of significant use within planning and siting issues, as it allows for the dissecting of the meaning which individuals attach to places (Manzo and Perkins, 2006). For example, in instances where a single place might have different meanings for different people, a multi-layered understanding of place attachment can help expose these differing understandings and relationships between people and place. This could

potentially be of use to research in marine siting issues, where 'meanings' of the ocean can often be contested (McLachlan, 2009; Kempton et al, 2005; Devine-Wright, 2011). The use of relational thinking on identity and risk is important here for two reasons. First, it helps elucidate the different value(s) and meaning, or lack of, attributed to places and by who. Understanding such relationships is important when exploring such contestations. Second, relational thinking allows us to explore the various "entanglements" (Andersen and Chen, 2002) that exist between the individual, places and other people. Understanding such entanglements is crucial to understanding how individuals navigate the various commitments they feel towards different entities.

Technology, Community and Voice

Voice is the means to construct meaning (Dolar, 2006). It is how individuals assemble perspectives through categorisation and prioritisation (Peeples and Depoe, 2014) and how they make these perspectives clear (Couldry, 2010). It is an important tool and resource within democratic spheres, where individuals compete for their values and perspectives to be accepted by others (Huspek and Kendall, 1991). Part of the problem in previous issues surrounding RET siting has been a denial of voice on the part of the host location communities and individuals – with concerns either seemingly ignored or else not deemed legitimate. Here we find a potential identity risk issue, in that ensuring that our values and threats to them are understood and accepted is both meaningful and important to the individual. If we consider voice to be the most basic process through which one's life and its conditions are made apparent (Couldry, 2010), then a denial of voice is in some way an obstruction of this process. If we consider risk to be a threat to something valued (Boholm and Corvallec, 2011) then communicating risk is an essential means of socially establishing one's values and the threats to them. The ability to communicate this connectivity to the world is therefore important as it is the vehicle through which acceptance and understanding is attained. A denial of voice then is an obstruction of this process.

Voice, or rather 'imagined' voice in the form of public opinion, has been utilised as a resource (Walker et al, 2010) for strategic purposes by various actors – so that even when individuals remain devoid of activity surrounding an issue their subjectivity is nonetheless invoked and utilised. This act, when committed by private sector actors, has been termed 'corporate ventriloquism' (Bsumek et al, 2014). It is a type of appropriation with an uneven power structure, unlike lateral appropriation (Anspach et al, 2007), whereby financially powerful corporations 'transmit' voice through seemingly less powerful actors (Bsumek et al, 2014; 26) as a means of gaining legitimacy, access and power within host communities. This practice can be viewed as a means of benefit 'amplification' (Kasperson et al, 1988) by tapping into cultural and social connectivity (and the associated bonds).

It has been argued that publics maintain more positive attitudes towards 'community energy' (Kalkbrenner and Roosen, 2016) and are more receptive to 'community' projects instead of 'top-down' projects (Walker and Devine-Wright, 2008), with the term community often used in 'positivist' ways (Haf, 2016). The concept of community is evidence of social bonds influencing perception, and in relation to energy it appears that local communities are more receptive to 'lateral' (i.e other communities or non-profits etc.) actors as opposed to those organisationally and financially more powerful.

The actions of project developers comes into focus as companies utilise effective public relations to "popularise" their image in host locations (Smerecnik and Renegar, 2010) and beyond. In some cases these methods, as well as cultural and social factors, can create intricate links between energy and individual and community identity (Scott et al, 2014) which can in turn impact wider worldviews. In particular relation to environmental and ecological impacts, it has been observed that private actors

engage in the misleading of consumers with regards to impacts (Cox, 2010) and deliberate denial (Pezzullo, 2003) which has been termed 'greenwashing'.

Technologies are not stand alone entities, but rather together constitute wider patterns of how we as humans interact with the world. In addition to the physical ways in which technologies hold meaning within our lives, through imagination they are also able to produce collective interpretations of reality (Castoriadis, 1987). Imagination is not just daydreams, but instead a cultural resource which enables meaning to be structured into the future - resulting in paths being set towards reaching it (Sarewitz, 1996). In addition to projecting ourselves into cultural identities (Hall, 1992) we also align with broader 'sociotechnical imaginaries', that are "collectively imagined forms of social life and social order reflected in the design and fulfilment of nation-specific scientific and/or technological projects" (Jasanoff and Kim, 2009, p. 120) and "powerful cultural resources that help shape social responses to innovation" (Jasanoff and Kim, 2013; 190). They represent meaningful connectivity between technology and national identities as signifiers of communal direction towards idealised futures, with particular technologies playing core roles in helping nations and communities achieve desired outcomes.

Communities of varying scales become important within the discussion on energy and renewables, as they are each invoked for differing purposes. The "Imagined Communities" discussed by Anderson (1983) are a way of conceptualising nationalism. Here the community and individuals that a person *knows well* (speaks to, sees, hears) are reproduced within their imagination onto a scale of national proportions so as to envisage notions of kinship. By imagining others as living lives similar to their own they foster meaning between themselves and people they have never met. Subsequently these imagined peoples and communities take on importance. However, in analysing the understandings of community within the context of the lagoon there is a need to separate imagined communities (which are largely abstract in the mind of the participant) from those within which they physically (or virtually) interact. For example, while the individual may certainly utilise this conceptualisation of an imagined community at a more local (e.g - city—wide) level as well as national, there are varying levels of interaction between the individual and these communities which impact upon these understandings and imaginations.

If we start with the most well-known community to the individual – their immediate social circle – which may consist of family, friends and colleagues, at this level of community the individual has a strong understanding of the community, the relationships within it and their role in such relationships and community (Andersen and Chen, 2002). This contrasts greatly with Anderson's level of community, where the understanding of role is very much one that it is amplified outwards from its original context and then projected onto others – effectively attempting to copy and fit the relationships with our significant others (Andersen and Chen, 2002) into new contexts. Subsequently, there is a varying scale of kinds of imagined communities ranging from the purely imaginative to those that are and *well known* to the individual, yet still rely upon some level of imagination.

Marine Renewables Specific Issues

The following section discusses some issues that have arisen in relation to marine renewables from work within the society and energy space. It considers issues which are inherent to marine renewables (such as operational issues) as well as contextual ones based on the current energy landscape and lay publics' knowledge (economic impacts and technical unknowns).

Operations and Marine Ecology

The ecological impacts from marine renewables developments have been highlighted as impactful on humans (Jenkins et al, 2018) particularly in relation to marine mammals and fish (FERC, 2014). With empirical research yet to demonstrate the absence of hazard from marine renewables – often as it is difficult to do so (Devine-Wright, 2011) – the possibility of collisions between marine life and underwater operations (causing distress to fish and/or mortality) has been highlighted as a potential risk issue. This risk issue is seen as having a human connection through individuals' connectivity to the environment and its meaning within their culture (Henkel et al, 2013). Discussed later in this thesis (see Risk chapter) is an overview of the risks discussed in relation to the Severn Barrage project, which was viewed as likely to cause significant ecological damage. Fishers' perceptions of marine renewables has also been surveyed (Alexander et al, 2013), with most participants holding either a positive or neutral view of the technology. However, this survey was in relation to commercial fishing activity off Scotland's Western coast – a fleet predominantly with small vessels and primarily capturing shellfish. The opinions of recreational fishers on marine renewables remains an unexplored issue, particularly in understanding attachment to the environment, meaningful practice and social connectivity.

Technical and the Temporal

Lay publics' knowledge of marine renewable developments has been noted as lacking in some basic technical aspects, such as design and operation (Wiersma and Devine-Wright, 2014). When onshore wind was first being deployed in the UK in the early 1990's it was observed that some locals gave approval while remaining largely unaware of what to expect from projects (Eltham et al, 2008). Subsequently it was observed that locals attributed a range of problems in the local area to the wind farm (including increased wind speed since the wind farm's introduction), with researchers positing that these were representative of a desire to protest (Eltham et al, 2008; 30) underlying issues stemming from their treatment by developers.

As a technology with existing hardware but an unprecedented configuration and operating method, the tidal lagoon remains in the category of a 'new' technology. However, some hazards stemming from turbine operation (amongst other things) can be well understood from previous and similar technologies. However, the risks stemming from the lagoon are likely to be contextually unique due to its configuration and operation. As such, there are some comparable types of technology and infrastructure for individuals to help imagine what lagoons might look like. However, the lack of any technology/infrastructure close to lagoons means that understanding them requires imagination on the part of the participant. It is anticipated then that there may be some difficulty in ascertaining how participants may come to see their attitudes towards the project change due to a lack of both development on the lagoon project and more temporal methods of enquiry.

Economics and Marginalised Communities

Marine energy has significant deployment potential in economically disadvantaged locations (Johnson et al, 2013) and is seen as a way of addressing unemployment problems within these communities. The nature of the industry as one still (relatively) in its infancy, and the perceived status of the UK as a potential leader in the industry (DECC, 2013), means that the research, design and innovation potential is a desired economic and symbolic attribute; with the status of "high value knowledge based" activity noted by UK local government (Johnson et al, 2013). The Welsh Government has posited Wales as a future world leader in the industry, while Scotland and Northern Ireland also acknowledge potential economic upsides. However, the political landscape has been raised as a risk issue for the industry (Kolios and Read, 2013) due to politics at UK government level and budgetary issues. Additionally, offshore wind projects have been posited as potentially harmful

to sectors of coastal-tourism industry (Acheson, 2012), but it is uncertain what impacts tidal and wave energy may have in this regard.

Discussion-scapes

This thesis posits and utilises the term *discussion-scapes* as a means to conceptualise the localised social theatre within which the study of the lagoon took place. In utilising a relational risk to identity approach, analytical focus is emphasised on understanding meaningful connectivity. Understanding pre-existing meaningful connectivity, especially social relationships, is crucial to understanding how a risk event (such as a siting contestation) is understood within a specific place, time and culture. Discussion-scapes are attentive to the "social context" (Johnson, 1987) of siting contestations, representing understandings of the interplay between spatial, social and symbolic elements in relation to a particular event. They bring into focus how a certain risk event relates to individuals and their connectivity to the world, and what consequences result from their responses to said risk event.

Various conceptualisations of people and place/space dynamics present useful framings for understanding relationships within specified contexts. For example, *cultural landscapes* (Sauer, 1925) acknowledge interaction between spatial, symbolic and social elements, and are important in understanding the concept of territory (Schmidt, 2018; 246). *Mythscapes* then are "the discursive realm, constituted by and through temporal and spatial dimensions, in which the myths of the nation are forged, transmitted, reconstructed and negotiated constantly" (Bell, 2003; 75). *Taskscapes* (Ingold, 1993) draw together social and cultural anthropology with archaeology to bring temporal focuses of doing into the traditional term of landscape.

Discussion-scapes centre on a risk "event", or a situation in which individuals and communities are engaged and make decisions/responses too. Many of these responses may be muted, but still represent an active choice on the part of the individual/community. In this instance, the Swansea Bay Tidal Lagoon proposal is considered to be the risk event. The purpose of a discussion-scape then is to map and portray the resulting localised discussion in relation to this particular risk event. They require individuals to engage perceptually in the imaginative production of actors, communities, places and the subsequent discussions that arise in relation to the phenomenon.

Discussion-scapes serve as a foundation for understanding the emergent events and discourse in relation to a specific risk event, and so should be considered as the contextual grounding of any key findings (represented in Figures 8.1, 8.2 and 8.3 – see Chapter 8). The relationships between the core elements, outlined in Figure 2.7, and the risk event are temporally sensitive – meaning that the existence of specific discussion-scapes is far more transient than physical landscapes. Subsequently, they outline a way of conceptualising the contextual background of the data and information which formulates the analysis (see Chapter 4 through 7) and why these elements were particularly relevant within specific time periods. This does not mean to say that discussion-scapes change drastically in short time periods (indeed only during the most cataclysmic events – e.g natural disaster or war), but rather that particular features become more or less relevant over time.

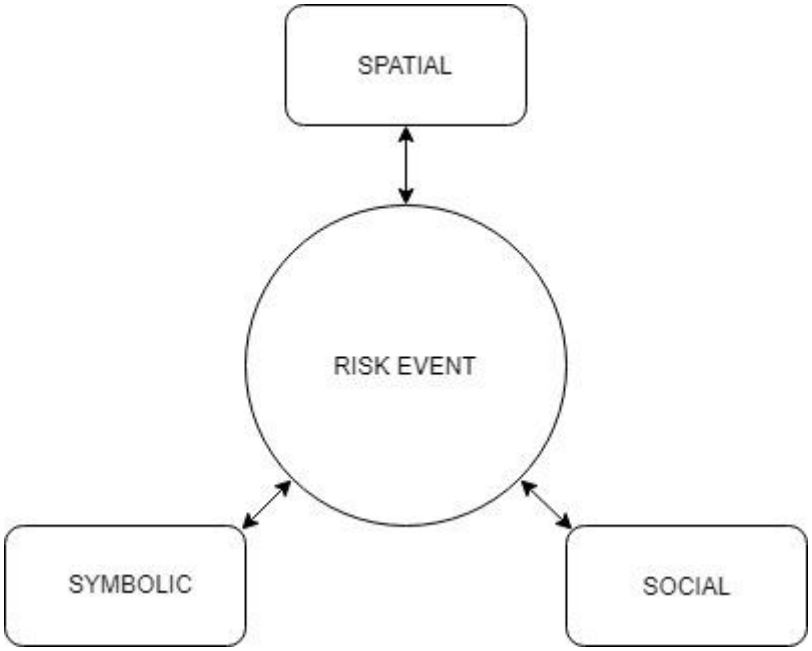


Figure 2.7 – The conceptual elements of a discussion-scape.

These features could be thought of more as ebbs and flows, or else peaks and troughs; continuously present but more and less emphasised at different time periods. For example, the threat of economic downturn and unemployment was an underlying risk issue within the Swansea discussion-scape, and featured particularly prominently at the time due to the upheaval caused by Brexit and the difficulties of the TATA steelworks in Port Talbot. While this kind of underlying risk issue is likely always present, it was particularly enhanced during the data collection period of this study (e.g a 'peak' or 'flow' moment). Subsequently, the 'risk event' (the lagoon development) took on new symbolic (see Diego, Dale, Darren and Doug in Chapter 5) and social importance (see Sara and Diego in Chapter 5) within the Swansea discussion-scape as a way of potentially mitigating the threat of unemployment and economic downturn.

Discussion-scapes are comprised of three core elements in relation to the risk event (see Fig 2.7). The spatial elements of discussion-scapes relate to the topographical details of the landscape in question, providing the physical contours which inform the social contours – as well as some physical boundary. In some cases, the risk event may in turn influence the spatial makeup of the landscape – i.e if projects are subsequently constructed. Important here is that these physical elements are imbued with meaning, and so constitute place instead of vapid space. The relevance of this is that these meanings can be (and often are) contested. Places which are imagined as natural and pristine for some may simultaneously be imagined as messy or unsightly to others (e.g mudflats). Therefore it should be acknowledged that discussion-scapes are not one definitive, but rather multiple and subject to change.

The symbolic elements constitute representations of meaning and relate to the culture(s) which inform the risk event and are then in turn partly shaped by the event. The construction of major projects, or indeed their refusal, can be significantly impactful upon local culture, countering or furthering conceptualisations of people and place as either meaningful or overlooked. While all of the conceptual elements of discussion-scapes involve attributions of value and meaning to certain events and objects (at least to some extent), symbolic elements attest to ascribing value/meaning to

the least tangible aspects (see Figures 8.1 and 8.2 in Conclusions Chapter). For example, it has been highlighted that the term 'community' is often used in a positive way (Haf, 2016) to convey a sense of connection between a project and nearby populations. In this sense, projects that are viewed as part of a community or benefitting the community may be viewed as more appropriate than non-community projects due to this symbolic understanding of appropriateness. Similarly, projects that fit within a particular sociotechnical imaginary (Jasanoff and Kim, 2009) may be deemed as more appropriate as they symbolically fit within the perceived trajectory of the nation (For examples on symbolic elements see 5.2 - Missing Piece to a Puzzle).

The social elements pertain to the interpersonal relationships in relation to the risk event, and include relationships that are both *imagined* and *well-known* within the local landscape. These elements represent some of the most recognisable examples of meaningful connectivity in our relational connectivity to one another (i.e 'significant others' – Andersen and Glassman, 1996). However, our understanding of self is built between individuals (Lawler, 2015) and so the relationships that we construct as contextually relevant (i.e 'relevant selves' – Andersen and Chen, 2002) are also important examples of connectivity which influence, and are influenced by, risk events. For example, knowledge of the effects of climate change has led for some people to adopt more environmentally sustainable behaviour(s) in order to fulfil the requirements they expect of themselves as either caring or responsible. As is outlined in the analysis (see Diego in Chapter 5 – p67), the perceived capability of individuals to 'project themselves' (Hall, 1992) into the behaviours and requirements of these relevant selves can form important valued objects – and so anything that inhibits this perceived capability may be considered a risk.

Important throughout all three core elements of discussion-scapes is the concept of voice, particularly when it is appropriated and utilised as a resource to further actors' positions. For example, the voice of spatial elements (such as the environment) may be invoked to carry weight in certain arguments on physical impact, or the voice of the community (social) for discussion on the economy, or the voice of culture in creating "shared identity" with the risk event. Imagination also plays an important role within discussion-scapes, with its use also being present in all three core concepts. For example, imaginations of culture are influential in guiding decision-making as we "project ourselves" into perceived expectations (Hall, 1992; 598). Imaginations of spatial elements are important in understanding the visual aesthetics of future potential landscapes, helping guide understandings of how project's "fit" into landscape (Wustenhagen et al, 2007). Imaginations of the social are also highly important, as individuals contend with local commitments (or "entanglements") and understand the localised politics of the situation.

Discussion-scapes then are not pre-determined, but are rather socially constructed within a contextualised and localised setting with physical borders created from social convention. For example, *discussion* or *talk* in Wales has physical boundaries introduced by the conception of Wales as a place and as a community. There are implicit rules on who should or should not operate within discussion-scapes, as their voice is provided with a certain status based on their connection to the *discussion-scape* in question. As Ingold highlights, (1993) land and sea are "quantitative", while landscape is "qualitative". So while physical boundaries are acknowledged, they are not static, but rather dynamic and subjective imaginations. Therefore, they should not be thought of as bounded, but rather as a "constellation of processes" (Roberts and Henwood, 2018).

Depending then on physical factors such as geographic space and proximity, as well as population size and political representation, actors within discussion-scapes may be relatively well defined and well known to one another. This social connection is important as it is through these sets of relationships that "identity" is emergent, and as actors look to "improvise and adapt to conditions in

which they find themselves" (Roberts and Henwood, 2018), which partly informs how actors communicate. Discussion-scapes, much the same as *Taskscapes* (Ingold, 1993) and *Everyday Energyscapes* (Roberts and Henwood, 2018), are a set of lived in places where actors must deal with the consequences of their (particularly communicative) actions. With the utilisation of a relational approach to identity theorisation, it is easy to see how identity risk from communication might emerge as the degradation of the quality (or even existence) of sets of valued relationships as a result of such communicative actions.

2.5 Rationale Summary and Research Questions

Climate change, and the series of risks it presents, has established a need for action from national government who seek to reduce the UK's carbon footprint while doing so in a manner which is deemed acceptable to the public. While behavioural change regarding consumption is a targeted issue, engrained attachments to consumption are hard to let go of. The deployment of further renewable energy generating infrastructure is important to increase installed capacity and move societies away from intensive forms of consumption. However, siting of these infrastructures has proved contentious and less than straightforward.

Research that has focused on selfish motivations of individuals' opposition to projects denies individual agency legitimacy from a policy perspective, and furthers ideas of 'irrational publics'. A more nuanced approach is required that caters to the importance of human agency as a means to understanding this opposition. This study utilises a risk to identity approach to explore complex issues of value attribution and perceived harm by drawing upon relational thinking in risk (Boholm and Corvallec, 2011) and identity (Andersen and Chen, 2002; Mason, 2004). This approach focuses on understanding connectivity and its meaning to individuals, particularly the social relationships through which communication occurs and siting contestations are constructed. A risk to identity approach is attentive to siting contestations as lived in places, where complex webs of social connectivity result in *discussion-scapes* emerging in relation to these risk events. As these events are constructed through communication, this study utilises expanded thinking on the Social Amplification of Risk Framework (Pidgeon et al, 2003) to understand how siting contestations become part of larger 'symbolic tangles' (Horlick-Jones et al, 2003). This expanded thinking allows for the exploring of how and why potential risks and benefits arising from the Swansea Lagoon became amplified or attenuated. Subsequently, the research seeks to attain answers to the following questions –

1 How was the Swansea Bay Tidal Lagoon perceived as a risk to identity?

1b. Were these risks anticipated to change? If so then how?

2 How was the Swansea Bay Tidal Lagoon perceived as a benefit to identity?

2b. Were these benefits anticipated to change? If so then how?

3. How were these risks and benefits communicated?

3. Methodology

This chapter reviews the methodological considerations of the study. It begins by outlining the methodological framework the research was conducted through and establishes its epistemological stance. It then clarifies a number of definitions utilised in the study that form the researcher's

chosen terminology. It then explains the sampling and recruitment method, paying close attention to providing sufficient detail on this core aspect of theory generation. It then discusses how and which methods were used throughout the three data collection stages of expert/stakeholder, publics' and local opposition groups. Again this section pays close attention to how a combination of social research methods were used in a creative yet systematic manner. It then outlines the data analysis stages before discussing some of the ethical considerations and their applied meaning.

3.1 Methodological Framework

This thesis draws upon a constructivist epistemological stance that views individuals as critical in the construction of social reality (Hodkinson, 2008). While the physical world is set apart from the human mind, it is through the mind that knowledge of the physical world is constructed (Crotty, 1998). In encouraging close collaboration between researcher and participant, a constructivist approach enables participants to tell their stories (Miller and Crabtree, 1995) and describe their perspective of reality (Lather, 1992). A constructivist approach recognises the importance of subjectivity without completely rejecting objectivity (Stake, 1995).

In adopting a qualitative approach the research takes an interpretivist philosophical perspective which explores how individuals interpret and make sense of the world around them (Bryman, 1988). Qualitative research offers a range of useful methods for studying the social world (Henwood, 2008) and prioritises the accounts of the individual as legitimate data (Mason, 2017). However, in encountering multiple and potentially conflicting accounts we must demonstrate how our systematic inquiry is justified (Hammersley and Atkinson, 1983) and so we apply tests of practical reason (Blumer, 1939). As such, there is a need to clearly demonstrate rationale and thinking behind decisions that the researcher makes and how they assisted in the development of theory.

This thesis utilises a case study method as it provided a holistic opportunity for the research (Gummesson, 1988) and enables the accessing of information that other methods have difficulty in reaching (Sykes, 1990). Case studies are suited to the exploring of poorly understood issues (Hartley, 1994) and allow the investigating of a contemporary phenomenon within its real life context (Yin, 1993). However, case studies without theoretical frameworks run the risk of providing description absent of meaning (Hartley, 1994), and so the research explores perceptions of, and responses to, the Swansea Bay Tidal Lagoon and the context that informed these perceptions and responses. The study adopts a Grounded Theory approach as means to explore perceptions on the lagoon and generate explanations that are grounded within context. Both Case Studies and Grounded Theory provide useful methods of enquiry that are attentive to rich data and context, and provide an iterative approach which enable substantial descriptions of the issues.

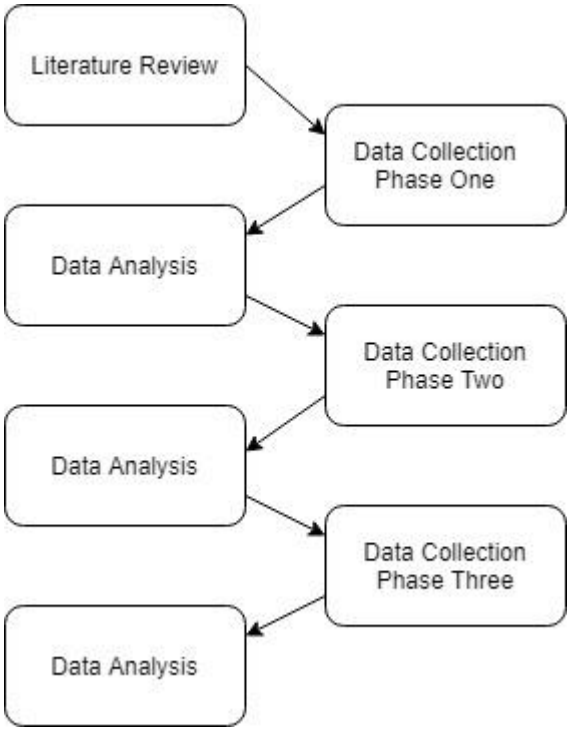


Figure 3.1 – Outline of primary data collection. Phase one included expert/stakeholder interviews, phase two included publics interviews and phase three consisted of homogenous group interviews with local opposition. Purposive sampling was utilised for phase one while theoretical sampling was utilised for phases two and three.

The utilisation of a risk to identity approach places an emphasis on perceptions at the individual level (see section 3.2) as a way of exploring the conflicts that exist between individuals' varying kinds of meaningful connectivity. For example, personal connectivity to place may conflict with community need for economic development (see Sara – section 5.1). The research questions were left intentionally simple as a means of incorporating an initially broad focus which sharpened as emergent findings and theoretical reflections were generated.

DATA COLLECTION PHASE	PARTICIPANTS	METHODS
Phase One	Stakeholders/Experts	Stakeholder interviews and piloting of cultural probes
Phase Two	Publics	Semi-structured interviews with cultural probes – mapping, drawing, walk along and photo-elicitation.
Phase Three	Opposition Groups	Homogenous group interviews

Table 3.1 – Overview of data collection phases and methods used.

Primary data collection consisted of three main phases (Figure 3.1), beginning with a review of literature. This informed initial decisions on phase one sampling as well as lines of potential theoretical enquiry. Data analysis was conducted continuously throughout in an iterative process in keeping with a Grounded Theory approach. Emergent findings from data analysis informed further sampling for phases two and three, as well as sub-phases A, B, C and D at phase two (see Figure 3.3).

3.2 Definitions

The following section outlines a number of definitions of terms that are used throughout this study.

At Risk Participants – individuals included within the study who perceived risks in relation to the Swansea lagoon proposals, the proposed supply chain quarry in Cornwall, or the resulting discussion-

scape. Those individuals with risk perceptions who were not part of primary data collection are referred to as *At Risk Individuals*.

The Developer – universally applied to the creator of the tidal lagoon project proposal, their parent company (responsible for other tidal lagoon proposals) and the entity planning to re-open and operate Dean Quarry, Cornwall.

Publics – the term 'publics' is preferred as it highlights plurality and difference within seemingly straightforward majority perspectives on 'public opinion' (Mohr et al, 2013). It makes the point that when members of the public are mentioned they are not considered to be one monolithic entity, but rather groups of collective and shared interests.

At the Individual Level – this term is used to describe analysis of individual's accounts. It has been highlighted that use of aggregated data has led to the neglect of risk perceptions at the individual level (Siegrist et al, 2005) and so does not capture complexities and nuances that go unnoticed through more quantitative means (Krimsky and Golding, 1992). It intends to explore disconnects and conflicts that an individual feels between different kinds of commitments which "pull" in different directions (Hall, 1992). However, while these conflicts are viewed as at the individual level, they are inherently relational as they demonstrate meaningful connectivity between the individual and their social world.

3.3 Sampling and Recruitment

Consistent with a grounded theory approach the research utilised a theoretical sampling method that occurred within three broad phases (see Figure 3.1) and four sub-phases during the second phase. The sample was not targeted at providing a broad and diverse range of participants along socio-demographic lines as this is to assume that these characteristics would be relevant to the emergent theory (Morse, 1991). Instead of demographic indicators the initial sample aimed at exploring accounts relevant to the phenomenon which would be sufficiently rich in data, enabling a well-informed next stage of sampling. The initial sample was comprised of expert stakeholders whose relevant area of expertise are outlined below (see Table 3.2).

While Glaser (1978) advocated entering the research in 'abstract wonderment', this thesis adopted an approach utilising the existing knowledge on the issue as a 'departure point' (Walker and Myrick, 2006) as an "open mind" should not be portrayed as an empty one (Dey, 2007). It is important then to recognise that the researcher had some ideas of where to sample (Coyne and Cowley, 2007), which was drawn from the literature review and initial research into the tidal lagoon proposal and relevant media and social interactions.

It is important to note here that, originally, stakeholders who were directly involved with the lagoon project (including the developer and Natural Resources Wales) were approached for involvement in the study. However, the developer did not respond to the request for participation and NRW had to decline as they could not comment on ongoing licensing issues. Subsequently, it was decided that excluding those directly involved could allow the research to focus on the surrounding discussion (as it emerged) from important local actors. The direct benefit of this approach was that the analysis operated under much of the same knowledge that was available within the public sphere at the time.

A purposive sample was utilised for Phase 1 to identify participants with a good knowledge (Bluff, 2005) of the lagoon proposal and the potential issues involved, providing the required depth and richness (Patton, 2002) required for this initial stage. These expert stakeholders were identified as likely to have a strong influence within the localised discussion-scapes in both Swansea and South

Wales. As the study was primarily focused on the localised discussion-scape of Swansea Bay, and did not seek to engage with actors primarily based at a UK level (e.g UK government), there was only a single Phase 1 participant (Paul) representing local media. However, this participant's organisation also possessed the largest coverage of the lagoon by any one single outlet. It is important to reiterate that the sample only consisted of experts with knowledge on issues surrounding the lagoon, but who were not directly involved with the project.

PARTICIPANT	SECTOR	EXPERTISE AREA
Sion	Industry	Renewables Policy
Gwyn	NGO	Ecology
Iolo	Research	Ecology
Paul	Media (Local)	Public Opinion
Dafydd	Research	Planning Policy
Gwen	Government	Renewables Policy
Barry	NGO	Marine Ecology
Dale	NGO	Anti-Nuclear
Darren	Research	Marine Renewables
Jack	Research	Marine Renewables
Shane	Government	Local Government
Michaela	NGO	Environmental Policy

Table 3.2 – Phase 1 participants and relevant sampling characteristics.

Phase 1 participants were recruited directly by email via their institutions. All theoretical sampling is purposive but not all purposive sampling is theoretical (Hood, 2007), and so Phase 1 participants were not selected based on emergent theory. Theoretical sampling was applied once theory had begun to be *generated* (Henwood and Pidgeon, 1994) - i.e after analysis had been conducted of the initial purposive sample. The initial theoretical sampling was concerned with the perspectives that those individuals within the purposive sample could provide (Breckenridge and Jones, 2009). Phase 2 sampling occurred in four smaller sub-phases (A,B,C,D) each after analysis of the previous sub-phase had taken place and engaging theoretical sensitivity (Glaser, 1978), a capability that is as insightful as it is blinkering (Henwood and Pidgeon, 2003).

PARTICIPANT	AGE	LOCATION	OCCUPATION	NOTES	SUB-PHASE
Ioan	25-34	Cardiff	Labourer	Ecology background	D
Tim	25-34	Swansea	Researcher	Marine recreationalist	B
Doug	65+	Swansea	Retiree	Former Steelworks employee	A
Joe	25-34	Port Talbot	Engineer	Current Steelworks employee	B
Sara	<25	Swansea	Student	Nurse	A

Isobel	<25	Swansea	Student	Nurse	B
Frank	65+	Swansea	Retiree	Ex-Fisherman	D
Trudy	25-34	Cardiff	Researcher	Swansea + Port Talbot Leaver	B
Max	65+	Gower	Retiree	Ex-Engineer	C
Jane	25-34	Swansea	Researcher	Environmental Background	C
Diego	25-34	Cardiff	Hospitality	Swansea Leaver	A

Table 3.3 – Phase 2 participants and relevant sampling characteristics.

Phase 2 participants were recruited primarily via three means – the researcher's personal connections (Diego, Doug and Sara), the use of gatekeepers (Jane, Tim, Max and Joe) and snowball sampling (Frank, Isobel and Trudy). The remaining participant (Ioan) was recruited from within the audience of a presentation given on the lagoon by the developer, after raising a question. The descriptions in Tables 3.2 and 3.3 aim to provide relevant and non-generic information on participants in an attempt to better elucidate the sampling rationale. However, these descriptions are "static" (Morse, 2006) and do not highlight the relevant justification of decisions made after initial analysis (Barbour, 2001). There is a need to demonstrate what was relevant about the participant to justify their involvement in a certain sample stage. To not demonstrate how participants were chosen as part of theoretical sampling means obscuring what relevance they had to the emergence of findings and theoretical reflection.

What follows are sampling "lines" which are aimed at "capturing the flow" of this process (Breckenridge and Jones, 2009) and elucidate how theory emerged. They begin with highlighting relevant literature theories were grounded in before addressing the relevant Phase 1 participants. Initial findings from the Phase 1 analysis are then presented which inform the sampling "qualifying points" for Phase 2 and the relevant participants with their "qualifying characteristics". This process is then repeated for later samples (at both Phase 2&3 levels) as well as disclosing any divergent cases.

Phase 3 participants were recruited in the search for divergent cases. As discussed later in this thesis (see Risk and Benefit Chapters), many of the voices within the study were supportive of the lagoon development and so there was a difficulty finding critical voices. Many risks that were anticipated (based on previous literature) failed to materialise in the data (see Absent Risks – risk chapter), and so the search for balance necessitated a sample from opposition groups. These participants are outlined in Table 3.4, all of whom were recruited by email via membership of their group.

PARTICIPANT	LOCATION	NOTES
Jamie	Swansea	30+ years angling group membership
Theon	Swansea	30+ years angling group membership
Mandy	Lizard Peninsula	Local Farmer
Tara	Lizard Peninsula	5th generation Cornish
Morgan	Lizard Peninsula	Former Green Party member

Table 3.4 – Phase 3 sample participants and relevant characteristics

As discussed, there was a difficulty sourcing potential dissenting voices and the ability to explore potential risk issues. Subsequently much analysis was performed on participants' accounts of how the lagoon was perceived as beneficial to identity while the creative generating of theory (Henwood and Pidgeon, 2003; 1994), was responsible for asking why anticipated risks were not present within the data (see Absent risks, Risk Chapter). Data then was used as guidance but did not limit theoretical enquiry (Layder, 1993). The theories emergent from the risk perceptions of the Phase 3 participants were thus heavily embedded within their own specific contexts, and so did not require the sample lines – as presented below.

Relationships as Entanglements Sampling Line

This line of enquiry originated from literature highlighting the impact that emotional entanglements have in guiding actions (Andersen and Chen, 2002). These entanglements have been seen to be particularly powerful when considering notions of care towards others, taking on a superseding level of importance (Henwood et al, 2016). Pertinent questions within the researcher's thoughts considered how this kind of relational connectivity might impact thinking on the Swansea lagoon, and what kinds of issues in Swansea might hold this superseding level of importance.

The initial sample incorporated two stakeholders who were considered to possess substantial knowledge of the local area, its people and its issues. Paul worked in local media and was a 'long term incomer', while Shane worked in local government and was a long term resident, having lived most of his life in the area. Both participants working roles required high levels of attentiveness to social dynamics and issues of the local area, including the lagoon and other project proposals. Analysis of this sample indicated a perceived 'need' for employment in Swansea that was seen as a superseding issue. The provision of employment was seen as in the community's best interest, partly for economic purposes but also to address pre-existing worries about economic insecurity.

The second sample sought to understand more about this economic insecurity, the local job market and the reasons why individuals moved to and away from Swansea. Identifying traits included those who had recently moved to the area and those who had recently left the area. Diego (age 25-34) had recently left Swansea to be closer to his career in Cardiff, while Trudy (age 25-34) also left her hometown just outside of Swansea some years prior before living in Port Talbot, Swansea and finally just outside of Cardiff. Both incomers, Sara and Isobel, were nursing students at a local university (age under 25) who had both moved to Swansea two years prior.

Also relevant to this sample were participants' working roles as nurses (Sara and Isobel) and life roles as parents (Diego and Trudy). As discussed further (see Diego and Sara – benefit chapter),

understanding participants meaningful connectivity to other people proved important in gaining insight into what participants expected of themselves. These expectations proved impactful on participants' perceptions of the lagoon and their responses towards it. Analysis of this sample were that assertions made in the previous sample were largely furthered. The lagoon was viewed as providing high value employment opportunities in desirable industries, and largely portrayed the idea that supporting the lagoon was seen as to be supporting the community. Participants found that 'caring for' the community was a motivation to amplify the benefit of the project, as well as attenuate risk.

The third sample sought to further understand to what extent the lagoon was seen as in the best interest of the community. Having attained an understanding of perceptions of local economic issues from incomers and leavers, the third sample sought long term residents. It was deemed that these long term residents would have deep and meaningful connections with not only the local area, but also the local community and identity of Swansea Bay. It was deemed appropriate that at least one participant should be involved with the local steel industry, considering how the ongoing issues at TATA steel in Port Talbot (see case study chapter) had been so prominent in participants' thoughts. This sample consisted of two participants – Joe (age 25-34), employed in the local steel industry and living in Port Talbot, and Jane (age 25-34) who lived in Swansea and worked in the environmental sector. Data from this sample found more contingent support for the project than in the previous sample. Both Jane and Joe were broadly supportive of the project yet wanted to see the project deliver local benefit (see Joe – benefit chapter). There remained a perception that the project was in Swansea's best interest, yet participants were more reserved on their portrayals of the lagoon in comparison to the previous sample.

The final sample sought individuals who held different views on this issue, but there was a difficulty in finding individuals who were largely critical of the lagoon - especially among members of the general public in Swansea. However, participants were found in phase three of data collection among members of a local group that opposed the lagoon on grounds of ecological impact (see Swansea Bay proposals – risk chapter). Jamie and Theon were both members of this group, and portrayed the lagoon in entirely different circumstances, believing the lagoon would be limited in economic impact, especially after the completion of construction. They also felt that the offer of employment and potential economic benefits had been utilised to sway public support and create a push to ignore potential risk issues.

Missing Piece Sampling Line

This line of enquiry originated within case study findings highlighting positive impacts on local identity from the siting of marine renewables (Devine-Wright, 2011). The idea that marine renewables may possess positive place-making attributes, and contribute towards a place being viewed as unique, was deemed highly pertinent to the study. It was largely concerned with the relationship between the physical environment and local identity and culture – particularly in relation to self-esteem derived from place association. In particular, the recurring idea that Swansea lacked some kind of signature symbol or imagery around which the community could positively associate – the 'missing piece of the puzzle'.

The initial sample incorporated three stakeholders with expert knowledges on renewable energy infrastructure. Darren was an expert in marine renewables based at a local university, Dale was a member of an anti-nuclear and a community renewables NGO while Iolo was an ecological expert based at another local university. Participants from this sample were largely positive on the project, agreeing that it carried positive environmental, economic and cultural benefits. These stakeholders

largely viewed Swansea as a peripheral city within both Wales and the UK. Participants often compared Swansea with Cardiff, portraying the latter as receiving much public and private sector support while the former received little. Participants saw Swansea as largely ignored and passed over for important developments, and so the lagoon appeared to be an almost perfect answer to this issue. The idea of a world-leading technology that would also enable a more sustainable future was seen as positive symbols upon which to base a new Swansea identity.

The second sample sought to explore place-related attitudes towards Swansea among two groups – long term residents (anticipated to have more positive attitudes) and recent leavers (less positive attitudes). Considering the role that Cardiff had played in discussions during the previous sample, it was deemed appropriate to consider participants familiar with the city. The second sample consisted of two participants – Diego (age 25-34) as a recent leaver and Doug (age 65+) as a long term resident. Data highlighted a lingering perceptions of Swansea as lagging both economically and culturally. Both participants described a deep attachment to Swansea and its people, which formed powerful motivation for wanting to see changes for the city that might deliver more positive place association. Both viewed Cardiff's experiences with economic redevelopment, particularly surrounding the Cardiff Bay redevelopment, as a kind of route for Swansea to follow.

The third sample looked to understand the extent to which positive place identity traits stemming from the lagoon were seen as impacting Swansea Bay's surrounding communities. It consisted of two participants who had been resident in one of these surrounding communities within the past two years. Joe (age 25-34) was a long term resident of Port Talbot, while Trudy (age 25-34) had previously lived in a small community outside of Neath, as well as Port Talbot. Analysis highlighted that the positive place identity attributes from the lagoon towards a Swansea identity were limited in their impact on surrounding communities.

The final sample sought individuals with contrasting opinions. Due to the difficulty in finding critical voices of the lagoon this again largely fell to local opposition group members. It consisted of one public participant (Frank) and two opposition group participants (Theon and Jamie). Theon and Jamie were critical of the idea, and viewed how the lagoon had been promoted as a positive symbol as another way in which the developer had mislead the local community. While Frank was not critical of the lagoon he felt no particular positive place identity changes arising from it, and proved to be more ambivalent towards it as a whole.

Tangible Difference Sample Line

This line of enquiry did not originate from well formulated concepts reviewed within the literature. Instead it originated from an amalgamation of many concepts from multiple case studies on renewable energy highlighting that benefits to identity from such projects were largely intangible (discounting financial rewards). The developer had promoted the lagoon as a kind of community asset which could be visited and used for social purposes, and so held distinct differences from many renewables projects that did not possess such qualities.

The initial sample consisted of two stakeholders who possessed good knowledges of the proposals. Shane worked in local government while Sion worked in the renewables sector, with both participants aware of the project since near the beginning. Analysis highlighted how the lagoon was thought of as making a tangible positive addition to Swansea. Participants viewed the project as offering opportunities for material change in how the local community would be able to interact, as well as offer a new and unique venue for various events.

The second sample sought to understand how the lagoon might be used by different demographics of the community and so considered two primary issues – usability and accessibility. It consisted of three participants who represented varying ages (to consider accessibility) and interests (to consider usability) – Doug (age 65+), Sara (age under 25) and Tim (age 25-34). Tim was an avid cyclist, sailor and enjoyed outdoor pursuits (see Tim – benefit chapter) while Sara envisioned using the lagoon as a socialising hub (see Sara- benefit chapter). Doug enjoyed walking along the coastline, and often visited Oystermouth waterfront. The data confirmed that the lagoon was viewed as an opportunity for the local community to gain a unique venue for social interaction. Important was that the lagoon was seen as free to visit, and so was viewed as a kind of community asset, and accessible for all participants and incorporating a diverse range of interests.

The third sample sought to further develop understanding of how the lagoon was viewed as a venue, particularly in relation to usability and accessibility. It consisted of four participants representing diverse demographics and interests. Joe (age 25-34) lived in Port Talbot, while Isobel (age under 25) and Frank (65+) lived in Swansea, and Max (65+) lived on the Gower peninsula. Analysis found that participants agreed that the lagoon presented a useful community asset, although Max and Frank highlighted that weather conditions were likely to reduce its accessibility. Joe and Isobel were particularly positive on the lagoon's potential as a community asset (see Joe- benefit chapter). Again, the search for opposing viewpoints proved difficult. Local opposition group members Jamie and Theon did not disagree in the viewpoint of the lagoon as a tangible community asset, but did view how this idea had been promoted by the developer as an attempt to shift focus away from the more important technical concerns.

Absent Risk/Benefit Amplification Sample Line

Case studies on renewables infrastructure highlight potential identity risk issues including visual impact (Devine-Wright and Howes, 2010), justice and honesty (Gross, 2007), place attachment (Van der Horst, 2007), ecological hazard (Henkel et al, 2013) and community wellbeing (Henkel et al, 2013). There have been calls to situate risk research within specific circumstance (Horlick-Jones et al, 2003) to provide an understanding of individuals as active agents within the discussion on risk. This line of enquiry looked to explore these potential identity risk issues raised in previous research, and how they might be understood within the local context.

The initial sample consisted of four stakeholders participants with expertise in the renewables sector. Gwyn represented the local branch of an environmental NGO and Sion represented the local branch of a renewables industry association. The remaining two participants, Jack and Darren, were both experts in marine renewables research at local universities. Analysis highlighted an absence of some of the potential risk issues outlined in previous research. It also indicated that the lagoon was viewed as more than just renewable energy infrastructure. The lagoon was viewed as a tangible place that the local community could visit and utilise for social and recreational purposes. Some participants saw a potential tendency to ignore risk issues in order to obtain benefits of the project.

The second sample sought to explore the absence of these risk issues, as well as understand to what extent the lagoon was considered to be 'more than' just renewables infrastructure. It sought participants with technical experience of the issues, and consisted of two participants – Tim and Max. Tim was a marine biologist with extensive knowledge of Swansea Bay as it was the main focus of his research, while Max was a retired engineer who had worked on numerous projects in the local area. Analysis highlighted that participants were either disbelieving of potential risk issues or possessed a 'wait and see' attitude, with both feeling that some ecological risks were worth enduring in order to obtain potential benefits.

The third sample looked to further explore the absence of these potential risk issues, and again searched for individuals with relevant expertise. It consisted of three participants – Ioan, Frank and Jane. Ioan came from an ecological background and prior to the interview had shown some potential concerns regarding the impact of lagoon technology. Frank was an ex-fisherman who had previously operated around the South Wales coast, and Jane was an environmental researcher at a local university. Analysis highlighted that participants broadly felt that ecological hazards were worth enduring in the context of risk presented by climate change and local economic worries. While some participants were more reserved in this perception than in the previous sample, they did not present opposing views. However, local opposition group members Jamie and Theon viewed this situation very differently. Both considered the ecological risks from the lagoon's operations to be serious concerns, and were frustrated at the wider public, media and politicians for not treating these issues with more seriousness.

3.4 Method

The following section outlines the methods used in the primary data collection of the study. It begins by outlining the interview process and provides a justification for the use of expert/stakeholder interviews. It then outlines the different cultural probes used in interviews at Phase 2, presenting how the use of differing probes on different individuals was a creative yet systematic process. It then outlines the process used for the opposition group interviews. It is important to note here that the study did not utilise quantitative methods, such as surveys, as it was deemed that the findings of these methods would overshadow the accounts of individuals who saw risks arising from the – reducing their perceptions to mere statistical anomalies (see 2.1 – The risk to identity approach).

Interviews

While this thesis aims to explore issues surrounding individuals' relational connectivity with the world around them (i.e identity), the initial data collection stage draws upon the accounts of relevant experts (or key informants) within fields related to the study of the lagoon. As previously discussed (see p9), there is a need to study responses to renewables infrastructure at the individual level. It is at this level where conflicts within oneself are more apparent, demonstrating the commitments that "pull" in differing directions (Hall, 1992). Understanding these varying commitments is crucial to understanding perceptions of renewable energy infrastructure as they provide understanding of the meaningful connectivity which influences individual's perception and decisions. More quantitative methods carry the potential to neglect risk perceptions at this level (Siegrist et al, 2005) and so do not capture complexities and nuances (Krimsky and Golding, 1992).

It is important to adopt an approach that acknowledges a "democratised" understanding of expertise, where 'common good' is contested (see p20), and the state is not seen as an objective assessor and adjudicator in siting contestations (Boholm and Lofstedt, 2013). The research avoids the assumption of expert knowledge as objective information (Bogner et al, 2009) and instead acknowledges these participants as highly experienced individuals with biases and distinct worldviews. Key informants' "position in society" (Marshall, 1996) in relation to specific roles within relevant institutions justified their inclusion. While some view ideal key informants as impartial (Tremblay, 1982), this thesis treats participants as individuals with particular worldviews, biases and perspectives that are central to informing how they interact with society in relation to the phenomenon. Participants were selected with a wide range of "views" (Burgess, 1984), however, within this thesis the term "view" is replaced with a specific area of expertise (see Table 3.2). Expert interviews served as departure points for further theoretical explanation, and so provided the rich and in-depth contextualised knowledge with which to begin this process

Interviews lasted between 40 minutes and 1 hour and took a semi-structured approach. A mostly standardised set of questions were formulated for stakeholders which were outlined in a protocol (see Appendix D). While these questions were designed to hold some flexibility, with stakeholder interviews providing rich conversation on their area of expertise, this protocol was deemed too rigid for public participants. The protocol for public participants (see Appendix E) aimed to function more loosely and largely served as a list of issues to cover throughout the course of the interview. Time was allotted in both stakeholder and public interviews for flexibility within the timeframe so that participants could raise issues meaningful to them.

Cultural Probes

An identity risk approach, focusing on meaningful connectivity, is concerned with individuals' constructions of social reality. Cultural probes invite participants to engage in close collaboration with the researcher and understand issues in more imaginative ways; and so are consistent with a constructivist epistemology. Cultural probes are objects and exercises designed to challenge participants and enable them to consider issues differently (Michael et al, 2018; 6) and were initially envisioned as playful ways of inspiring new thought on issues and as part of innovative technology design (Gaver et al, 1999). However, the use of culture probes provides a means of engaging participants in meaningful discussion on issues and forming a useful set of methods for accessing richer data when used in interviews. Within this study four cultural probes were used - mapping, drawing, photo-elicitation and walk along – each of which are described below. The probes held five key purposes:

Engage – the primary purpose of cultural probes is to engage participants in meaningful discussion and enable participants to consider issues they might not have done otherwise, provide substance to abstract thoughts and create a sense of tangibility on the concepts discussed.

Articulate – all four probes were deemed to enable participants to articulate ideas, concepts and feelings that might have proven more difficult without them.

Contextualise – probes provided participants with greater material to help contextualise their imagination of issues discussed.

Recall – all four cultural probes were chosen to help participants recall memories and understanding to help inform thoughts and further discussion.

Elucidate – probes have the capability to not only make clear the participant's understanding, but also the researchers. This was considered particularly useful in helping establish the implicit assumptions made by both parties.

Consistent with a theoretical sampling method, the use of cultural probes carried with them a qualifying system where specific probes were used to further theoretical enquiry. Not all participants took part in the range of cultural probes, and in some cases (particularly expert stakeholder interviews and opposition group interviews) they were not deemed useful within the time allotted. The probes were most utilised during Phase 2 where at least one kind of probe was used in each interview. They were most useful at this stage as most participants had not yet considered what impact the lagoon might have upon their lives in detail. Participants at Phase 3 (opposition groups) had already largely considered the lagoon's (and supply chains) impact upon their lives, and so their stances did not require much further probing. Similarly, Phase 1 participants had mostly considered the project at length prior to the interview.

PARTICIPANT	PROBES USED
Doug	Walk Along
Tim	Walk Along, Drawing, Photo Elicitation
Diego	Drawing
Sara	Drawing
Isobel	Drawing
Joe	Walk Along, Drawing
Jane	Walk Along, Drawing, Photo Elicitation
Ella	Mapping
Frank	Mapping
Ioan	Mapping
Max	Drawing

Table 3.5 – Overview of methods used with each participant

Photo-elicitation

Prior to the interview participants were asked if they possessed a picture of Swansea Bay which they could bring. During the interview these photos were used as a probe to discuss meaning and value within the landscape and how participants saw the lagoon as affecting it. Pre-existing photos were requested instead of asking participants to go and capture photos as it was deemed to be less invasive of participants' time. However, this proved to be a restrictive qualifying criteria as only two participants possessed such photos – both of which were taken from participants' social media accounts.

Figure 3.2 – Jane's photo of Swansea Bay

Both photos proved useful in eliciting deep conversation about the meaning that the landscape held for both Jane and Tim, and how the lagoon was perceived as impactful. For example, Jane explained how the view east across Swansea Bay was one associated with familiarity and home. When asked about the Port Talbot steelworks (left side – Figure 3.2), Jane described how they presented an iconic silhouette that the landscape would be amiss without. When asked whether the lagoon would impact his treasured view across Swansea Bay (Figure 3.3 below), Tim replied that instead of disrupting the landscape he felt the lagoon would enable him to get closer to it. Tim described how the landscape to the east (including lagoon proposal site) was in some way tainted by industry, and that it was the westward and southward view towards the Mumbles and out across Swansea Bay that he felt a connection to.

Figure 3.3 - Tim's photo of Swansea Bay

Mapping

Participants were provided with a smart tablet, with the Google Maps application open and focused on the Swansea Bay region. Participants were then asked where they thought were appropriate locations for lagoon development, which was left intentionally ambiguous. However, a majority of participants retained their focus for the question along the South Wales coastline. Following this, a discussion followed on the reasons why participants felt certain areas were more suitable than other for lagoon development - embedded within a contextual understanding of the South Wales coast.

The use of an interactive map was preferred for two reasons. First, it was seen as holding advantages over static maps as it enabled participants to selectively view areas they deemed appropriate. This

was intended to avoid the map being framed only on areas that the researcher chose to include. Second, interactive maps hold advantages over static maps in that it is possible to zoom in and out, as well as scroll to different areas, providing the participants with greater map resources at their disposal.

Participants from non-expert backgrounds were largely of the opinion that coastal spaces to the East of Swansea and along the Bristol Channel coast in Wales were the most appropriate for lagoon technology to be sited as they held the largest generation capacity and were perceived to be of lower aesthetic value than the West Wales coast. Coastal spaces to the West were seen as of aesthetic value to themselves and wider society, and so were seen as inappropriate for lagoon development. However, the situation was largely reversed when speaking with participants from an expert background. They cited the ecological importance of marshlands along the Welsh coastline at the Bristol Channel as of significant value to themselves and wider society and environment. Subsequently, those from expert backgrounds tended to view coastal spaces to the West of the Bristol Channel area as most appropriate for development as they were seen to be less likely to involve significant ecological disturbance.

Drawing

Participants were provided with paper and coloured pencils, and asked to draw what they thought the lagoon would look like within Swansea Bay. The completed drawing would then be used as a probe to elicit further discussion, as well as explore implicit assumptions of both participants and researcher (see Absent Risk – risk chapter for examples).This probe was chosen especially in order to explore the perceived impacts of non-existent technology in future landscapes as there are few precedents through which to understand the lagoon's visual impact on the landscape. Participants were actively engaged in imagining not only the configuration of the lagoon in the landscape, but also its technical aspects (such as operations).

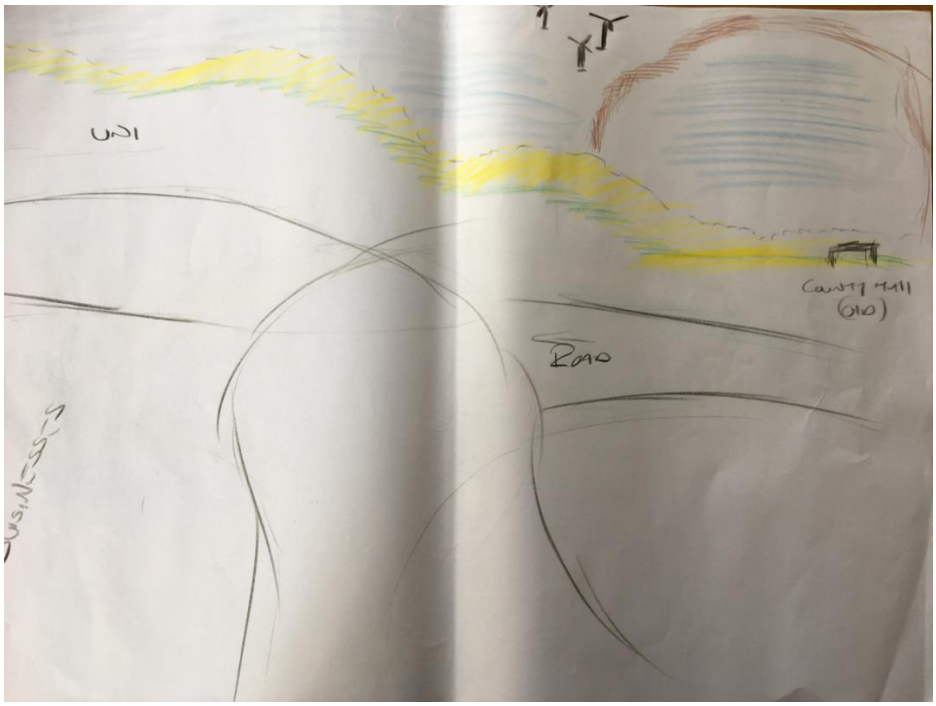


Figure 3.4 – Diego's drawing of the lagoon (top-right) and schematic map of the seafront. Note the wind turbines next to the lagoon.

Drawing proved particularly useful in making apparent the implicit assumptions on behalf of both the researcher and participant. For example, some participants possessed incomplete knowledges of the lagoon's proposed design and its purpose, which the researcher may have missed if not for the use of drawings. For example, Diego drew a schematic map (Figure 3.4 above) of the lagoon and Swansea coastline, as well as three wind turbines just outside of the lagoon wall. When asked why Diego had drawn these turbines (there are no offshore wind turbines in Swansea Bay) he replied that they were required to power the lagoon. In addition, the drawings elicited some rich discussions on what role the lagoon held in the redevelopment of Swansea and how it had been imaginatively inserted into the landscape. In drawing the schematic map of Swansea's shore, Diego described how he saw the lagoon fitting into other redevelopments happening within the city – particularly the new university campus and developments near the County Hall.

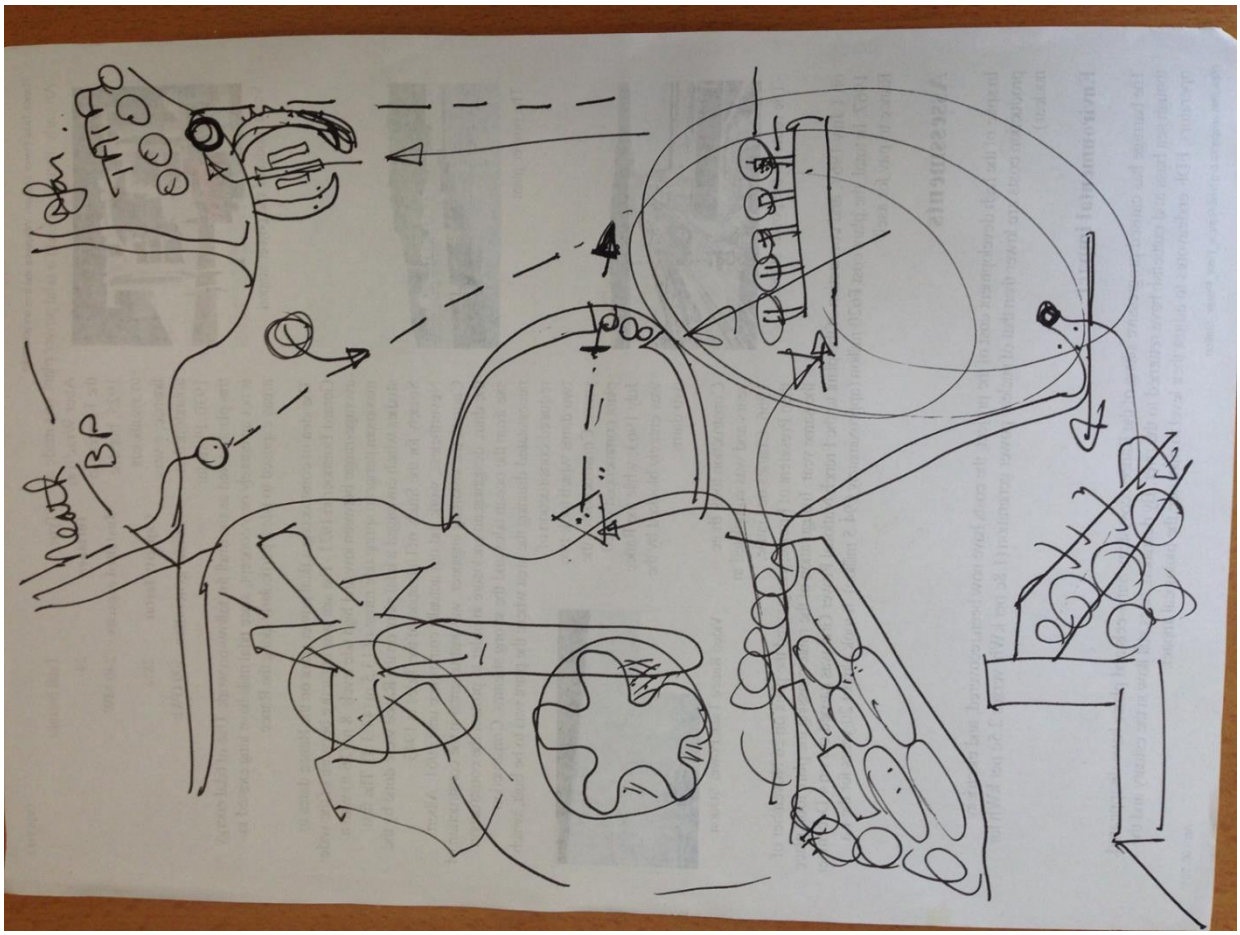


Figure 3.5 – Max's drawings of Swansea Bay and relevant engineering issues. To the right is a cross section of the lagoon wall (rotated 90°) while the encircled five pointed star (lower middle) represents a cross section of a sewage pipe. Beneath these drawings is an annotated drawing of Swansea Bay (see "TATA" upper left to represent Port Talbot steelworks) with the lagoon located in the centre of the drawing.

Walk Along

Walk along interviews entailed a discussion between the participant and the researcher while walking within a place that held meaning to the participant – often places that participants visited regularly. The protocol for walk along interviews (Appendix G) differed slightly from those for other public interviews (Appendix F) in that it reverted to the more standardised nature of the stakeholder protocol (Appendix E). This was mainly due to practical considerations in that the researcher did not

have the protocol readily available during these interviews. It was deemed that carrying the protocol and reverting back to it would break up the flow of conversation, and so the protocol largely consisted of simple and concise questions that were easy to memorise. Despite the more standardised nature of the protocol, the walk along interviews maintained more of a relaxed conversation largely due to rapport between participant and researcher already having been established.

Participants were asked in advance if there was a place they visited regularly that also provided a view of the proposed lagoon site. This produced five suitable candidates for participation – one stakeholder (Phase 1) and four members of the public (Phase 2). Unlike the other three cultural probes, walk-along interviews were staged separately from the initial interviews, each forming their own separate interview. The initial planned design was for time to elapse (ranging between 4 and 6 months) between the initial interview and the walk along. This was an attempt to introduce some temporal aspects to the study and explore changes in participant's perceptions on the lagoon during construction. However, due to the lack of progress of the lagoon development, as well as no great change in media portrayals or news on the project, there was no great change in participant's accounts. As walk along interviews took place after the initial interviews they were contingent upon timeframes within which the participants were able to participate.

Figure 3.6 – picture taken during Jane's walk along interview, looking South-east across Swansea Bay from Swansea Beach.

Walk along interviews were designed to provide contextual understanding of participant's imaginations of the lagoon, and provide a sense of tangibility to the discussion. They were particularly effective in enhancing contextualisation of issues including visual aspects, emotional attachment and scenario specific "realisations" such as weather permitting access. In three of the four instances in which participant did walk along interviews they yielded rich and useful data that

furthered theoretical enquiry. Table 3.6 (below) provides an outline of the participants involved, the locations used for the walk along interviews and some of the data from them.

PARTICIPANT	LOCATION	FINDING
Tim	Swansea Beach	Access to lagoon to be heavily hampered by adverse weather. Had not considered prior to interview. Interview conditions were windy and overcast.
Doug	Oystermouth	Lagoon acceptable as in an "industrial" place. Renewable energy in already tainted places "makes sense"- arose on discussion on wind turbines in view within urban space.
Jane	Swansea Beach	Emotional connection to place "activated" once within it. Previously had no issue with lagoon but changed to contingent upon development not disrupting place-based memories from childhood.
Joe	Aberavon Beach	No great change.

Table 3.6 – Walk along interviews participants with locations and key findings.

Opposition Group Interviews

Phase 3 of data collection consisted of two group interviews comprising members of two organisations publically opposed to the lagoon. The first opposition group was a river angling society based in South Wales concerned with the potential hazard that the lagoon's operations to migratory river fish (see *the Swansea Bay proposal* – risk chapter). The second opposition group were formed in response to the developer's proposal to reopen Dean Quarry, Cornwall to supply rock for the lagoon wall (see *the Rock Supply Chain* – risk chapter). Based on the Lizard peninsula in Southern Cornwall, the group was opposed to the upscaling of operations at the site and the constructing of supporting infrastructure – particularly a jetty extending into a Marine Conservation Zone. The research utilised group interviews as a means of purposefully using interaction between participants in order to generate data (Merton et al, 1990).

Focus groups had originally been intended to be used as part of the data collection. However, these were not utilised for two reasons. First, there was a difficulty in obtaining participants critical of the lagoon, with a majority of participants holding mildly positive to positive views of the project. Second, it was decided that homogenous group interviews offered a more appropriate platform for risk minority participants to share their stories more willingly and honestly – without fear of being drowned out and stigmatised (see Swimming against the tide – Chapter 7).

Homogenous groups were thus utilised to explore risk issues in sufficient depth in an environment where they were listened to respectfully and with an openness to hear other participants' accounts. These interviews were the most loosely structured of the interviews and largely took on the format of participants presenting their accounts in ways that were flexibly guided by the researcher's prepared topic guide for the research task (see Appendix F). Participants drew upon each other for recollection and the enabling of a fuller recanting of their concerns and the surrounding context.

3.5 Data Analysis

The interviews provided the study with ample data of sufficient depth to answer the primary research questions. Other case materials presented more useful data from which to further the

development of emergent theory. The data analysis began with an open coding process (Corbin and Strauss, 1990) where data was coded line by line, with a focus on questioning what was happening within the data and what the "main concerns" were. It is important to mention that this process took place with the relevant literature in mind (see Sampling lines), presenting a challenge in reconciling an open mind to new ideas with those already present (Kelle, 2007). A line by line coding process was utilised in order to reduce the number of potentially important categories being missed by the researcher (Holton, 2007). Case materials (such as photos and news articles) were largely coded by document, while the minutes from a House of Commons debate on the lagoon were coded statement by statement.

Next, similar codes were grouped into categories with the researcher asking questions of what the codes had in common and what the codes were each relating to (Corbin and Strauss, 1990). A constant comparative process was used to develop the codes to gain a better fit between code and data, and then between code and category. The development of the categories was an iterative process between the three stages of analysis. Axial coding (Corbin and Strauss, 1990) was utilised to bring data back together in ways which created connections between categories and sought to create the basis of an adequate explanation (emergent theory).

As previously stated, remaining open to the potential of new theory is challenging (Holton, 2007). The thesis took the stance that theory is constructed by the researcher, as opposed to being discovered (Henwood and Pidgeon, 1994), and so the generating of theory was not limited by the data (Layder, 1993). Subsequently the assumptions that the researcher had established in the analysis of the data were challenged (Corbin and Strauss, 2008) through an interrogative process that asked questions of the data. Throughout this process memos were utilised as written records of analysis (Corbin and Strauss, 1990) which were both able to stimulate and document the researcher's thought process (Corbin and Strauss, 2008) – forming the basis of an emerging storyline.

The creation of memos began with the very initial ideas of the research (Lempert, 2007) and were utilised in a variety of circumstances (Charmaz, 2006) including the elucidating of codes and categories, questioning of assertions and exploration of comparisons. Memos were then sorted (Corbin and Strauss, 1990) to further develop emergent theory. Propositions were validated through the use of theoretical sampling and further data collection (see Sampling lines) in the search to both test emergent theory as well as search for deviant cases - challenging the theoretical assertions made.

3.6 Ethical Considerations

Consent was obtained for this study from Cardiff University's School of Social Sciences ethics committee. Participants were provided with an information sheet (see Appendix A) prior to the interview outlining the reason for the research, aims and objectives and what participation would mean for participants. It also explained how data would be treated and stored, who would have access to the data and (importantly) how confidentiality and anonymity would be maintained. Consent should be sought each time data is collected (Wiles et al, 2005), and so this information was discussed with participants before each interview. The exception to this was one telephone interview of a limited time period where the participant had read and signalled their understanding of their participation prior to the interview. Participants were reminded of their right to refuse participation at any time and for any reason. Informed consent is a continuous process (Smythe and Murray, 2000) and so prior to the beginning of interviews participants were asked if they had any

questions regarding the process and their involvement, with this also taking place at the end of each interview.

"research should be based on the freely given informed consent of those studied. This implies a responsibility on the sociologist to explain in appropriate detail, and in terms meaningful to participants, what the research is about, who is undertaking and financing it, why it is being undertaken, and how it is to be distributed and used" (BSA, 2017; 5)

In certain situations it was necessary to attain new participants via the use of a 'gatekeeper'. Researchers should obtain consent directly from research participants from whom it is required and should consider the gatekeeper's interests, particularly in that ensuring existing relationships are not compromised within the research setting (BSA, 2017). Gatekeepers were requested to make initial contact with potential participants by passing on an information sheet and consent form with contact details. It is incumbent on researchers to consider the possible consequences of their research – including the anticipation of harmful or negative effects and take action to guard against them (BSA, 2017; 6). The researcher must also not consider themselves alleviated of this duty merely via consent being given. As is evidenced later in this thesis (see Risk and Risk Communication chapters), discussion on the lagoon became a politically and socially fraught issue where risk communicators were stigmatised in public spheres. Swansea and South Wales are also relatively bounded landscapes with seemingly well networked professionals. Subsequently then confidentiality and anonymity in participant's accounts became a priority for the research. Considering these points the research adopted a consequence based approach (Alderson, 2004) to ethics that carefully considered the outcomes for each research participant. As Wiles et al. (2005) highlight, this considers the following -

Autonomy of Participant – that the individual must be free and able to make their own informed decisions about participation in research.

Non-maleficence – That the conduct or publication of the research must not inflict harm or hold negative consequences for the participant.

Beneficence – The research should be of some sort of benefit to others.

Justice – that participants were treated equally and fairly within the research process.

Participants should be aware of how their anonymity would be protected and their accounts remain confidential (BSA, 2017; 6). These notions of anonymity and confidentiality are underpinned by the idea that identifiable information regarding the participant that was collected as part of the process should not be disclosed without permission, even by accident (Wiles et al, 2008). Participants were originally asked for institutional affiliations to be shared as contextual data to provide a relevant, interpretive framing, however, this was later deemed as potentially harmful to participants and so were removed. Methods for preserving anonymity should be used including the removal of personally identifying information. In this study, the organisations participants were members of were removed from data presentation as it was deemed there was a risk of losing anonymity. Pseudonyms were used as a means to break the link between and participant identity, while generic descriptions of participant's organisational affiliation were used to highlight their industry and/or expertise.

4. A Tidal Lagoon in Swansea Bay

The following chapter outlines the case study, drawing upon both data in the public record and an overview of participants' perceptions. It begins by outlining the background to the case, particularly the history of Swansea and how the lagoon project fitted into the physical and social space of the city and surrounding region. It then gives an overview of the lagoon proposal and its main characteristics, including a general outline of how these were received by participants and members of the public. Finally, the chapter situates the case study in the socio-political situation in which it occurred– a highly dramatic and active period of politics featuring numerous elections at various levels of governance and the EU referendum. The purpose of the chapter is to provide a foundation for the discussion in later chapters, with this chapter serving as a guide which the reader can refer back to for a chronological account of the study.

4.1 Origins of Swansea

Swansea is a city and county situated on the South Wales coastline between the Gower peninsula, Llanelli and Carmarthenshire to the West, the Tawe Valley to the North, Neath and Port Talbot the North-East and East respectively and bounded by Swansea Bay and the Bristol Channel to the South. The county is home to around 240,000 people, making it the second largest urban population in Wales, and is the centre of the wider Swansea Bay city region. The Unitary Authority of the County of Swansea also includes the idyllic Gower peninsula – a largely rural area interspersed with small villages and featuring several beaches renowned for their beauty. The topography of the city is notable for featuring a large sand beach along most of its coastline which is then met by the Lilw Uplands West of the Tawe River and by Kilvey Hill to the East. The urban layout of the city is primarily concentrated to the West of the Tawe River, following the river north and the coastline towards the Mumbles on the Gower peninsula in the South-West.

The city's origins likely stem from a Viking trading outpost. However, Swansea's modern origins stem from its role in the Industrial Revolution of the 18th and 19th centuries. Similar to much of South Wales, the city and surrounding areas went from being relatively quiet, minor settlements to that of a rapidly rising population driven by the exportation of coal from the South Wales coalfields, and later as a key site within the smelting of copper. At the time of the first census held of Swansea in 1841, the town had grown to a population of 6,099 (second largest within Wales behind the town of Merthyr Tydfil) predominantly made up of migrants from within and outside of Wales. However, official censuses at the time often did not look beyond the immediate town boundary to include populations from the surrounding areas, and so the population has been variably estimated at around 16,000. By the end of the century the town's population had surpassed 130,000 as industrial output of the South Wales region came to a peak.

The smelting and refining of copper in the Swansea area began to move towards a mass industrial status in the 1820's, as it mainly utilised copper ore mined from other parts of Britain (most notably Cornwall) to fuel its production. The methods used to smelt the copper at the time required significant quantities of coal, accounting for 45% of costs (Newell, 1990), (around a 2:1 ratio of coal to copper) and so it was most economically feasible to locate the smelting sites close to coal supply sites – in this case the South Wales coalfields. The methods also provided for a mixture of copper ore with different impurities (subsequently called the Welsh method) in order to reach economies of scale, meaning that the Swansea sites were well placed to take advantage of the growing levels of imported raw materials into Britain. As British "soft" imperialism expanded into Latin America at the expense of the retreating Spanish Empire, the Swansea copper smelting industry was able to take full advantage of mines ranging from Chile to Cuba in order to source the variety of copper ore that

it needed (Newell, 1990). The industry output grew until the 1860's before beginning to decline, before absolute decline set in during the 1890's – a few years after the USA overtook Britain in total overall production (Newell, 1990). A small copper refining industry was present in Swansea until just after the Second World War.

The Lasting Impacts of the Industrial Revolution

The effects of this period in Swansea's history are particularly notable for two reasons. Firstly, its impact on the culture and politics of Swansea, and second due to the lasting impact on its environment. Like much of South Wales, the severe degradation of the natural environment via the extraction of its natural mineral wealth, coupled with the harsh working conditions enforced on its population resulted in the spread of multiple instances of social unrest. Violent working class uprisings in Merthyr (1831) and Newport (1839), as well as being some of the last instances of large scale armed rebellion within Great Britain, were the culminations of widespread discontent throughout South Wales at the state of working class life - with the later Rebecca Riots of 1839-43 again representing a violent and destructive outlet. These unsuccessful instances of organised working class rebellion against the state would thus have a lasting effect on the psyche of the people of South Wales, including Swansea, as well as its political groundings – with Swansea maintaining a strong liberal backing (prior to the onset of the social democratic Labour party at the turn of the century), being represented by prominent radical liberals such as Lewis Llewelyn Dillwyn.

Whilst the full environmental and ecological impacts of the industry upon the area is difficult to assess, the impacts of "Copper Smoke" have been researched (Newell and Watts, 1996). The effects at the time were significant, with the heavy metals proving significantly damaging to local flora to the extent where grass withered. The study found that the effects of copper smoke were especially bad within 12 kilometres of a smelting site – with heavier metals such as lead, copper and silver being deposited close by and slightly fewer heavy metals such as arsenic and antimony being able to be carried further. Whilst the study considered a smelting works in Llanelli, Swansea was a more significant copper smelting site with former sites at White Rocks and Hafon Morfa (now the site of the Copper Quarter) and Clyne Woods (Mumbles). The study concluded that the emissions produced from one site alone were "disturbingly high" (Newell and Watts, 1996; 332), and that readings from concentrations located downwind from multiple sites would have been "exceptionally high".

These three sites were all located within close proximity to rivers, with White Rocks and Hafon Morfa situated next to the Tawe and Clyne Woods located close to the Clyne River which runs into Swansea Bay near Blackpill. A survey on the sediments of the Neath and Tawe rivers as well as the Swansea Bay shore found that there were high concentrations of trace metals, which were thought to be remnants of industrial waste (Bloxam et al, 1972). Another study, this time focusing solely on 276 land samples taken from soil across Swansea, found large concentrations of tin, lead, copper and arsenic within topsoil (Marchant et al, 2011) – enough so that they constituted significant implications for human health and ecological risk assessments.

The beginning of the 20th century saw the development of the Kings (1909) and Queens (1920) docks as industrial output remained high in the region during booms within the tinplate, steel and copper industries. However, global depression in the 1930's sent these industries into significant decline, causing largescale unemployment within the region that settled into a terminal decline of the industry, with minor respite coming during the Second World War, before an eventual nosedive. The returning of soldiers from the First World War, combined with the effects of industrial decline, unemployment and poverty, continued to entrench the political groundings of the area and its people within the political left and social democracy with Labour taking the Gower seat in 1910

(which only eventually became a Conservative seat in 2015, subsequently reclaimed by Labour in 2017) and the two new Swansea constituencies of West and East being won by Labour in 1923 and 1922 respectively - with East being held by Labour continuously since then.

The Destruction and Recreation of Swansea

During the Second World War, Swansea's docks were a primary coal export station which also had an oil refinery situated close by. From February 19th to the 21st, 1941, the city was continually targeted by the Luftwaffe resulting in the large-scale destruction of the city centre and around 11,000 homes and buildings being damaged. The rebuilding of the city after the war resulted in a significant loss of its pre-war architectural style, with the planning and design of the city and its buildings taking on a brutalist look which was easier to construct and, most importantly, more affordable to a financially crippled Britain. The end result was a city centre which was poorly planned, lacking in character and devoid of any real affection from the city's inhabitants.

Figure 4.1 – The Devastation caused by the Swansea Blitz of 1941. *Source – BBC News, 2016.*

At the conclusion of the Second World War, and with a reduced male population, the unemployment that had plagued Swansea for the majority of the first half of the century became far less pronounced with secondary work becoming relatively easily available in the area. The completion of the Abbey steelworks in nearby Port Talbot (now part of TATA Steel) in 1951 created an economic mainstay in the area that was to rise to become Europe's largest steelworks and the largest single employer in Wales by providing 18,000 jobs by the 1960's. The plant was part of a nationalisation programme in 1967 – creating the British Steel Corporation – which was subsequently privatised in 1988 before being merged into Corus Group and eventually being sold to the Steel division of the Mumbai headquartered TATA Group in 2007.

Figure 4.2 – An Example of the architectural design used to rebuild Swansea after the war. *Source – BBC News, 2016. .*

The Abbey steelworks had two major influences on Port Talbot and the Swansea Bay area. Firstly, the environmental and socio-ecological impact that is part and parcel of large-scale steel manufacturing. The subsequent pollution that resulted from the plant created a brand of Port Talbot and the East of Swansea Bay as one of industry and of the associated factors of billowing smoke, smell and removal from a "natural" landscape. Secondly, the employment that the plant provided came to be of significant value to the local economy and the surrounding communities, representing a beacon of "high quality" employment in the local area – particularly post-2008.

The future of the site then came under threat in late 2015 when a combination of high energy costs and a global oversupply of steel due to the offloading by Chinese suppliers meant that the site was losing around £1 million a day. This came in addition to an already difficult period for Tata's UK operations after redundancies at sites in Scunthorpe, Rotherham and Lanarkshire. In March 2016, Tata announced their intention to sell the Port Talbot site, with the possibility of the site's closure and job losses an imminent possibility. This situation remained in a period of stagnation throughout the majority of the data collection period, with a solution being found in December 2016 with Tata committing to securing the 4,000 jobs at the Port Talbot site for a period of five years.

4.2 Employment and the Economy

The TATA issue gathered national news coverage within both Wales and the wider UK, and contributed towards an already existing sense of anxiety surrounding employment within the Swansea Bay area. The underlying source of this anxiety seemed to stem from both a gradual decline in the manufacturing sector within Swansea Bay and South Wales, as well as memories of the impacts of the 2008 financial crisis on Swansea's vulnerable retail sector. At the time of the case study[1], 74% of the working age population were deemed to be economically active (Swansea Council, 2017), which was below the Welsh rate (74.8%) and UK (77.7%) – having declined by around

[1] Please note that all economic data in this section covered the data collection period of calendar year 2016.

1.2% from the previous year. The employment rate stood at 69.1% (Swansea Council, 2017), below both Wales (71.1%) and the UK (73.7%) again.

By official statistics unemployment was relatively low in Swansea during the duration of the case study at 5.4% (albeit still higher than the rest of Wales and the UK). However, the UK government views unemployment as when individuals are considered to be out of work, currently seeking and *capable of starting work within two weeks* (ONS, 2019). Whilst unemployment statistics displayed relatively good news for Swansea's economy, unemployment figures didn't highlight Swansea's high level of economically inactive populace (26%) in comparison to both Wales (25.2%) and the rest of the UK (22.3%). Whilst this statistic also included full-time students, of which Swansea had a rather large combined total of 27,375 individuals (HESA, 2017), there were also a significant number of individuals classified as "long-term sick" (8.9% of working age population), a figure higher than both the Welsh (8.4%) and UK (6.2%) rates. Within Swansea there were localised concentrations of both unemployment and "long-term sickness" claimants in areas such as Townhill (4.6% and 17.6% respectively) and Castle (3.4% and 14.7% respectively), both areas which have a direct view of Swansea Bay. In effect, Swansea had close to one in three working age individuals without firm employment.

Unemployment over the 12 months from January 2016 to 2017 had fallen sharply as UK employment reached a "record" (not accounting for the quality of employment or security) level of 74.6% (ONS, 2017), resulting in unemployment falling at a rate of -8.5% (Swansea Council, 2017). However, in Wales the rate was significantly greater with unemployment falling by -24.9%, and in Swansea at a rate of -23.5%. The UK economy after the EU referendum vote (see Uncertainty and the Political Landscape - below), which many senior economists and institutions had predicted would be significantly damaging in the immediate aftermath of the vote, was notable due to a sustained period of high consumer spending. This was in part buoyed by a small retail boom, particularly in online shopping, which was particularly beneficial to Swansea due to its higher than average rate (11.1% in comparison to 10.5% and 9.9% for Wales and the UK respectively) of employment in the sector and associated sectors such as Accommodation and Food Services (8.3% in comparison to 7.6% and 7.1%).

However, youth unemployment (16-24 year olds) remained a significant problem in Swansea, with a report (EY, 2016) finding it to have the joint highest rate of all UK cities (27.3%) - significantly higher than both the rest of Wales (17.4%) and the UK (14.4%). The issue stood in even starker contrast in comparison to Cardiff, which had a youth unemployment rate below both the Welsh and UK rates at 11.6%, and Newport (17.2%). It also found that the sectors in which youth employment was expected to see significant growth between 2015 and 2030, such as Distributions, Hotels and Restaurants and Other Services, were already seeing high unemployment levels in Swansea– potentially compounding the problem.

Currently, employment within Swansea is skewed towards the services sector, employing an estimated 88.3% - significantly greater than the whole of Wales (78%). Within services, Swansea has a significantly higher proportion employed in the health sector (17.5%) than both Wales (15.2%) and the UK (13%), as well as public administration and defence (11.1% in comparison to 6.6% and 4.3% for Wales and the UK respectively). Similarly to Wales as a whole, Swansea is relatively reliant on employment in the public sector which accounts for 33.3% - the highest of any Local Authority in Wales and significantly higher than the UK average of 22.1% (Welsh Gov, 2017). Of the services sector, 28.5% are employed by the public sector. This reliance on the public sector during a political period where sustained cuts to public budgets across all departments had become the norm is likely

to have contributed towards employment anxiety and the image of fragility surrounding the Swansea economy.

A notable exception to the reliance on the public sector is the Insurance and Finance sector, which is a relatively strong performer, with an employment rate of 4.2% being significantly higher than both the Welsh and UK rates at 2.3% and 3.5% respectively. This is in part helped by the presence of the Admiral Group offices in Swansea, employing 1,900 (BBC News, 2013) of a total of 4,500 in the sector. However, Swansea employs fewer in the Manufacturing sector (5.5%) than both Wales (11%) and the UK (8.1%), as well as in key sectors such as Information and Communication (2.3% in comparison to 1.5% and 4.1%) and Professional, Scientific and Technical (4.2% in comparison to 5.1% and 8.5%).

Swansea's predominantly services based workforce largely fell into the bracket of lower skilled services, with sectors such as Sales (11.3%) and Administrative (11.6%) being above the Welsh average. Demonstrating this further was the lower than UK average rate of employment in the higher tier occupations such as Managers, Directors and Senior Officials (8.2% in comparison to 9.4% and 10.5% for Wales and the UK respectively), Professional occupations (19.9% to UK average of 20.1%) and Associate professionals and Technical occupations (10.3% compared to 12.3% and 14.1% for Wales and UK). So whilst Swansea fares comparatively well with the rest of Wales outside of Cardiff, and indeed acts as a hub for surrounding regions (Swansea Council, 2017), it has a relative deficit of higher quality in jobs in comparison with the rest of the UK. This is further compounded by Swansea having a Part-Time employment rate (27.8%) higher than both Welsh (26.4%) and UK (25.3%) averages.

4.3 Lagoon Origins and Proposal

Tidal lagoons, as well as other tidal based marine renewable projects such as barrages, have been occasionally proposed for the Severn and Bristol Channel since the 1920's. Prior to the proposal of the Swansea Bay project, the most advanced of these proposals had been a barrage project that stretched from Sully, just South of Cardiff, to near Weston-Super-Mare in England. The proposals for this Severn Barrage project were advanced enough to warrant the government to commission the Severn Tidal Power Feasibility Study between 2008 and 2010, eventually finding that the project hadn't answered significant environmental and economic concerns (BEIS, 2013). The opposition that this project faced from environmental NGO's eventually lead to the positing of lagoon's as a more suitable technology for the Severn Estuary/Bristol Channel. As discussed later (see section 6.1), this issue formed the second critical backdrop (in addition to local employment/economic issues) to the Swansea Lagoon discussion-scape.

Figure 4.3 – Proposed location of Swansea Bay Tidal Lagoon. *Source – Tidal Lagoon Power, 2019*.

Tidal Lagoon Power formed in 2011, and began formulating plans for the Swansea Bay project as well as other less developed plans for much larger projects in the Severn and Bristol Channel, North Wales and West Cumbria. The project began to receive large scale news coverage in late 2013, before being included in the UK government National Infrastructure Plan in 2014. The proposed site for the project (Figure 4.3) occupied a central portion of Swansea Bay, making landfall near Swansea's former docklands and situated between the mouths of the Tawe and Neath Rivers. The 9.5km breakwater wall (Figure 4.4) would stretch out in a U-shape into the bay, isolating 11.5km^2 of enclosed water. Along the top of the wall would be a pathway, enabling pedestrians to walk the entire length of the breakwater, and was intended to include artwork and other attractions such as pontoons and a visitor centre.

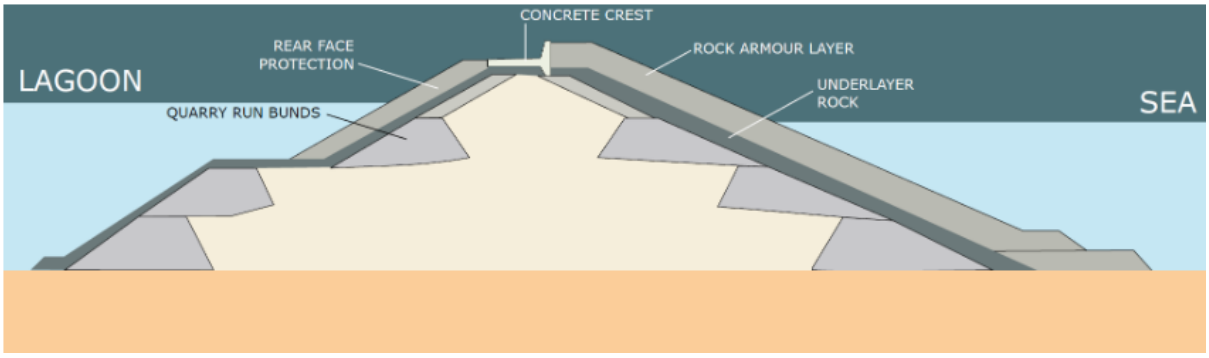


Figure 4.4 – Cross section of lagoon wall. Source – Tidal Lagoon Power, 2018.

The proposals entailed capital costs of £1.3 billion (BEIS, 2018), and required 5 million tonnes of varying quality of rock to create the breakwater wall. Through the developer's sister company, the developer possessed access to 6.3 million tonnes of gabbro from Dean Quarry on the Lizard

peninsula, Cornwall (see risk chapter). However, the developer did not commit to sourcing the required rock from any one location – maintaining that the purchasing of the quarry was partly tactical in order to gain negotiating leverage with other potential suppliers.

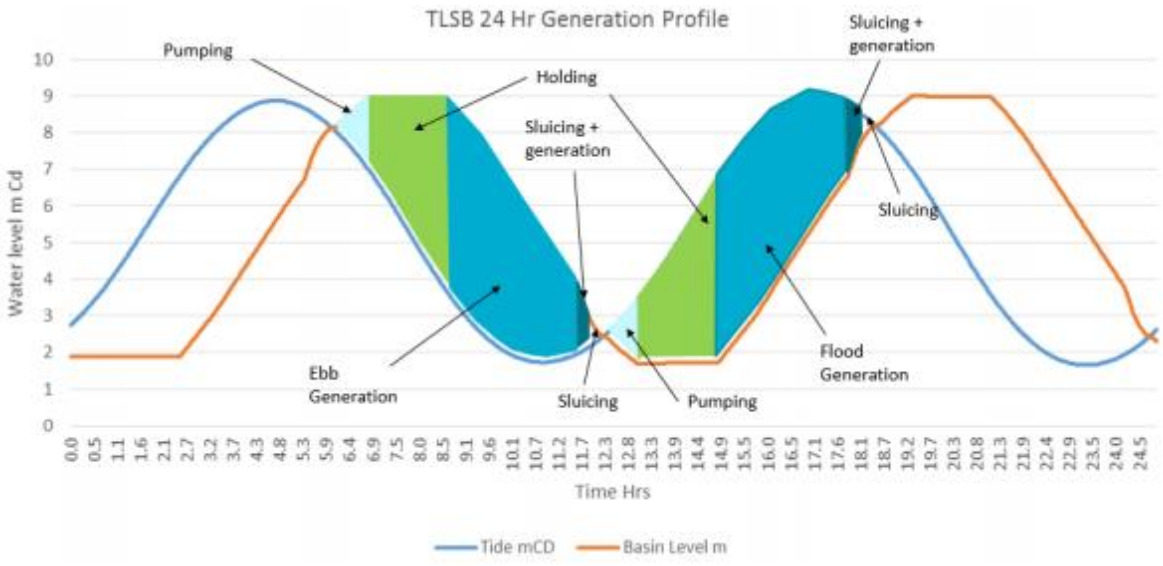


Figure 4.5 – Swansea Lagoon 24 hour generation profile. Source – Tidal Lagoon Swansea Bay, 2016.

As outlined in Figure 4.5, the lagoon relied on a head differential between the water levels either side of the breakwater wall. As the tide rises, the closed wicket gates of the lagoon prevent sea water from entering the isolated lagoon. Once the head differential reaches a sufficient level, these gates are opened and sea water enters the lagoon – generating electricity via the 16 bi-directional turbines. Once the tide begins to ebb, there is a short period of pumping in order to obtain a maximum head differential, before the process begins again. Subsequently, the Swansea lagoon would be capable of generating electricity in four periods within 24 hours. Due to the reliability of the tide, the times at which this energy generation period would occur and the amount generated is predictable far in advance – allowing for better planning of how the electricity may be used.

In the space of three years a project had gone from infancy to receiving significant backing from central government, thrusting the proposal into the mainstream of Swansea life. To understand how a significant project such as this would be perceived by the people of Swansea, it is important to understand what the city had been through. The reconstruction of Swansea after the Second World War, often envisaged within the socio-economic concept of “regeneration”, remains an important issue for the city – and is one which was of key significance to the promotion of the lagoon idea. The concept of reconstruction, regeneration and rebranding are ones which have been largely viewed in relation to similar cities, including Plymouth and Cardiff, with Swansea being largely viewed as coming off worse in both instances. This public view of Swansea as somewhere that was of secondary importance, demonstrated through the long rebuilding timescale in the aftermath of the war and then through an imbalance of funding in comparison to Cardiff, only seemed to further enhance the image of Swansea as a regional town/city within a peripheral country of the UK. The resulting outcome was the seemingly wide held view that Swansea was somewhat of an underdog in multiple contexts, creating a city identity of relatively low self-esteem.

Figure 4.6 – Contemporary Swansea city centre. *Source – Wales Online 11.5.17.*

The proposal to construct a first in the world piece of infrastructure, complete with interesting and signature architecture, artwork and walkways and public space are all concepts which are sought after in many cities worldwide. To Swansea, a city with little in the way of definable architecture or cherished landmarks, the lagoon offered an easily identifiable structure that "branded" the city – moving it away from its association with concepts centred on the ageing and unloved structures in its city centre. It also co-ordinated well with ideals of Swansea fulfilling its potential as a waterfront city, redirecting the focus out towards its wild and natural surroundings.

The people of Swansea had become relatively accustomed to change in the built environment along the city's eastern coastline. The decline of the docklands after the war had slowly seen the area become little more than wasteland, prime area for high-profile redevelopment projects aimed at recreating places on a relative blank canvas. Favourable experiences of the redevelopment of the former smelting area at the Copper Quarter along the River Tawe, as well as the recreation of the former Cardiff docklands, lent to notions that former industrial spaces were of little to no value, while the redeveloped space offered opportunity for change. Recently finished projects, such as the expansion of Swansea University to its new campus located between the coast and Fabian Way, continued to fuel the idea of a changing Swansea, focusing on the former docklands area. The lagoon design saw the walls make landfall at the former dock areas, while the vast beach along which Swansea faces falls outside of the interior of the lagoon, meaning an immediate association with the redevelopment being on post-industrial space and leaving the natural alone.

Figure 4.7 – Artists impression of the lagoon wall promoted by Tidal Lagoon Power. *Source – Tidal Lagoon Power, 2019.*

Figure 4.8 – Swansea University's Bay Campus was an often cited example of a new and improving Swansea. *Source – Swansea.ac.uk, 2019.*

In July 2013, Tidal Lagoon Power announced a £2 million local community (extending throughout Wales and the West of England) share offer, with shares priced at £800. A total of £22 million was raised through a combination of the share offer and investments by potential long term partner companies such as WS Atkins and Good Energy (FT, 2015). Once serious financial backing for the

project had been confirmed the project began to engage in a well-orchestrated Public Relations campaign which saw presentations to the local population in the Swansea Bay region (as well as further afield to technical and environmental concern audiences) as well as the creation of professional, eye catching advertising and promotional material in the forms of leaflets and booklets as well as CGI video and artist impression images.

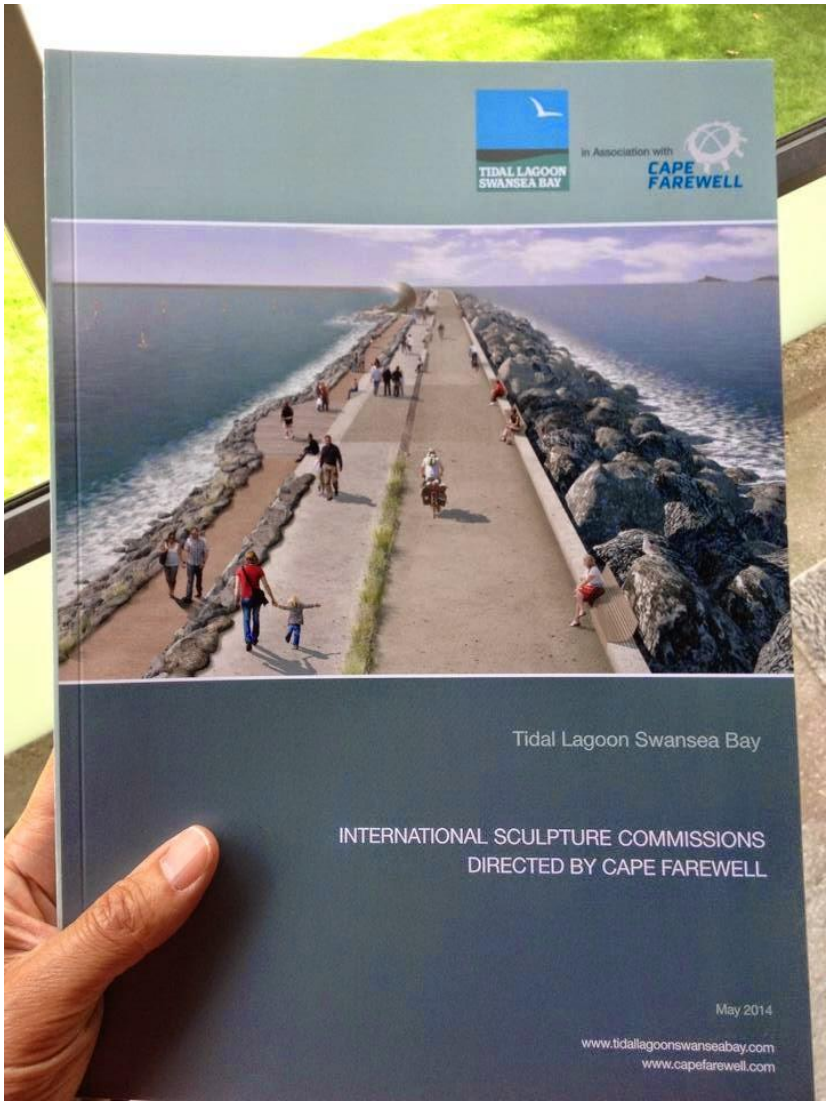


Figure 4.9 – An example of the promotional material created by Tidal Lagoon Power for the Swansea project, with this particular piece aimed at a technical audience.

Source – Stefen de Beer, Blogger on Art and Space. Available from steve-hyperform.blogspot.com, 2018

The promotional material created by Tidal Lagoon power had a marked effect and created lasting impressions of what a lagoon in Swansea Bay would mean for the people there. The image of individuals strolling hand in hand, or else cycling and running, around the lagoon wall with serene views out onto the horizon created a new place in people's imaginations of the future. The lagoon was less about being a piece of energy infrastructure and more about a place of recreational activity – a space for human enjoyment where the production of renewable energy was a side benefit.

The great promotional asset of the lagoon was that it could be and mean different things to different people. While many were enthused with the idea of having a new landmark in Swansea and a new recreational space to enjoy (which would seemingly leave Swansea's vast beach untouched), others were impressed by its capabilities to produce energy. With a stated capacity of 320 MW, and the capability to provide dependable and reliable renewable energy, the lagoon presented an

opportunity to provide the basis of a more manageable creation of renewable energy that would place less strain on the grid (as compared to wind or solar energy, which can suffer erratic production peaks and troughs). Tidal Lagoon Power's announcing of a further five proposed lagoons – three elsewhere in the Severn/Bristol Channel and one each in North Wales and Cumbria – with hours between high tides in the most northern and most southern locations - lent further to the idea that lagoons might be able to eventually provide a foundation for base load electricity in combination with other technologies. The developers' promotion of the idea that economies of scale would apply with the lagoon fleet, meaning cheaper energy for the larger lagoons that would eventually bring the overall cost of each project down, also fuelled ideas that lagoons could supply energy to meet a substantial amount of the UK's electricity demand.

While the capability to produce predictable renewable energy is the key prize for the environmentally concerned, as well as many outside of Swansea, it was the prospect of economic invigoration and job creation which appeared the main benefit stemming from the lagoon for many within South Wales and within industry. The developer's stated aim of securing more than 65% of content from providers and manufacturers within Britain, during a time period where large scale manufacturing was receding and the manufacturing of wind related renewable energy infrastructure had hit a low, struck a chord with industry representatives and businesses alike. The concept of the Swansea Bay project also coming to the rescue of the stricken nearby TATA Steel was also a popular idea among the public, with many displaying deep concern for the continued future of steel production and ancillary industries within South Wales. However, the idea that a lagoon fleet could contribute towards creating and sustaining around 22,000 high value jobs in the UK (with many hoping for a majority to be based in Wales), as well as 6,400 being sustained for each year of the fleet's operation, that appeared to provide the greatest potential benefit. The potential promise of such a large number of high value jobs located in a region stricken by poor employment for most of its modern history appeared to be a prize too valuable to let pass by.

As such, the Swansea Bay project was no longer viewed in isolation. Instead it would be the pioneer of a fleet and a new future in energy production and (many hoped) Swansea's fortunes. The relatively small size of the Swansea project (in comparison to other proposed tidal projects) made it seem the ideal pilot site for a technology that showed too much promise to not happen. The promise of so many strong and tangible benefits from a project that the city and its people would not have to finance directly (with the main direct cost being that they hosted it) stood in stark contrast to the overall negativity surrounding the job market, Swansea's image to the outside world and the memories of the fragility of the economy.

4.4 Uncertainty and the Political Landscape

The perceived fragility of the Swansea economy, coupled with anxiety surrounding employment and the visible signs of poverty around the city, were entrenched within the mind-sets of the participants when talking about the lagoon and the city. In addition to this deep sense of uncertainty, the time period coincided with a tumultuous political period consisting of two UK general elections, Welsh Assembly elections, Local Council elections as well as (and most notably) the EU membership referendum of 2016 in which the UK (including Wales and Swansea) voted to leave the European Union.

Beginning in 2015, the general election saw a Conservative majority government succeed a Conservative – Liberal Democrat coalition government, which returned David Cameron as Prime Minister. For several years previous to the 2010 election, Cameron had actively sought to develop an image of responsibility and care towards the environment – including being photographed cycling to

Westminster, undertaking a “fact-finding” trip to Svalbard in 2006 to observe the effects of climate change, as well as the promoting of the slogan “Vote blue, go green” at the 2006 local elections.

Going into the 2015 general election, Cameron had continued to play on this “green” image, and had generally positioned himself and the Conservative party as being pro-tidal lagoon. The tidal lagoon had begun to receive national press in late 2013, and was included in the coalition government’s National Infrastructure Plan in December 2014. This was a strong show of support at the time, especially considering that a UK government study on the feasibility of tidal energy in the Severn Estuary was highly critical of the potential of the options at the time, with previous proposals being rejected by UK government due to cost and ecological impact. As such, the lagoon was significantly utilised as a political pawn within the contexts of Swansea Bay and Wales in the run up to the general election.

In keeping with its largely social democratic political grounding, the election saw Labour hold Aberavon and Neath (on reduced majorities), as well as seeing it extend its majorities in Swansea West and Swansea East. It saw the standing down of Neath’s Peter Hain – who had been one of the foremost advocates of the proposed Severn Barrage project – as well as Hywel Francis of Aberavon and Sian James of Swansea East. However, the election in the Swansea Bay area was most notable for the Conservatives gaining the Gower constituency from Labour, who had held it since 1910. With a swing of 3.2%, the seat was won with a majority of only 27 votes by Byron Davies, who stood down from his role as an Assembly Member for South Wales West upon winning. Since elected, Davies spoke out in favour of the lagoon on multiple occasions, and also gave the opening address (again favourable) at a panel discussion hosted by the tidal lagoon developer with Charles Hendry (former UK Government minister charged with independently reviewing tidal lagoon technology).

While a Conservative victory in the Gower could have also been attributed to the changing demographic of the area in relation to Swansea (rural, older and wealthier) it is also likely that the backing of the lagoon project at both local and national level by the Conservatives significantly contributed to the result. As will be later discussed, a public backlash towards Swansea West MP Geraint Davies’ initial critical response to the lagoon proposals lends further credence to this (see Geraint Davies – risk chapter). Following the Conservative victory in the election, the sustained discussions involving the government and Tidal Lagoon Power over the strike price for the energy produced as well as the contract time frame (£168 per Mega Watt (mw) hour over a 30 year time frame) led to Prime Minister David Cameron stating that his enthusiasm for the project was “waning”, as the developer showed little immediate room for negotiation on the deal.

Next, the Welsh Assembly elections in 2016 were noteworthy for the change of regional seats. Since the inception of the Assembly in 1999, all seven seats for the South Wales West region have been held by the Labour party, often with significant majorities. Going into the election, two Assembly Members from the Swansea Bay City Region had announced their intention to not seek re-election – Gwenda Thomas of Neath and Edwina Hart of Gower, who had both been members of the Assembly since its inception. Both members were relatively senior, but Hart was particularly notable for 2009 contestation of the Welsh Labour party leadership and finishing second to eventual winner and First Minister Carwyn Jones who served in this role until late 2018. From 2011 to 2016, Hart was appointed Minister for Business, Enterprise, Technology and Science, and was closely linked to the tidal lagoon, coming out in favour of the project on multiple occasions and being one of the most vocal advocates for a quick solution to be found after the discussion of the financing of the project reached a stalemate in October 2015.

Byron Davies' election to Westminster in the 2015 general election, and Caroline Jones' defection to UKIP, meant that the Gower constituency would be contested by all new candidates – creating the potential for a tight contest in a seat where no second placed contestant had broken a thirty percent share of total votes. The Conservative party, confident from having won the Gower constituency at the 2015 election, put forward former Chairman of the Welsh Conservatives and current Deputy Chairman Lyndon Jones MBE. Despite the Conservative candidate receiving the largest share of votes ever in the constituency, eventually the seat was retained by Labour, with Rebecca Evans beating Jones by 1,829 votes.

The most significant change seen in the South West Wales region at the election was the returning of Caroline Jones, former Conservative party member and previous contestant for the Gower seat, for UKIP on the regional list. Prior to the election UKIP had posited itself as sceptical of anthropogenic climate change, beginning a year prior to the election with Nathan Gill (party leader in Wales) stating "[It is] complete stupidity to think by sticking a bunch of wind turbines all over Wales that we are somehow going to stop the weather from changing" (Huff Post, 2015). Gill posited his and UKIP's opposition to climate change prevention policies on the grounds that they represented a method of further taxation and attributing the decline of the Welsh steel industry on an "austere" carbon reduction policy that had forced up energy prices. In their manifesto, UKIP pledged to "axe" the £79 million budget for climate change projects and oppose "unsightly windfarms", as well as review the selection of which organisations were consulted by Welsh Government on environmental matters. However, the party did pledge to invest in coastal defences – which a tidal lagoon could contribute towards.

The election then saw UKIP gain seven regional seats in the Senedd, before infighting within the group saw a vote which led to Neil Hamilton becoming leader of the party's assembly group – despite Nathan Gill maintaining the role of party leader in Wales. This eventually led to Nathan Gill sitting as an independent in the assembly, whilst maintaining his membership and leadership of UKIP. Since the change in leadership within the assembly group, Caroline Jones described herself and UKIP as supportive of the tidal lagoon and associated technology due to its ability to reduce carbon emissions and provide energy security and diversification. Jones did raise the issue of the potential spread of benefits created from the lagoon, insisting that they stayed within South West Wales and Wales as much as possible, as well as discussing the potential impact of the lagoon on fish stocks – requesting that the Welsh Government "work with angling and fishing groups within Swansea Bay to ensure that their livelihoods are not affected by the tidal lagoon". This change of tack by a right wing populist party openly critical of climate change policy towards supporting a renewable energy project effectively underlines the perception within the political sphere as a whole of the lagoon commanding popular support within Swansea Bay. On the regional list, Plaid Cymru (the Party of Wales) returned two regional AM's (Bethan Jenkins and Dai Lloyd) – gaining one regional seat from the Conservatives. Prior to the election, Plaid Cymru leader Leanne Wood called for the greenlighting of the lagoon as a means to ensure local demand for steel from the ailing Port Talbot steelworks (IBT, 31.3.16). At the 2016 election, Wood unseated Labour's Leighton Andrews in the Rhondda constituency – a seat which he had held since 2003.

A month later on the 23rd June 2016, the UK voted by 51.89% to 48.11% to leave the European Union on a turnout of 72.2%. Despite being a net beneficiary from the EU in terms of funding, Wales also voted to leave by 52.4% to 47.6%. Swansea, a city where approximately £85 million of EU funds had been spent between 2007 and 2013, similarly voted to leave with a majority of 51.5%. Prime Minister David Cameron resigned from his position the morning after the result (without the triggering of Article 50 to begin the process of exiting the European Union), with an internal

Conservative leadership contest returning former Home Secretary Theresa May as PM a month after. As previously discussed, economists had largely expected the shock result to send jitters through the economy via a reduction in spending, however, a reduction in Base interest rate by the Bank of England from 0.5% to 0.25% (the lowest ever base-rate) enabled a period of cheap credit which facilitated sustained consumer spending which eventually subsided at the end of the year.

Prior to the vote, the development of any lagoon within Swansea Bay would have needed to comply with several EU directives including Habitats, Water Framework, Marine Strategy Framework and Environmental Impact Assessment Directives. Member states are bound by a directive to achieve the stated outcome within the required timeframe, but without dictating the means through which that outcome was achieved. Upon being addressed by a directive member states are required to change their laws to abide by said directive through a transposition, if their current laws do not already abide by the directive. Failure to pass the national legislation to a standard considered adequate could result in the European Commission initiating legal action against the non-compliant member state in the European Court of Justice under either Articles 258 (Failure to Fulfil Obligations) or 265 (Actions for Failure to Act) of the Treaty on the Functioning of the European Union.

The ramifications of the vote for the tidal lagoon became more apparent in the months after the vote, as Theresa May signalled her intention to withdraw the UK from the single market as well as the political union. Upon withdrawal from the European Union all EU laws and legislation would be transferred into UK law in a “Great Repeal Bill”, but importantly the government would no longer be liable via the European justice system for not enforcing compliance with regulations and directives. While the lasting effects of the referendum result remain to be seen for the development of lagoons in UK waters, the removal of the need to abide by EU directives would largely remove one route by which the lagoon development could be challenged on legal grounds.

In late 2016, the Hendry review commissioned by the government (which had been expected to have been published in March of that year) recommended in favour of the project – arguing that tidal technology had a role to play in meeting energy demands and that the affordability of the Swansea project was reasonable. While it seemed that this review might have been a good opportunity to “boot the project into the long grass”, it instead provided a new wind in the sails of the project – with a decisive announcement on the project expected by the start of June 2017.

The 2017 “snap” general election called by the May government was largely viewed as a political manoeuvre to ensure that the government’s handling of the Brexit negotiations were perceived as having the electorate’s backing and to operate more freely and with less scrutiny by the opposition. While the Prime Minister had often stated in the run up to the calling of the election that one would not be called, polling for the major parties had consistently highlighted Labour (led by Jeremy Corbyn) trailing the Conservatives by nearly 30 percentage points. The election ultimately saw the Conservatives lose their pre-election majority and having to rely on the far-right Democratic Unionist Party of Northern Ireland to maintain a functional government, while the Labour party saw their number of seats rise considerably. Within Swansea the election was noteworthy for the Conservative’s loss of the Gower seat, which had been won by Byron Davies at the 2015 election, to Labour’s Tonia Antoniazzi.

The election also happened to coincide with the time period for which the government was largely expected to make a decision on providing financial support to the project. However, the calling of the election and the subsequent shock of the result created a state of ambiguity, meaning that the project receiving a decisive decision in 2017 remained unlikely. This meant a continued wait for Tidal Lagoon Power and an added weight to its already stretched finances as the timeframe for project

approval began to become far less clear. The unexpected election result also called back into focus the government's plans for Brexit negotiations, creating an effect whereby UK government focus was almost solely fixated on navigating an unsteady minority administration through significant political hurdles. After Theresa May's resignation in May 2019, Boris Johnson was elected as both leader of the Conservatives and Prime Minister in July 2019, and pledged to continue the net zero carbon targets set forward by his predecessor.

5. The Renewable Energy Project that wasn't – understanding benefit and identity

The issue of who benefits from renewable energy has been at the core of understanding social responses to siting contestations. Unfair distribution has been posited to exacerbate social divisions (Hall et al, 2013) and fracture community social well-being (Gross, 2007), with research highlighting a preference for communities as a whole to benefit (Anderson, 2013). Unevenly distributed benefits present potential risks to identity in a few ways. In cases of fractured community well-being (Gross, 2007), social relationships between community members are negatively affected which leads to highly visible and tangible losses of inter-person connectivity. However, uneven distribution can also create identity risk issues in less tangible ways. In cases where benefits have only been provided to those whose land is occupied by infrastructure (see Hall et al, 2013), the social disruption caused can lead to individuals feeling exploited and marginalised. It is intangible identity risk issues such as these that represent the 'invisible losses' (Witter and Satterfield, 2014) between the individual and their meaningful connectivity.

Despite previous research indicating the potential and likelihood of such a scenario, the lagoon appeared to avoid such issues. Unlike projects with singular identifiable individuals who benefit financially from infrastructure being hosted on "their" land, the lagoon had no such individual. The seabed of the proposed site was in the ownership of the Crown Estate, an organisation that operates in the interests of UK citizens by seeking to create revenue for the British Treasury. The issue for the developer was how it could demonstrate that the lagoon was beneficial to the local population, especially considering its plans to be located on waters located so close to Swansea.

The Swansea lagoon was most unlike many other renewable energy projects. Instead of inciting a community backlash, the project seemed to garner much popular local support and was received favourably by a majority of participants. Much of this support related to who was seen as benefitting from its creation, with the lagoon seemingly generating a wide range of benefits largely aimed at the local public. This chapter outlines how the project became established as meaningfully beneficial within the lives of participants. It begins by demonstrating how the lagoon was seen as beneficial to the local economy, a core issue for many participants. It then focuses on how the lagoon was seen as positively impacting participants' belief in a sense of collective capability to care for the community. It then looks at some of the intangible benefits from the project, including how it was seen as recreating perceptions of Swansea and "*refocusing attitudes*" in a positive manner (echoing the findings of Devine-Wright, 2011); and thereby improving self-esteem of the city and its inhabitants. Finally, it addresses how the lagoon was viewed as having a highly tangible impact upon participants' lives as *something to do* – a social and activity venue that the community could visit and utilise. The identity benefits stemming from the lagoon can be grouped into three types based on the Valued Objects they were seen as benefitting. Social identity benefits related to participants' interpersonal relationships, both well-known and imagined (see section 5.1). Symbolic benefits related to

participants' relationship with Swansea as a city and community (see section 5.2) and tangible benefits related to relationships of *doing* (see sections 5.3).

This chapter describes how an intricate and dynamic relationship between risk and benefit was present, with each affecting the other. Drawing upon Boholm and Corvallec's (2011) relational theory, this thesis adopts minor alterations in terminology and conceptual thinking. As this chapter will highlight, the lagoon presented a benefit by addressing pre-existing risk. However, relational theory of risk is limited in its capability to encapsulate this issue. This thesis adopts an expanded way of thinking about the application of this theory (see figure 2.6 – page 14), so that it may more adequately enable understanding of instances where benefit and risk become intricately intertwined.

5.1 "Ours to Own" – social identity benefits

The concept of outsiders exploiting 'local' resources has been highlighted as an issue in community acceptance of projects (Huber and Horbaty, 2010). In the absence of anyone 'local' to financially benefit from the project, the lagoon harboured the potential for similar sentiments. However, the developer engaged in what was to prove to be a convincing public relations campaign in order to avoid the drawing of such similarities. Starting in 2013, a five week community share offer raised funds for the initial stages of the project including development consent and the securing of land options. Priced at £800, the shares were available to "community" members, loosely defined as anyone living within "*Wales and the West*". However, this share offer was not the primary method through which the developers promoted the lagoon as being locally and community "owned".

> "The launch of our community share offer creates a great opportunity for the people of Swansea and Wales to back an initiative that seeks to harness the power of the tides in Swansea Bay, help create local low carbon jobs and join us in the first of what will hopefully be a series of lagoons along the UK coastline. Our aim is is to reconnect local people to the energy they use so we'd like to get as many local people as possible investing in the project."

Figure 5.1. –Developer CEO on the community share offer. ***Source*** – Tidal Lagoon Power, 2018.

Despite the company being headquartered in Gloucester, England, the developers heavily promoted the project as "Welsh". Highlighting the potential for three more lagoons within "Welsh" waters, the emerging lagoon industry was posited as an opportunity for Wales to revive its heavy industry sector. Partly due to ongoing issues surrounding the continued operations of TATA steel in Port Talbot, one of the region's largest employers (a significant local 'valued object', Boholm and Corvellec; 2011), the idea of the lagoon as 'rebooting' Welsh industry was one which caught the popular imagination. Subsequently, just prior to the announcement of the findings of the Hendry Review into the feasibility of lagoon technology in the UK, the developers produced a "paper" stating the case for a lagoon industry entitled "Ours to Own".

Amidst the fallout of the EU referendum, the concept of an industry being British dominated resonated with public and stakeholder participants alike. The narrative of "ownership" of the lagoon extended beyond that of legal ownership, instead promoting the idea of lagoon technology as a firm part of the UK's future sociotechnical imaginary (Jasanoff and Kim, 2009). The proposal made a direct emotional appeal to the public, industry and government at a time when participants thought that change was needed. For local government it seemed to present an excellent economic and

symbolic opportunity for Swansea; being home to the first of a potentially global technology. For industry, the project was seen as a sign of renewed government vigour in revitalising the economy, and for the public it was all combined. Subsequently, the following section looks at the accounts of two public participants and how they came to view the lagoon as not only a catalyst for the local economy, but also provide tangible benefit to their community.

Figure 5.2. – Developer promotion of the lagoon as collectively owned by Wales and the UK resonated with participants and the wider public. *Source – Tidal Lagoon Power, 2018.*

Security and Stability – "These people have houses – what if they end up in debt?"

Diego was a publics participant who had spent his childhood and most of his adult life in Swansea before leaving to further his career in the hospitality industry in Cardiff. Having lived in Cardiff for six months and in his mid-twenties, Diego had recently bought a home where he lived with his partner and their young child. Despite no longer living in Swansea, Diego maintained a strong connection with his hometown through close personal relationships and a strong sense of affiliation and belonging. It was this connectivity that was significantly meaningful for Diego, and formed the nucleus of an endangered Valued Object in his eyes.

Diego's experiences of Swansea had imbued him with a pessimism on its economic outlook. This was largely rooted within his experiences of the post 2008 recession, which he emphasised as a hard time for the city. Memories of stores closing, friends and family losing jobs and the resulting financial stress were evidently experiences Diego did not want to see repeated for Swansea. However, he saw Swansea as largely incapable of preventing these instances from happening and portrayed the city as at the whim of larger forces. The primary issue for Diego was that he saw the lagoon as able to mitigate this pre-existing economic risk by acting as either a catalyst or by directly providing stable employment to the community. Despite Diego viewing the lagoon with a careful optimism, he presented some reservations as to whether to believe in the viability of the project.

Diego: *"I think with Swansea, not to sound disrespectful to people in Swansea, but I think a lot of people say this – there's not a lot there in terms of options. You've got Admiral that employs 1,500*

people maybe 2,000 people. You have this new student development that is going to create loads of jobs. I don't think there's a lot going on in terms of stuff to do as well. Like in Cardiff you have always something to do. Like the recession and that – it did hit Swansea hard. If you go in the quadrant and that now there's not many shops, there are some there but it's nothing like St.David's. I think if it brings business back – like big companies would open a shop down there. Open better restaurants and stuff like that."

Researcher: *"So what kind of risks do you see coming from the lagoon?"*

Diego: *"Money - it's hundreds of millions of pounds on this lagoon development and the city and if it doesn't work out. If halfway through the project the government say no we can't do this because we have to cut back. If David Cameron says we need to stop all this funding. If they say we need to stop giving certain parts of the country money. What if they spend all this money and then in a couple of years they don't retain it? How are they going to keep retaining it? How many maintenance guys does it take to run it? They promised these thousands of jobs – what if all these investors go to London and have a big meeting and decide no, I'm not going to spend all that money to have my business down here. That's a risk in itself – how do they know it's going to work?"*

Researcher: *"Who's that risk for?"*

Diego: *"I would say for the people. It is and it isn't. Certain people need certain jobs. What if these jobs go bust in a month? These people have houses – what if they end up being in debt? Worst case scenario is that they get halfway through the project and stop and it looks worse than it does now – there's like half built buildings everywhere. It's obviously going to affect the budget and how much England decide to give us."*

Here Diego portrays the lagoon as providing his community with an enhanced capability for people like himself to affect a role of responsibility and mitigate the underlying risks of unemployment and economic downturn. Imagined communities (Anderson, 1983) are emotional bonds created through the individual "echoing" their own lives and projecting it onto their imaginations of others, particularly within a defined community (such as a nation). Community is evidently a meaningful connectivity for Diego, despite him no longer living in the city. Possessing a fatalist perspective of both Swansea and Wales, he views the lagoon with scepticism but also as an opportunity to mitigate potential economic risk. In keeping with his new life role as a father, a hallmark of which is a sense of responsibility towards others (Robb, 2003), Diego considered stability and financial security to be highly important objectives. These concerns could be considered representative of risks and benefits that Diego saw as possible within his own life, while not necessarily being indicative of his experiences.

Concerns for loss of employment, financial trouble and the ability to maintain a home are drawn from Diego's personal narrative both historically and projected onto his community. While many of the effects of economic downturn and unemployment remain highly visible and quantifiable, these potential outcomes are not the immediate worry for Diego. Now living in a separate city, he is one step removed from his hometown yet the emotional connectivity to the place and community remains strong. The potential 'invisible loss' within this account is the sense of security and wellbeing that a healthy local economy provides. The Valued Object for Diego is not just his community, but also the emotional connectivity he maintains with it in both a familiar and abstract sense.

The lagoon then is not seen as an endangering entity, but rather an Empowering Object that is capable of mitigating pre-existing risk. Viewed as providing an enhanced level of economic security

to the local region, it is seen as helping preserve Diego's existing meaningful connectivity in one Valued Object (community) while also enhancing another (capability to enact caring role). This concept of *being enabled* to care for his family was of significant importance to Diego, but it was also a concept he wanted to see reflected within Swansea itself – diminishing the idea of the city as at the whim of external forces. The next section further explores this idea, and looks at how the lagoon came to be viewed as not only economically beneficial for Swansea but also socially.

Caring for the Community – "I don't really have a choice"

These notions of care (see p17) were not limited to Diego's account, but rather indicative of a majority of participant's views on the lagoon. Most participants saw Swansea as '*at risk*' socio-economically and so many were enamoured with the idea of the lagoon as an economic catalyst and long term attraction. The wellbeing of Swansea and its people thus formed an important aspect of participants' meaningful connectivity. One such participant who shared these views was Sara, a nursing student who moved to the city from a small town outside of Cardiff. Splitting her time between home and her student life, she saw large disparities between how the cities of Cardiff and Swansea were treated by government and the socio-economic issues within each. In a similar vein to Diego, Sara drew on the comparison of the two cities as a vision for what Swansea could be.

Sara's experiences of Swansea were by her admission mostly within the social bubble of other university students and the people she met through her working role. She described her interactions with "locals" as limited, yet still referred to "locals" and herself as a combined "us" when discussing Swansea. Despite her somewhat limited time in Swansea, Sara held a strong affiliation with its people and the place, outlining her plans to continue living there upon completion of her degree. In describing her affiliation to place, she highlighted that the main draw for her in moving to Swansea was its coastal scenery and its beach.

Researcher: *"Okay, so tell me a little bit about Swansea then."*

Sara: *"It's a very diverse place – on the one end you have some very nice places. Very middle class. And then on the other end you have the lower class. Swansea has the closest university to the sea – even closer than California. Nowadays they have had a lot of money pumped into Swansea for regeneration – to make it look better and for instance we just had the new campus built not so long ago which cost a hefty amount of money. There has been money spent on redesigning the city and making it nicer and nicer to go to. If you compare the city centre to Cardiff then you notice a dramatic difference. There's also loads of homeless people in Swansea. There's an area towards the train station called Sandfields – it's a bit run down and needs a bit of work but other than that Swansea is pretty nice. It's been voted the prettiest city. But there's loads of homeless people and Swansea has a big problem with drugs – especially heroin. But they're trying to pump money into it to make it better."*

Researcher: *"Are you confident those plans will work?"*

Sara: *"Yeah because the bay campus . . . I went for a visit there last week, it's so nice. It's modern, clean and tidy."*

As might be expected of someone pursuing a career in healthcare, the physical wellbeing of Swansea's inhabitants was an example of meaningful connectivity for Sara. Of immediate interest is the connection between the lagoon and substance abuse within Swansea. Two seemingly disparate issues became intertwined through her particular socio-economic framing of Swansea's social wellbeing – representing a highly contextualised 'symbolic tangle' (Horlick-Jones et al, 2003). Similar

to many participants, Sara viewed Swansea as in the midst of change visually and economically, and drawing upon Cardiff for comparison she outlines how economic regeneration may positively impact social wellbeing. Sara viewed the lagoon as part of wider change within Swansea, all geared towards moving the city away from its post-industrial decay and into a new era. Sara portrays the idea that a city that looks well must *be well*. However, her perspective became more critical when she came to question how the project might go about improving the lives of some of Swansea's most vulnerable. Despite this scepticism, Sara viewed the lagoon as creating positive material change for Swansea's inhabitants.

Despite a persistent perception that the lagoon was capable of delivering a material change for Swansea's inhabitants, participants displayed no real clarity in how this change would materialise. Some participants shared the view that benefits (such as employment) would 'trickle down' to the rest of the city via increased tourism spend and a more stable economy resulting from direct (construction) and indirect (supply chain) job creation. Sara's account is an example of how participants viewed changes in Swansea's landscape as a bellwether for improvements in its social wellbeing. A healthier local economy seeming to translate into either fewer individuals turning to substance abuse or a city more equipped to tackle those particular issues. This resulted in participants framing the lagoon as of communal importance in ways that superseded their own personal concerns. While Diego and Sara both saw significant benefit in the lagoon, they also saw it as a potential risk issue. For Diego this risk was largely tied in with the potential of the project collapsing, but for Sara the lagoon presented a risk to what she saw as signature features of the local landscape. Presented with a hypothetical situation of an aesthetic degradation to Swansea's beach as a result of the lagoon operation, Sara assumes a "place-protective" stance (Devine-Wright, 2009). Keen to protect what she sees as one of the main draws of the city, and indeed a main reason why she chose to live there, the lagoon disrupting the natural status quo of the beach seemingly created a red line issue.

Researcher: *"So there's good sides to it – what about some of the possible negatives? Maybe if there was mud on the beach or it spoiled the natural environment – how does that balance for you?"*

Sara: *"I feel like, in my opinion then – it shouldn't be built because the beach was there before, and that's what has made Swansea. The beach is part of the Swansea and other things, so they shouldn't really build on it – but it probably will go ahead and whatever. I don't really have a choice."*

Researcher: *"Why do you feel like you don't have a choice?"*

Sara: *"Because Swansea is . . . some areas are so deprived and they think that it's going to save us because they've tried other alternatives and it doesn't work.*

Here Sara discusses her feelings of inconsequentiality. While maintaining the lagoon as a potential risk issue, she also maintains a sense of obligation to view the lagoon positively and not present a dissenting voice. This narrative of Swansea as a deprived community which the government has tried to "*save*" presents her seemingly lone objections to the proposal as inconsequential against human wellbeing. Participants seemed to agree that employment opportunities were the most valued benefit the lagoon offered, and were seen as capable of mitigating Swansea's pre-existing problems. The mitigating of these issues translated into the alleviating of personal identity risk issues for Diego and Sara, particularly in their meaningful relationships with Swansea and its inhabitants.

A majority of participants in both public and stakeholder samples saw the need for employment in Swansea as an imperative issue. Subsequently, participants generally saw the lagoon as positive for Swansea, which Diego's strongly worded summary highlights -

"*So if it's for development and it does make it look nicer and it attracts people to Swansea and bring more money into the city then I think it's good. Whoever says it's a stupid idea in my opinion is an idiot*." – ***Diego.***

Within the cultural context of Swansea, being supportive of the lagoon was seen as supporting the community. This narrative seemed to pose dissenting voices as counter to the public good, harbouring potential identity risk issues in their relationships with the local community (see risk communication chapter). Sara's and Diego's accounts underline how risk and benefit in this case were intrinsically interlinked. Both participants appear intrinsically tied to Swansea, and so what happens to the city and its people matters deeply, presenting Swansea as a Valued Object. However, also of notable importance is how the notions of care that Diego and Sara held towards Swansea are presented as of key importance. Despite both parties holding some reservations about the project, Diego and Sara portray the need to care for the community as taking precedence over personal risk issues. These expectations of self, and being able to acknowledge oneself as fulfilling these expectations, is also a Valued Object. The lagoon is portrayed as an Empowering Object as it is seen as alleviating pre-existing risk to the Valued Object, while also enabling the realising of self as caring - again a Valued Object.

5.2 Missing Piece to a Puzzle – symbolic benefits

Benefit in relation to energy often takes on intangible meaning, and so individuals must wrestle with their valued consumption habits and what they deem to make their lives 'worth living' (Henwood et al, 2016). The warmth provided by a wood fire or central heating help creates a sense of home, comfort and hospitality that invoke feelings of content and happiness that hold important meaning to individuals extending far beyond the material. As evidenced with Diego and Sara, the behaviour that an individual expects of themselves takes on important meaning, especially concerning duties of care towards others (Henwood et al, 2016). In much the same vein the lagoon meant far more to individuals than its mere physical purpose. Diego and Sara envisioned this meaning as loosely tangible senses of security and care provision. However, the lagoon was also constructed in less tangible and more symbolic ways that came to be inherently meaningful for participants.

Swansea seemed a city with a collectively low self-esteem. Having been largely constructed in an era of post-war austerity, the lasting image of the city for many participants was one of non-descript dreariness. The visual aesthetics of Swansea were meaningful, and it seemed the urban landscape was a key source of not only grievance for participants but also a root of the city's esteem issues. This following section details the accounts of four participants who expressed these issues most clearly. Each account outlines a different way in which the lagoon was constructed as something meaningful within participant's future imaginations of self, community and place. Here the wellbeing of community members was also a concern, albeit to a lesser extent than those outlined by Diego and Sara earlier in this chapter.

The first account belongs to Doug, who viewed the lagoon as a signature project for the city and providing it with an easily recognisable symbolic image. The significance of having this signature symbolic image was to establish Swansea as somewhere of value. For many participants a common frustration was how Swansea was seen as somewhat forgettable and inconsequential, with the lagoon appearing to be a solution to this problem. The second account returns to Diego, outlining how the lagoon would prove to be a major attraction for the city. However, what Diego viewed as most important was how the lagoon would move to provide Swansea with a parity of importance with Cardiff. The idea of Swansea as over-looked and less favoured in comparison to Cardiff was an issue that resonated strongly with participants, and so the lagoon was seen as confirmation that

Swansea was somewhere that 'mattered'. The third and fourth accounts are those of Dale and Darren, with each explaining how the lagoon was seen as transcending from renewable energy infrastructure to something of intangible importance and meaning.

Distinctiveness and Place – creating a unique city

A retiree living towards the Western edge of the city, Doug had moved to the area after returning home from serving in the armed forces. Having lived in the city for 60+ years, he held a long-standing historic affinity with the community and place, having witnessed numerous changes in the city's fortunes and landscape. A previous employee at the Port Talbot steelworks, he described watching the site being built and the city change from the view from his back garden, which lay on a hill overlooking the bay.

Researcher: *"What comes to mind when you think of Swansea?"*

Doug: *"The Mumbles area – the beaches on it. The city itself? Not a lot really. It's got its bad places like anywhere else has. The worst part of it is as you come out of the station you're straight onto high street – which as long as I can remember it has never taken off as a shopping centre. It's had a couple of big stores at one time. It's on the periphery of town and it's not a good first thing to see when you come in."*

Like Doug, participants held a tendency to frame the city through an economic lens. Retail space, such as shops and restaurants, appeared part of a symbolic assessment of the city's wellbeing. Doug then was largely positive on the project, viewing it as a significant addition to the city. As a symbolic entity, Doug believed the lagoon projected an external image of Swansea as "green" and innovative. However, he also saw it as creating something distinct and memorable within the city landscape. Drawing on his experiences of other cities, particularly those which he saw as on a similar kind of scale, Doug explained what he saw as "wrong" with the city -

"When you think of cities like Edinburgh, Glasgow, Cardiff – there's something missing when it comes to Swansea. They're working on it now – they're trying to connect the city to the marina so that it flows better. They've added a passageway through Swansea so that it improves the movement of traffic at the entrance of Swansea. That's a big improvement – but it hasn't done much for pedestrians. There's something sadly lacking in Swansea." – ***Doug.***

Doug despaired at Swansea's lack of distinctiveness. Despite possessing a keen awareness of Swansea's history, Doug portrays it as relatively lacking in historical landmarks compared to other UK cities, implying that such landmarks possess significant socio-cultural importance. The account also highlights concerns with more contemporary urban components, such as the city's layout and architecture. Designed amid the frugality of the post—war period, the architecture of Swansea found little affinity among participants. In addition to being relatively undistinctive and unfashionable, much of the built environment carried with it negative associations linked to economic decline. Images of closed shops, unkempt business/industrial buildings and dull architecture all resonated as the kinds of concepts participants wished Swansea to no longer be associated with.

Figure 5.4 - While sometimes described as pretty, the Swansea landscape was mostly seen as without distinction and dated. ***Image Source*** – *Wales Online*, 2018.

Doug's account presented one of the better articulated examples on representing meaningful connectivity to Swansea's built environment. Many participants shared the desire to be associated with a city that was deemed as somehow important, yet struggled to describe this connectivity. As Doug's account outlines, much of this was intricately tied to a sense of pride in one's hometown; the idea that where an individual was from or lived was in some way representative of them. He described an annoyance that the first thing visitors by train to the city see is a struggling shopping district, and that the cityscape lacks memorable images signifying a unique identity. Both issues indicate an important representation of meaningful connection as an almost house-proud like reflexive concern on how others view Swansea.

VALUED OBJECT	RISK RELATIONSHIP	ENDANGERING OBJECT
Swansea's image, self-esteem.	Thinks of Swansea as forgettable and dreary and so thinks outsiders will too.	Negative perceptions of Swansea
VALUED OBJECT	BENEFIT RELATIONSHIP	EMPOWERING OBJECT
Swansea's image (improved), self-esteem (improved).	Lagoon provides signature image, encourages positive associations.	Tidal Lagoon

Table 5.1 – A tripartite analysis of risk and benefit, drawn from Boholm and Corvallec's relational theory (2011), demonstrating the dynamic relationship between the two.

The lagoon came to be viewed as a way Swansea could obtain the distinctiveness it was seen to lack, establishing it as an Empowering Object. Swansea's bland post-war period architecture was not seen as differentiating it from other UK cities, and participants believed it was not able to reach back into its past to gain the desired distinctiveness. Participants established an identity risk in that their

hometown spoke poorly of them, and so the opinions of "outsiders" (imagined reflexively) and Swansea's image were relevant meaningful connections. The lagoon was viewed as capable of offering Swansea the forward looking direction that it apparently needed. Innovative, world first, one of a kind were all ideas that resonated positively. Having their city or themselves thought of in positive terms was meaningful, and so can be represented as a Valued Object. Instead of simply being renewable energy infrastructure, the lagoon was a new symbolic representation of Swansea that participants were proud of.

Keeping up with the Jones' – keeping score with Cardiff

Visual and symbolic images of the city were important to participants. How the city was imagined to be viewed by outsiders seemed to hold sway in participants' views of themselves and their community (and subsequently impacted self-esteem). These thoughts were inherently relational, as they relied upon imaginations of the other (often a reflection of their own thoughts) and their opinions for evaluation. Swansea's reputation and image as non-descript and economically struggling was not how participants wanted their hometown to be thought of. However, while participants saw Swansea as unfashionable in a contemporary world, they were not resigned to it always being such. Drawing on the nearby example of Cardiff, participants saw Swansea as on a pathway to change with the lagoon playing a leading role.

Representations of Swansea held significant meaning for participants. While Doug portrayed this as minor annoyance, others demonstrated a greater frustration with how Swansea was apparently viewed. This frustration was elevated due to perceptions of disparity between Swansea and Cardiff, two cities geographically close but significantly apart in symbolic image. Unlike cross-border comparisons with the rest of the UK, the Swansea-Cardiff dynamic raised issues of distributional justice stemming from Welsh Government, which was seen as less detached from Swansea than the UK government. The common perception of the distribution of investment opportunities (seen as Welsh Government orchestrated) between the two cities highlighted Swansea as significantly less-favoured. Participants drew on Cardiff as an example of what a changed Swansea could be like, presenting a kind of established road map towards this desired change. Important within this was that Cardiff had seen significant changes to its former industrial docklands area, with a conventional barrage at the mouth of Cardiff Bay being a signature feature. Participants drew then upon the similarity of the projects and the perceived benefits in the Cardiff example as reason to support the lagoon. The following section draws upon Diego's account. As someone who had grown up in post-industrial Swansea but who now lived in Cardiff, the comparison between the two featured heavily in his thoughts on the lagoon.

'So growing up it wasn't . . . in the city centre I think it has gone worse with like shops shutting and that and closing down. It wasn't maintained – they maintain it more now and make the buildings look nicer. Growing up in Swansea, the money wasn't there – everything is obviously for Cardiff because it's the capital. It's not the nicest of places. I would say it's neglected. Obviously in recent years they've spent more money on it.' – ***Diego.***

Here Diego compares his experiences of growing up in post-industrial Swansea to his experiences of Cardiff. Like many participants he saw an obvious disparity between the two, highlighting an annoyance that Cardiff seemed to get everything 'because it's the capital'. While Swansea had been seemingly left stuck in a post-industrial stage with little government support, Cardiff was seen far more positively. Largely determined through highly visible economic activity such as shopping and entertainment, Cardiff was viewed as relatively thriving in comparison to Swansea. Diego presents the idea that attempts at delivering economic change in Swansea bore no lasting impact and were

piecemeal in comparison to what Cardiff had received, with this disparity representing and apparent 'risk object' (Boholm and Corvellec, 2011). These were core common beliefs within participants' combined narrative of the Cardiff-Swansea comparison, which were shared by the large majority of public participants.

Figure 5.5 - The often cited example of Cardiff Bay, where conventional barrage technology was utilised to create waterfront residential and retail space. Conceptual images of easily visible economic activity (such as dining and shopping) resonated with participants as signs of a healthy and thriving city that someone would want to be associated with. ***Image Source*** – *Visit Cardiff, 2018.*

The emphasis that Diego placed in mostly visual indications of urban well-being, such as shopping and entertainment, proved common among public participants. Many viewed Cardiff Bay as a good example of how economic changes largely involving retail and entertainment sectors could positively influence city image. These positive changes in Cardiff were seen as stemming from the barrage project, which had provided the city with an attractive waterside city image adjacent to its new commercial district. Participants thought of the lagoon as Swansea's own signature project that would create for the city what the barrage had for Cardiff. Due to a number of other projects having been undertaken within Swansea in recent years, the lagoon became synonymous with a series of changes in the city.

"Then you've got Cardiff which has got a lot more money, obviously it's the capital so it's a lot nicer. Where it will be in a few years' time with this redevelopment – but the city centre of Cardiff is I would say so much more better, I think everyone would. Whenever Swansea people come out of Swansea they always say it's so much more better" – ***Diego.***

The retail and entertainment sectors in particular were often used indicators for participants in assessing urban wellbeing. Diego portrays this highly visible economic activity as synonymous with a successful city, and like Sara previously in this chapter, presents the idea that visual aesthetic is of

importance. Cardiff was a readily available example of the visual aesthetic participants wished to see replicated in Swansea, and so it was presented as a potential 'pathway' example in multiple contexts.

Diego: *"People travel from all around the world to come to Cardiff because it is the capital. You've got the rugby here – which is a major factor. But you need people coming from the outside in. Getting all these investors to invest into this big massive thing or it will end up something like Merthyr. Obviously no one wants to go to and no one ever leaves. I think that there's more money spent here so there's not much negativity and stuff like that."*

Researcher: *"Is there a lot of negativity back in Swansea?"*

Diego: *"Yeah. That stems from once you're there you're just there. You hate it. There's a lot of negativity."*

In this extract Diego discusses the importance of a city being attractive. Here the concept of *attracting* is framed from two perspectives; economic and cultural. Diego posits that outsiders coming in to Swansea are needed in order to advance its economic standing. As a secondary aspect, he discusses the capability of cities to attract visitors to large sporting and cultural events (Cardiff is host to the Wales men's national rugby team, with crowds reaching 50,000+ several times a year) which he views as an important way of both promoting the city and benefitting its economy. Both concepts attest to an underlying belief that Swansea was incapable of furthering itself without outside help. Again Cardiff is presented as an example and pathway for Swansea to follow, albeit in a differing and localised context.

Figure 5.6 – A place "*no one wants to go and no one ever leaves*". Diego's portrayal of Merthyr (once described as the "*hardest place in Britain to get a job*") is one that he was keen to not see replicated in Swansea. ***Source*** – mirror.co.uk 29/5/11).

The idea of attracting people to Swansea was not only about improving the economy, but also about prestige – an important 'valued object' (Boholm and Corvellec, 2011). Having people take an interest in Swansea and viewing it positively was important. Within the implicit hierarchy of places and communities that Diego seemingly creates, Swansea is at a sort of middling level – not a city that is privileged like Cardiff, but neither is it a place where '*no wants to go and no one ever leaves'.* Diego portrays Merthyr as a somewhere with little economic prospects and in such socio-economic hardship as to significantly inhibit the social mobility of its inhabitants. While Diego does not equate Swansea with Merthyr in terms of socio-economic standing, he still views it as a place of perpetual

negativity, which he describes as hating. Breaking a cycle of negativity to be associated with somewhere people have an interest in or want to visit are valued objectives that Diego seeks to move towards. Diego's preoccupation with image was not limited to his account alone. Participants in both public and stakeholder samples seemed to agree that Swansea was a city of potential but needed outside investment and the attention from government to realise it. Part of this potential was a radical change in the way the built environment of the city looked. As such, having the city *look 'good'* was of key importance.

'I think look is very important. I think people judge stuff before they find out about it. People care about what it does and what it brings, but I think if it was an eyesore and it looks a bit naff then it would leave people a bit like "you've spent all this money and it looks like that?" or "you've built this and what is it?". So for me I go on just the way it looks. If it looks nice then you kind of accept it more whereas if it wasn't then I wouldn't like it and it wouldn't attract people – because that's what you want to do isn't it? You want to attract people and bring more money into Swansea so I think look is very important – besides the practicality of it.' – ***Diego.***

Previous experiences of societal judgement surface here for Diego. Negative associations between himself and Swansea are an identity risk issue, and so Swansea's image and his own self-esteem are Valued Objects. Like a majority of public participants, he saw Swansea as receiving a 'bad rap' from outsiders (Endangering Object), which reflexively seemed to affect their own perceptions on the city and community. The constant negativity that Diego alluded to earlier could be seen as stemming from participants perceptions of themselves and their hometown based on what they thought others thought of them. Subsequently, maintaining self-esteem in a Swansea identity remained an important issue for participants (Valued Object), even those who had left it for new pastures.

VALUED OBJECT	RISK RELATIONSHIP	ENDANGERING OBJECT
Swansea's image, connection to Swansea, self-esteem.	Outsiders think negatively of Swansea as it is aesthetically outdated. Lack of distributional parity with Cardiff makes Swansea appear less important.	Reflexive negativity, negative external perceptions of Swansea. Unequal distribution with Cardiff.
VALUED OBJECT	BENEFIT RELATIONSHIP	EMPOWERING OBJECT
Swansea's image (improved), self-esteem (improved).	Tidal Lagoon brings new aesthetic to Swansea landscape and is catalyst for broader change. Major infrastructure investment provides closer distributional fairness with Cardiff.	Tidal Lagoon.

Table 5.2 – Tripartite analysis demonstrating dynamic relationship between risk and benefit in relation to the improving of a Swansea regional identity.

In his account, Diego presents the visual aesthetics of the city and distributional justice in relation to Cardiff as meaningful. They both present identity risk issues in that negative portrayals reduce the value in Swansea's image, and through it Diego's own association with the city and community. As he puts it, "*people judge stuff* [on look] *before they find out about it*". He broadly imagines Swansea as being dismissed out of hand based on the negative perceptions he holds of it. He views the lagoon as addressing this issue by providing Swansea with a new and aesthetically pleasing waterfront place, making it an Empowering Object. The Valued Object is the lagoon by creating improved

perceptions of the city, both in a visual aesthetics sense and also in distributional parity with Cardiff. The lagoon's symbolic power for Swansea was seen as a statement of the city's importance and new beginnings, projecting a more hopeful brand for the city's future.

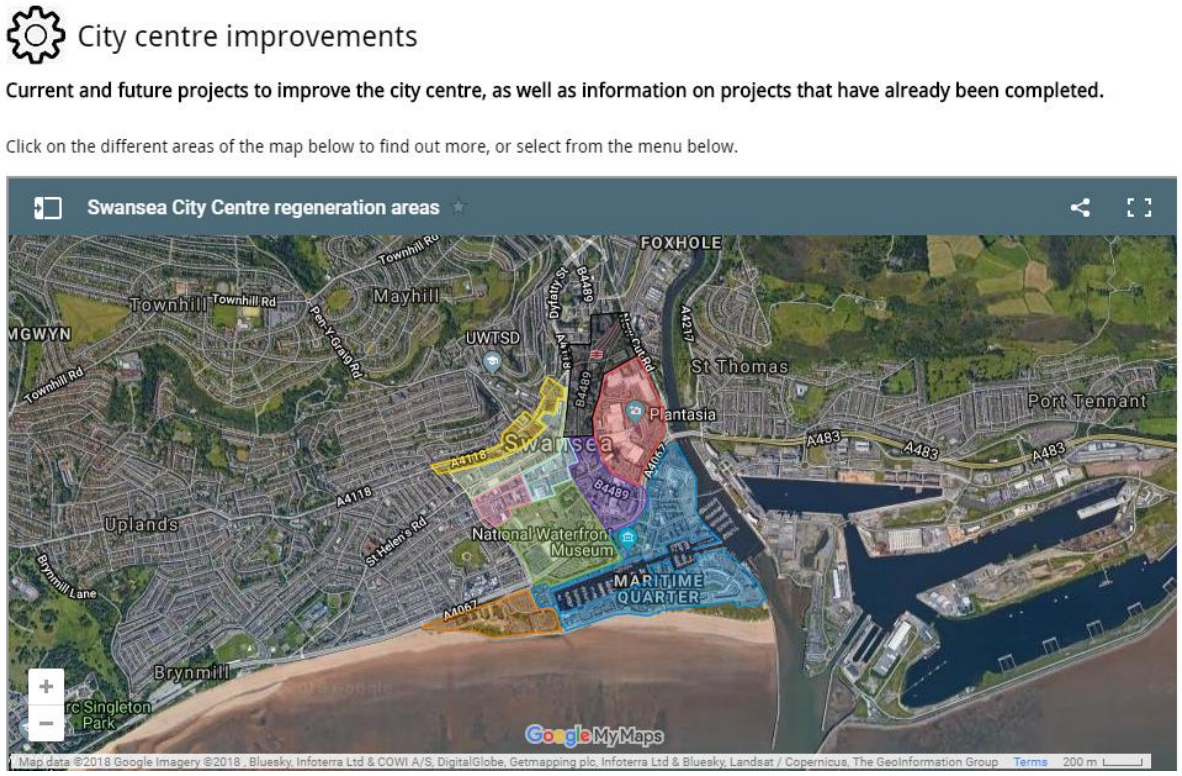


Figure 5.7 - The regeneration of Swansea was seen as co-ordinated and holistic, mainly thanks to local government (as seen here) and media promotion, meaning that the lagoon came to be instantly associated with redevelopment that was not a part of its remit such as residential and commercial space. ***Image Source*** – *Swansea.gov.uk, 2018.*

Self-esteem and distinctiveness – "it's one of those iconic things"

This experience and desire for a new narrative for Swansea was not just confined to the public participants, but featured prominently within the accounts of stakeholders. Instead of seemingly ceaseless negativity, with industry and employment only ever seeming to move one way, the lagoon gave Swansea a chance to offer itself a much needed ego boost. By making the city look like somewhere that people would want to come and visit, participants believed it would be distancing itself from its post-industrial history. A new and attractive Swansea was seen as reflecting positively upon themselves; encouraging positive association between themselves, place and community.

Dale was a stakeholder and a member of an anti-nuclear group and a community renewable energy organisation. The lagoon was primarily an opportunity to further his ambition of reducing the UK energy reliance on nuclear energy as well as increase public support/interest in renewable energy schemes. However, living in a small village north of Swansea, he was not immune or removed from the social buzz created by the lagoon and what the project might mean for the city. Participants' narratives of Swansea were unified in describing a post-industrial city that, even though they held an affinity for it, they didn't seem to take much pride in. Like Dale, they saw significant down sides in the historical pollution (and negative connotations accompanying it) that was seen as a hallmark of historical Swansea. Participants varied in how the association between themselves and Swansea held meaning and how it came to be impactful upon identity. In Sara's and Diego's cases, the

association was one of relatively new (Sara) and more historical (Diego) social bonds that brought to the fore notions of care for sets of relationships that were of importance to both parties. As we have seen, Diego displayed concern with being entrenched in what he saw as the perpetual negativity within Swansea and its image and representation to outsiders. Dale's concerns share some similarities with both of these accounts.

Dale: *"I can see it would help rebrand to some extent Swansea as a tourist location, especially with all the university development that is going on essentially on the same side – and I'm sure there are plans for how they're going to use the lagoon for leisure purposes. So I can see that as being a really positive spin that can be put on the area. I can see that helping to refocus attitudes towards Swansea. In a similar sort of way to Swansea being in the premiership has had – I would never have believed it would have this much affect a football club would have, and I can see the same sort of spin offs from that."*

Researcher: *"So you mentioned the football club, is it a kind of identity of success?"*

Dale: *"Yes, it's an identity of success and improving self-esteem and all those things, positively re-evaluating self-confidence and all those things. I mean I like this area but it's still to some extent trying to recover from having been mining, chemicals, heavy industry, the steel industry in Port Talbot – you know all that sort of side has been in decline for the last generation at least, maybe even two generations now. And so turning it around into something that is nice, clean, attractive, positive, forward looking yeah I can see that."*

In the above extract, Dale describes a need for "refocusing" attitudes towards Swansea, viewing the lagoon as capable of improving the collective self-esteem of the region. While Dale saw the negative aspects of Swansea as polluted, economically lagging and looking backwards at what had been lost, he saw the lagoon as positive. Concepts such as being environmentally friendly, economically invigorating and delivering a positive "forward looking" attitude meant that the lagoon seemed to be a panacea or cure for Swansea's woes. His belief that the lagoon might be able to achieve goals beyond its stated purpose was grounded in two experiences. First, the early public engagement meetings held by the developers (which he attended) had a significant focus on promoting these other benefits, and were subsequently picked up on and promoted by local media. Second, Dale's perceptions of how the local professional football team (Swansea City AFC) had brought a sense of optimism and prestige to the city was seen as evidence of the capability of "spin offs" to deliver wider ranging benefits. The future imaginary promoted by the developers was evidently amenable to Dale, being in keeping with his experiences, desires and worldview. He was not the only stakeholder to see such potential in the lagoon. Darren was a stakeholder and an engineering faculty member at a local university who had followed the lagoon project since its embryonic stages. Having a good knowledge of lagoon and barrage technologies, and heavily concerned with the threat of climate change, Darren described having an "*emotional attachment"* to the project and a desire to see the proposal become a reality. He saw the lagoon project as an important opportunity for testing the technology, which he saw as potentially playing a large role in the decarbonisation of society. Importantly he saw it as a socially and economically viable project (in contrast to barrage technology) that offered the "*the realistic halfway point that might get built".* In addition to his enthusiasm on the project's techno-scientific potential, Darren was also enthusiastic about the project being close to home.

"It's one of those iconic things. With all these big infrastructure projects it's about being proud of where you are and where you live. It may not change the society, but it will change the perceptions that will change the city. Whether all the benefits that they're talking about are going to happen – I

don't know. Yesterday they announced one thousand job losses at TATA Steel, which will have a much bigger impact. So yeah it's difficult." – ***Darren.***

Darren portrays the lagoon as potentially holding significant symbolic ramifications for Swansea – echoing the findings of Devine-Wright (2011).. Similar to Dale and Diego, he views the city and community as in need of some kind of collective esteem boost, particularly in a trying time due to the concerns at the local steelworks. While he remained sceptical of the benefits promoted by the developer he maintained a belief in the lagoon being able to inspire positive thinking about Swansea. As Doug highlighted, Swansea lacked 'iconic' imagery that readily defined the city; a silhouette outline synonymous with the city landscape (e.g - the Eiffel Tower and Paris). There was a collective belief that as a 'world first' technology the lagoon would be able to become Swansea's own signature silhouette – i.e the missing piece to Swansea's puzzle. While the lagoon would obviously take on a physical and tangible form, it was the intangible impact upon identity that was viewed by participants in such a positive manner. Subsequently the lagoon was thought of by both public and stakeholder participants as a potential new symbol for the city inspiring optimism and forward thinking.

5.3 Tangible difference – benefits from doing

An important difference between the lagoon and other renewables infrastructure was the capacity for human activity. Promoted by developers since the early stages of the project, the lagoon was to include a pathway for walkers and cyclists in a circular route around the top of its wall. Promotional material heavily featured the idea of the lagoon as a community space, including the pathway and a jetty enabling swimming and diving. Idyllic images presented warm summer evenings with blue waters and beautiful sunsets, with the pathway stretching out into the sea and the horizon. Along the route would be shelters and places to sit and relax, while the idea of artwork stretching along the route was also considered. In all, the developers presented a unique, costless "community asset" that was promoted as having the potential to draw tourism into Swansea. Subsequently, a large number of public participants were impressed with the proposal.

One such participant was Tim, a postgraduate student at a local university studying marine ecology who had moved to the city from North Wales to undertake his Batchelor's degree. His initial interest in the lagoon stemmed from his working role and his hobbies - especially sailing and diving. As someone working within the larger environmental sector and a keen diver and sailor, Tim's interests in the lagoon came from multiple perspectives. Living in the western half of the city, Tim cycled every morning along the coast to work where his job would regularly take him out of the office and frequently onto the bay for fieldwork. Perhaps the public participant most familiar with the bay, Tim stood in contrast to the participants who saw Swansea as limited in options and activities. Spending most days out in pursuit of hobbies and seemingly with no limit of what to choose from it would have appeared that the lagoon might have been seen as somewhat of an inconvenience.

"University brought me here – and the location – that the university was that close to the beach, that was a selling point for me. And Gower – the area of Outstanding Natural Beauty was just phenomenal and that's why I came here for. In my spare time I love to be outdoors – particularly on foot and on my bike – so I love to explore the Gower and the Brecon Beacons. Hike, climb, go running – whatever, but always in a pair of hiking boots. I don't like running along the seafront or anything like that – I'd probably cycle instead. I like cycling a lot, I'm a big road cycling enthusiast so I'm always back and for to Mumbles on my bike time trialling. Doing laps and seeing if I can improve on my times and stuff like that. Water sports is a big thing for me as well. I'm a scuba diver and scuba diving instructor. Sailing instructor and powerboating instructor so I'm always out on the sea – as you

might expect from a marine biology degree. Constantly engaged with the local area – we take the rib out from Mumbles and scuba dive almost every week. Here in Swansea over the summer and as far afield as Pembrokeshire, Cornwall, South Coast, Ireland, Scotland – so we're always in the sea. Either teaching or diving for recreational or scientific purposes." – ***Tim.***

Tim placed a large emphasis on the physical nature of doing, drawing a large part of who he is from a number of outdoor activities. Like most incomers, he saw the natural beauty of the surrounding landscape as a strong pulling force and offering places within which he sought to enjoy life. The intrusion that the lagoon could have potentially caused might have been seen as a significant risk issue, yet this was not the case. Instead of the lagoon impeding his ability to continue to interact with the bay and its waters in the way that he wanted, he saw it as further enabling that capability.

Figure 5.8 – The ideals promoted by the developers seemed reminiscent of a Nordic style utopia of a healthy and happy community, with renewable energy being created as a side benefit. ***Image Source*** – Tidal Lagoon Power, 2018.

"You've got recreational facilities inside – you've got sailing in the lagoon. Loads of possible benefits. For me personally – being able to cycle along a twelve kilometre wall, that's an awesome thing for me to try and time trial on. It will feel like you're cycling in the sea – which is something that I've never experienced before. You have literally water either side of you, it will be really peaceful with water lapping either side of you. The weather will be horrible – you'll have no wind protection and nine miles is not a short distance to travel when it's chucking it down with rain and it's cold." – ***Tim****.*

The lagoon was frequently talked off as a new and unique kind of experience. With a particularly advanced vision for his usage of the lagoon already formulated, Tim was particularly positive on how it could make a material and meaningful difference in his life. Visions and understandings of how the lagoon would be utilised by participants were not always so clear (as could be expected of a "new" technology). Instead, these understandings often unfolded during the interview itself. While Tim's imagined use of the lagoon was unique among the participants, almost all participants saw the potential for the lagoon as a recreational space as a resounding positive. Similarly to how shopping and dining were seen as hallmarks of a modern fashionable and economically stable city, the sailing and swimming that the lagoon promoted in Swansea Bay was seen as signs of a healthy and engaging city. While individuals who saw themselves realistically participating in the promoted activities certainly existed, the lagoon also served to promote the image of Swansea as a better place because of those activities happening there.

VALUED OBJECT	BENEFIT RELATIONSHIP	EMPOWERING OBJECT
Cycling, Sailing, Diving, 'New' Experiences	Lagoon is a new place within which to pursue activities. Sea-based location presents new experiences.	Tidal Lagoon

Table 5.3 – Tripartite analysis of how Tim constructed benefit from the lagoon.

Tim constructs the lagoon as an Empowering Object which enabled the improvement of a number of meaningful connections. Unlike other participants within this chapter, he does not present the lagoon as an Empowering Object because it mitigates pre-existing risk. Instead he presents the lagoon as having a more straightforward benefit relationship with the Valued Objects that he connects with. These Valued Objects are presented as core to how Tim both describes himself and how he engages with the world around him and so unearthing representations of meaningful connectivity were more straightforward for Tim than other participants. However, of interest is how Swansea Bay (a Valued Object) was not deemed as endangered by the lagoon. Despite significant changes to the landscape in the event of the lagoon's creation, Tim did not foresee this as disrupting or diminishing the way in which he meaningfully connected with this valued place.

Somewhere to go, something to do

Envisioned utilisation of the space was not always in the "highly active" category. Instead some participants envisioned more mundane uses for the lagoon. A student at a local university and in her early twenties, Isobel had moved to Swansea from a small town outside of Newport, South Wales. After first attending university in Cardiff, Isobel transferred to Swansea after visiting and preferring the city's "relaxed" pace and laidback attitude. Like Sara, another student at the same university and a member of the same university sports club, Isobel considered her social life to be of significant importance to her at this particular life stage. However, while appreciating Swansea for its small size and the feeling that she had "everything on her doorstep", she admitted that she sometimes wished that there was more to do in the city. This stood in particular contrast to her thoughts on her previous home of Cardiff, which she saw as better funded, better kept and better equipped to entertain people her age.

Isobel: *"I don't know if it was so much a factor but I remember coming to visit and being surprised how close the beach was and I found it really cool. But then when I switched over it was more that I liked the environment in total than just the beach. But it's something you look at and think it's pretty cool to have that right opposite the uni."*

Researcher: *"Is there anything you really dislike about Swansea?"*

Isobel: *"Not dislike but for instance compared to Cardiff, it's just quite small. So it's just the same places all the time, whereas in a bigger city you've got more going on. But again there's no money to put into it to get and develop things."*

As with previous perceptions of benefit in this chapter, Isobel saw the lagoon as addressing a pre-existing risk issue in the lack of things to do, places to go and new experiences in Swansea. Another participant drawn to Swansea due to its natural landscape (particularly the beach), Isobel didn't see much wrong with the lagoon occupying part of the beach and the bay. As she put it –

"We've got so many pretty beaches anyway – especially when you go down to Mumbles and you've got Langland bay and things like that. I've never used that area – SA1 to the bay campus – it's always outside of the uni and towards mumbles. I think that's what a lot of people do. So it sounds like the benefits are worth changing the landscape." – ***Isobel.***

Participants almost unanimously agreed that Swansea was blessed in its natural surroundings. With beautiful bays, beaches and surrounding hillside, the city did not lack for nature to explore. In contrast to how the surroundings of Swansea were constructed as useful and meaningful places, the areas surrounding the old docklands were constructed as no longer holding much use. The way in which Isobel constructed this area was a heavily shared sentiment, positing that as they as individuals did not access and use the area then it did not hold value within their lives. As such, the lagoon was seemingly a straight forward exchange; a space with little to no value for a place that participants could go and utilise.

Isobel was not the only participant who wished for more in Swansea. As previously discussed, Sara primarily viewed the lagoon as improving the lives of people, but she also saw it as having a material impact on her day to day life. Like Isobel, Sara outlined a frustration with what she saw as a lack of things to do on Swansea's waterfront. Another participant who was well accustomed to Cardiff and utilised the example of its Bay area frequently, Sara presented Swansea Bay as an asset being underutilised.

"there's not that many opportunities to say if you want to do something, like have a drink or a bite to eat, you can't really do that. Like there's a restaurant further down the bay but that's a bit pricey and more of a sit down thing – it's not "do you want ice cream?" or "do you want chips?". They could make a bit more out of the beach – like there's something called 360 which is all sports, all the time – but that's only open in the summer when it's sunny. Maybe they could have some things to do in winter down there. Like people who are out walking their dog – just stop off at a café and have a little cup of tea." – ***Sara.***

Sara's description of what Swansea seemed to lack appears reminiscent of the quintessential British seaside town; "cheap and cheerful" days out with cups of tea or cone of chips to keep warm amongst a blustery and cold backdrop. Both Sara and Isobel were regular visitors to Swansea's beach in the warmer summer months, and often used the seafront for jogging, but admitted that they tended not to visit in the winter as there was less to do. For Sara then, the lagoon opened up the seafront from a seasonal social venue to a year round one. For Isobel, the lagoon was another place to go and something else to do in the small city.

As might be expected of a pair of university students, Isobel and Sara present social interaction as a highly important type of connectivity. The lack of places within which to interact, or instead a boredom with visiting the same places continuously, presented an identity risk issue. Subsequently both participants placed less value in continued interactions within these places, with new places and experiences being preferred. Again the lagoon was seen as an Empowering Object that would establish benefit to Valued Objects via addressing pre-existing risk. However, it also presented benefit in that it improved Valued Objects in the form of establishing a major all-season social venue as opposed to the mostly warm-weather one at present. Unlike Tim, who saw no risk in the lagoon occupying the bay, both Isobel and Sara perceived the lagoon as a minor risk to place. However, both participants consider this risk relatively small and deem Swansea beach and bay as an acceptable 'loss' considering the presence of (more valued) other beaches nearby.

Throughout numerous accounts was the implication that the lagoon could provide energy in a renewable and relatively risk-free manner. Both Sara and Isobel saw it as being able to provide sufficient energy for Swansea, while others such as Doug held the belief that it would provide low cost energy for the local community. As has been highlighted (Groves et al, 2016a), mundane energy use and its related practices are valued and matter to the individual. A majority of participants maintained a narrative that a project such as the lagoon (and the resulting onset of lagoon

technology) would be able to provide the renewable energy required for a sustainable future. This meant being able to maintain existing valued practices while also sidestepping the "competing moral commitments" (Henwood et al, 2016; 6) that exist in relation to valued practices of today and our ethical responsibility to future generations (Shirani et al, 2013). The lagoon was viewed as a benefit by a majority of participants as it appeared to allow the continuation of valued practices (and thus no deterioration in quality of life) in addition to satisfying moral conundrums and ethical worries.

Community Attractions and Family Days Out

While seemingly mundane and with no shortage of other places to use as walking routes in the local surroundings, the lagoon made a lasting impact on participants' perceptions as a useful asset to the community. Sara and Isobel's accounts were largely self-centred perspectives on how the lagoon might prove useful and meaningful, but the concept of the lagoon as a community social point and attraction was also a popular idea.

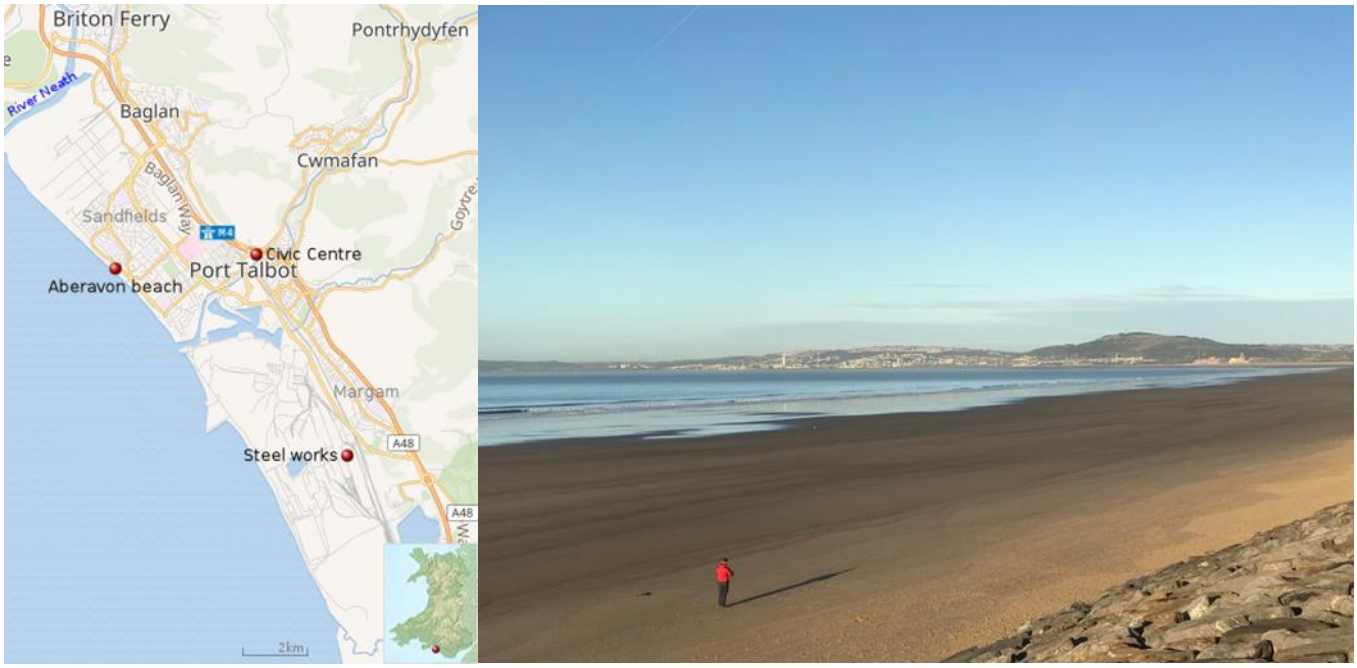


Figure 5.9. – The location of Port Talbot in Swansea Bay. Westward views incorporated most of the city and near the entirety of the lagoon site. ***Image Source*** – Google Maps and aberavon-beach.co.uk, 2018.

Joe was a publics participants who lived in Port Talbot, near Swansea Bay's eastern edge. A graduate in an environmental discipline, Joe had moved back to his hometown to take up a position at a steel manufacturing multinational. From this perspective, the lagoon held importance to Joe through potentially providing a boost to the maligned Welsh steel sector (and possibly his professional career) and secondly by aiding and promoting environmental causes and values. However, Joe was relatively relaxed on both of these issues. Instead the lagoon was viewed in more 'everyday' terms of social interaction and community. A largely working class town located on a major transport route across South Wales, Port Talbot represented Swansea Bay's eastern extremity. Having grown up in the town, Joe's portrayal was that of a tight knit community where most people knew each other and that concern for the larger community was the norm. Like the accounts of Diego and Sara, Joe emphasised community wellbeing as superseding all other issues.

Joe: *"It seems that by the way it is presented it will have a positive effect on the area. Because I haven't really read much about it I would have thought that the Swansea Bay area would have been from the old university to the new university campus – so that wouldn't really encompass Port Talbot that much. From the way that I can understand it, it seems to have a lot of positive effects with it – tourism, jobs, energy and stuff like that. You've seen the success that Cardiff Bay has had and the sort of regeneration they've done for an area like that. So if you could in on a scale which would be a bit bigger – it should be positive."*

Researcher: *"So what kind of things do you think about when you see Cardiff Bay now?"*

Joe: *"When I see Cardiff Bay I see it as a tourist attraction – there are a lot of restaurants there, bowling alleys, cinemas and stuff like that. So there's a lot of attractions there for families. What I've heard is that people can be priced out of that area – that only certain people can use it. So that's why I said that if Swansea had it then it could be used for the whole community and not just single out people who are earning a certain amount and can afford to use that area. For me – if you can maintain a nice looking, community attraction then it shouldn't cost people that much money to use it."*

Joe's perceptions of the lagoon present community at the forefront of his thoughts. Impressed with what he saw as the success of the Cardiff barrage project in breathing life into Cardiff's former industrial areas, Joe was optimistic of the lagoon performing a similar role for Swansea Bay. He was also one of many participants who were both intrigued and impressed by the promoted amenities such as cycling, walking, swimming and sailing facilities. However, unlike many participants, Joe was familiarised to the lagoon concept through his experiences of nearby Aberavon beach. Walking distance from his home, and a social hub that he frequently visited mainly for walking the dog and to meet friends, Aberavon beach had been redeveloped during Joe's childhood. Primarily aimed at providing new economic impetus to the town's seaside, which had been in decline since its heydays in the early part of the 20th century, Aberavon beach had become a part of his childhood and remained a firm feature in his life since. Featuring fast food restaurants, children's play areas, cafés and a cinema, the seafront was a popular destination for young families to entertain children and for school children to meet friends.

Figure 5.10 – Aberavon Beach bore similarities to how the lagoon was imagined to be a community asset. ***Image Source*** – Aberavon-beach.co.uk, 2018.

The ways in which Joe established some form of meaningful connection with the lagoon was rooted in his experiences of these two places. While the influence of Cardiff Bay has been noted and discussed, Joe's personal experiences of Aberavon beach were somewhat unique. While other participants envisioned the lagoon as a social hub and a place for quiet strolls, Joe seemingly reproduced Aberavon beach in his imaging of the lagoon. A place for the community, with no admission fees and to be well maintained, the lagoon was to be for Swansea what Aberavon beach had been to him.

Such imaginative reproductions of places in participants' minds were common in relation to Cardiff Bay, but Joe's reproduction of Aberavon beach within the lagoon was far less centred on his person. Similarly to Diego and Sara, notions of care and feelings of embeddedness within the community were evident in Joe's thoughts. In line with Diego, Joe displays a desire for community members to live their lives roughly in line with his own narrative. However, while Diego envisioned a cosmopolitan lifestyle for Swansea residents Joe envisioned a coming together of community that was more in line with his own experiences.

5.4 Discussion

From an early stage, the developer attempted to utilise identity as a means of promoting the lagoon to the local population. This was primarily focused around three sets of relationships that participants drew upon to understand themselves and their connectivity to the world. First, a bond was formed between the lagoon and Swansea that negated either entity being perceived as an "outsider" in a negative sense. Second, the lagoon was seen as positively impacting participants' sense of self and their esteem derived from their association with the community and place. In this sense the lagoon possessed symbolically powerful imagery of concepts that participants wanted to be associated with. Third, the lagoon was seen as enhancing existing practices, and so was viewed as a community asset and a highly tangible benefit.

The sense of community that was established by the developers between the project, industry and the local community created a foundation for the project being viewed positively by participants. They did not come to view the developer as "outsiders" in a negative sense but instead as an organisation that had seen potential in Swansea and had chosen to invest and become a part of it. This relationship was between participants and their well-known and imagined communities within Swansea Bay and beyond. Careful networking and promotion by the developers weaved the lagoon into the "sociotechnical imaginary" (Jasanoff and Kim, 2009) of Wales and the UK. The faltering of the UK steel industry further entrenched socio-cultural concepts of Swansea seemingly at the whims of fate and larger forces. Subsequently, developer promotions of the lagoon "kick starting" an industry that would be "ours to own" and with global export potential penetrated the local psyche as the answer to securing future economic security; establishing meaningful connectivity between technology and community.

Both Diego and Sara felt notions of responsibility and care towards Swansea. Emotional bonds of community are not geographically finite, but instead are understood from an individual's personal narrative. These accounts portray how "entanglements" (Andersen and Chen, 2002), presented by the sets of relationships that constitute identity, are impactful upon responses to siting issues. This thesis supports previous research highlighting how particular role specific understandings of self are influential over risk perceptions (Irwin, 2001), particularly when notions of responsibility are involved. Role specific expectations of self, particularly involving the concept of care unto others, have been highlighted as impactful on perception and behaviour to the extent where they could be considered "unnegotiable" (Henwood et al, 2016). These accounts then also reaffirm the findings of

research (Wustenhagen et al, 2007) highlighting that positive perceptions of renewable energy projects are strong when "the community" is seen as benefitting.

Sara's account gives some indication as to the kind of conflicts that "can arise between different moral commitments that exist" in relation to identity (Henwood et al, 2016; 6). In this instance identity relevant moral conflict derives from personal emotional attachments to place and notions of care to the community. Sara's "place-protective" stance (Devine-Wright, 2009) towards the beach presents an identity dilemma set against her connection to the community. Here her objections to the lagoon need to seemingly be morally reconciled with the notions of care she expects of herself towards her community, which leads to conflict. It is in these moments where relational understandings of identity, particularly portraying the individual as "fragmented" (Hall, 1996) are most useful. While Sara's account could be seen as aligning with findings that objections to projects are based on visual aesthetics (Wolsink, 2007), it also demonstrates how symbolic understandings of place (Henwood and Pidgeon, 2001) hold importance to individuals. This includes Sara's symbolic representation of place and community as well as colliding concepts of man invading 'natural' space (Devine-Wright and Howes, 2010). Diego's account provides glimpses of how a specific role, and the understanding of how it should be enacted, can become reflexively portrayed in risk perceptions related to members of the community. Both accounts demonstrate how notions of care and responsibility are extended beyond 'well known' relationships to individuals that might be seen or heard in daily life (such as the homeless) or even imagined members of the community.

Second, the lagoon was seen as positively impacting participants' understanding of themselves, their community and their hometown in relation to those outside of Swansea Bay. The lagoon was seen as possessing symbolically powerful imagery that associated the city with a level of importance that it was deemed to not have possessed previously. Concepts such as being a world first technology conveyed notions of innovation, while the environmental and economic benefits of the project were seen as establishing a forward thinking attitude and image. The lagoon's physical nature was seen as creating a recognisable image for Swansea – a postcard picture that people would know globally as Swansea.

Doug's account presented Swansea as a forgettable peripheral city suffering design during the post-war period which had translated poorly in terms of aesthetics into the contemporary era. There was a yearning for some form of distinctiveness within the city that he saw cities like Cardiff as possessing. Diego, having lived in both cities, held similar views that Swansea was in need of a brand change that would mark the city as aspirational and positive. Both Doug and Diego framed this situation largely within an economic light: for both of them to be economically prosperous (and visibly so) was a good sign of a thriving city – the likes of which individuals would be happy to be associated with. As evidenced in Diego's account, Swansea was also seen as capable of "backsliding" into becoming a stigmatised place that carried with it strongly negative perceptions - a latent risk issue (Kasperson et al, 1988) that was mobilised to present the lagoon as a benefit.

Dale and Darren held similarly strong senses of attachment to Swansea as a place and a community, and so were largely positive in their opinions of the lagoon as beneficial to the city. Dale drew similarities between the effect of the city's football team playing within the English Premier Division, as a prestige building phenomenon, and how he saw the lagoon as possessing the capability to provide a lift to the city's culture and sense of self-worth. Darren held someone similar beliefs in this capability to change the city culture, maintaining that the lagoon might hold some iconic qualities that may have come to define the city. Both accounts are good examples of how expert and stakeholder accounts do not exist in a social vacuum, but rather are intricately part of a social fabric from which it is difficult to extricate oneself.

All four accounts demonstrate then that places assume meaning to individuals as they construct their realities through them (Massey, 1993). The places we inhabit then provide a strong sense of definition to who we consider ourselves to be (Dixon and Durrheim, 2000). Important here is that individuals establish a sense of belonging to these places (Proshansky et al, 1983) and we come to have a reflexive sense of self in relation to them (Chu, 2004). Imagined communities (Anderson, 1983) come to hold a reflexive relationship with our sense of self and the places with which we are attached. What we think of the world and what we think they think of us play important roles in how we seek to define ourselves within wider global contexts. Sense making is a process of active construction within given contexts (Irwin, 2001) and so how participants made sense of having a "life worth living" (Henwood et al, 2016) was through their hometown of Swansea being seen in a positive light. These findings reinforce those of Devine-Wright (2010) highlighting the potential of marine renewables to foster positive attitudes towards place and a sense of place-distinctiveness.

Third, the lagoon was seen as enhancing the existing practices, and creating new practices between the individual and the physical world around them. Unique among renewables, the lagoon was viewed as a community asset foremost due to its recreational uses as a walking/cycling route and a social venue for casual hanging out or larger events. Subsequently, participants appeared less concerned on there being a distribution of financial benefit from the project as the community benefits had already been established.

Tim's account was somewhat unique among participants in that the pursuits through which he partly defined himself were seen as effected in a positive manner through the lagoon's creation. He saw the lagoon as offering new opportunities (itself a valued entity) in terms of cycling almost at sea, with the potential for marine recreational pursuits also seemingly significantly enhanced. Isobel and Sara's accounts demonstrate that more mundane types of doing, such as walking and simply "hanging out" were also viewed as beneficial elements of the lagoon proposal. However, Joe's account displayed a desire for community benefit in relation to doing, and so there was a re-emergence of the community care that we had seen within Sara's earlier account being applied to these varying types of activities. The lagoon, as a place constructed anew, became intricately woven into the imagined futures of participants. Identity then, as an inherently relational and dynamic entity (Roberts and Henwood, 2018), is not "set in stone" (Irwin, 2001) but is instead responsive to change and circumstance. Previous research on the siting of renewables in relation to place attachment has been largely negative (Devine-Wright, 2010), and so these findings present a rather different picture in that the lagoon is seen as capable of enhancing place identity, distinctiveness and attachment as well as being beneficial to the local community within which it is associated.

This chapter sought to provide an answer to the second research question: how was the lagoon perceived as a benefit to identity? The answer to this question is that it was seen as beneficial through three distinct types of relational connectivity – to community (Social), to self-image and self-worth (Symbolic) and through tangible doing. However, this chapter also sought to attain answers on an additional sub-question: specifically as to how these benefits were perceived to change over time. Regarding this question, the methods and data have less to say and cannot provide any substantive answers. While participants envisioned "catalyst" beneficial effects, such as economic spin-off and changes in city "culture" and self-perception, there was a difficulty in exploring these concepts in any great depth. Also, the lack of existing projects similar to the lagoon meant that the study was deprived of examples which participants could draw upon to help them imagine the lagoon once completed. In addition, the use of more temporal methods, such as qualitative longitudinal research, may have provided a means of exploring this issue.

6. Risk and the Lagoon

As discussed (see Literature Review), there have been a number of attempts to understand opposition to renewable energy siting in ways which go beyond viewing individuals as simply selfish or irrational. By contrast, this chapter seeks to build on work that goes beyond simplistic "anti" and "pro" perspectives (Pidgeon et al, 2008) and instead seeks to understand how individuals construct meaningful 'lives worth living' (Henwood et al, 2016) in order to understand renewables opposition. This risk to identity approach focuses on the lived experiences of participants to understand how the lagoon was understood when inserted into their lives. As previously discussed, many participants constructed the lagoon as something beneficial. However, this chapter focuses on those participants that saw the lagoon as a risk, and seeks to understand these risks from their perspective. As in the previous chapter, the analysis draws upon a tripartite model outlined in Boholm and Corvallec's Relational Theory (2011), but again with the slightly altered terminology so as to incorporate the concept of benefit.

It begins by reviewing the history of marine renewable technology in the Bristol Channel/Severn Estuary to understand and contextualise the arguments surrounding the lagoon. It then looks at how the lagoon's operation presented an ecological hazard to migratory river fish, and the related risk issues this brought. Next it explores how risk was perceived in relation to the lagoon's supply chain – particularly through the proposed re-opening of a quarry in Cornwall to supply rock armour for the lagoon wall. The chapter then looks at these risks through an identity lens, splitting them into three broad categories relating to the type of connectivity. The first category, (more tangible risk) pertain to threats to acts of *doing* - and consists of valued practices, home and livelihood and traditional industry. The second category, "less tangible" risks, pertains to threats to notions of fairness and justice and includes connection with the environment, perceptions of the developer's conduct and denial of participant voice. The third category relates to risks from communicating risk, which were seen as impacting participants' reputation and interpersonal relationships. Finally, the chapter looks at some notable risks that were absent from the data and considers why this was the case, before discussing the findings and how they relate to existing literature.

6.1 Previous Attempts

Proposals to extract energy from the Severn and Bristol Channel have existed since the 1920's. The Swansea Bay lagoon proposal was the latest of a number of attempts by various developers to gain significant government attention since the 1981 Severn Barrage (or "Bondi") Committee. The most advanced of these projects, the Severn Barrage proposal, was backed by Hafren Power and aimed to create a tidal barrage between Lavernock Point (just South-West of Cardiff) in Wales, and Brean Down (West of Weston-Super-Mare in Devon) in England (B3 in Figure 6.1). Following the UK Government commissioned Severn Tidal Power Feasibility Study (concluding 2010), it was concluded that the project was unworthy of a strategic case for public investment (DECC, 2013) with an estimated cost of between £23.2 and £34.3 billion. This was in spite of the project being estimated to be able to provide 5% of the UK's electricity demand.

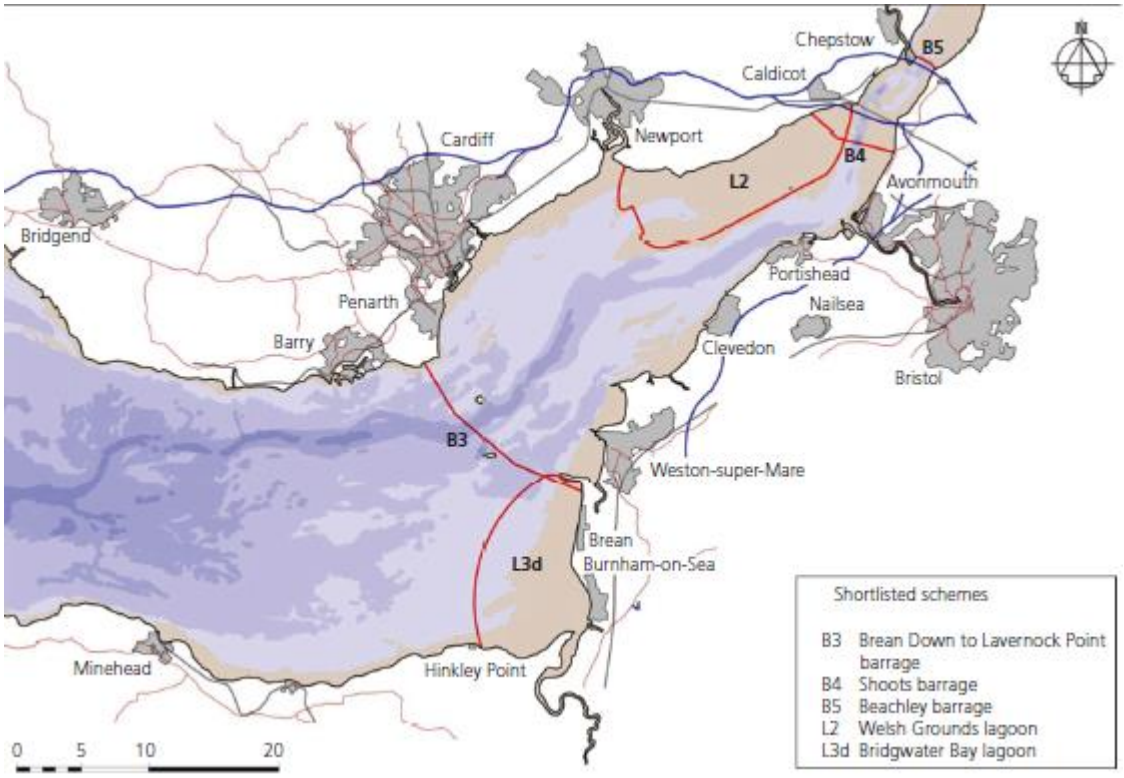
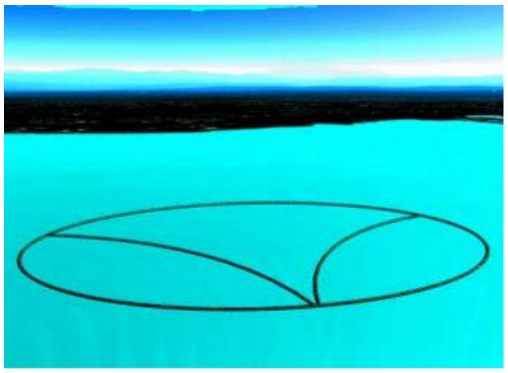


Figure 6.1 – The five schemes selected for study by DECC. ***Image Source*** – Binnie, 2016.

Major emergent risks from the project included a threat to jobs from the reduced usage of the port of Bristol, as well as large scale ecological risks. These ecological risks included the potential for local extinction of Twaite Shad and Salmon in the Wye, Usk and Severn rivers and an anticipated "significant decline" of 30 species of bird (DECC, 2010). The inter-tidal mudflats of the estuary are a major feeding ground for migratory birds, and so is home to a Special Area of Conservation (SAC), an SSSI and Ramsar site. While the project received significant opposition from local politicians (including Liam Fox MP and Bristol mayor George Ferguson) it also received opposition from groups such as WWF and Friends of the Earth due to the potential ecological impact. The falling costs of wind and solar also began to make the economic argument for barrages obsolete.

The idea of a tidal lagoon in Swansea Bay was first raised in 2004, when Friends of the Earth produced a briefing outlining their viewpoints on the core differences between barrage and lagoon technology (FOE Cymru, 2004). Friends of the Earth called on Welsh Government to investigate the potential of tidal lagoons and support "acceptable" proposals, with the briefing viewing lagoons as more environmentally benign than barrages. However, these views were based on the conceptual proposal of a non-land linked lagoon (Fig 6.2), which differs from land connected proposals.



Computer generated image of a tidal lagoon in Swansea Bay

Figure 6.2 – A computer generated image of a potential tidal lagoon within Swansea Bay. Note that the lagoon does not make landfall, unlike the later Tidal Lagoon Power proposed development.

Image Source - (Friends of the Earth Cymru, 2004).

The Severn Barrage assessment had inadvertently generated the concept of lagoons as a preferable alternative to barrage technology through the simultaneous amplification and attenuation of risk (Kasperson et al, 1988) and benefit. No doubt partly inspired by stakeholder objections to barrage technology, the narrative came to promote the idea of lagoons as more ecologically benign, less socially intrusive and more financially feasible.

"You can't export barrages. They are a pretty basic technology, they are a one hit, while if we develop lagoons, if we develop other forms of tidal and wave and other ways of extracting the energy from the water and the wind then I think we've got a great potential export trade."

- George Ferguson, Mayor of Bristol (BBC News, 7.02.13)

The above extract demonstrates a good example of how the social amplifying and attenuating of risk is not just linked to 'exaggerated issues' (Rip, 1988), but forms a normalised part of discourse within socio-political spheres. By downplaying the future role of barrage technology within the UK energy future, lagoon technology had gained ascendancy. With tidal power seen to be a powerful natural resource at the UK's disposal, there seemed to be a gap within the UK's future energy mix. While many politicians, individuals and organisations had well-grounded risk perceptions and objections in relation to the barrage proposal, it appeared that they were not keen to completely write off tidal technology and the Severn/ Channel's potential.

"the government should consider whether a smaller tidal facility could develop expertise and provide evidence before a decision about scaling up is taken."

- Tim Yeo MP (Guardian 10.6.13)

Eventually the Severn Barrage project was dismissed by influential MP's (Guardian, 10.06.13), with the chair of the then House of Commons Energy and Climate Change Committee, Tim Yeo, stating that the Barrage was "no knight in shining armour" for UK renewables. Instead Yeo suggested that smaller tidal projects should be pursued as potential pathfinders towards larger scale projects, allowing for ecological and social impacts to be carefully studied. This position was later supported by a number of environmental groups including Friends of the Earth, the Salmon and Trout Association, the Severn Rivers Trust and Fish Legal (WWT, 19.09.13).

From this initial discussion, centred upon barrage technology feasibility, an alternative trajectory for marine renewables had been inadvertently created. Commentators from NGO's and government bodies seemed to present lagoons as capable of harnessing the energy potential of the channel/estuary while largely avoiding the ecological and economic risks that hampered barrage technology – representing a simultaneous attenuating of risk (Kasperson et al, 1988) and amplifying

of benefit. Some of the key narratives emerging from this process would come to be reproduced within the Swansea Bay proposal, particularly surrounding economic benefits and ecological impact.

6.2 The Swansea Bay Proposal

Out of the ashes of the barrage proposal, and with this new narrative already having wind in its sails, stepped Tidal Lagoon Power. Formed in 2011, the company began work on proposals for the initial site at Swansea Bay being a pathfinder towards a further five lagoons along the west coast of the UK.

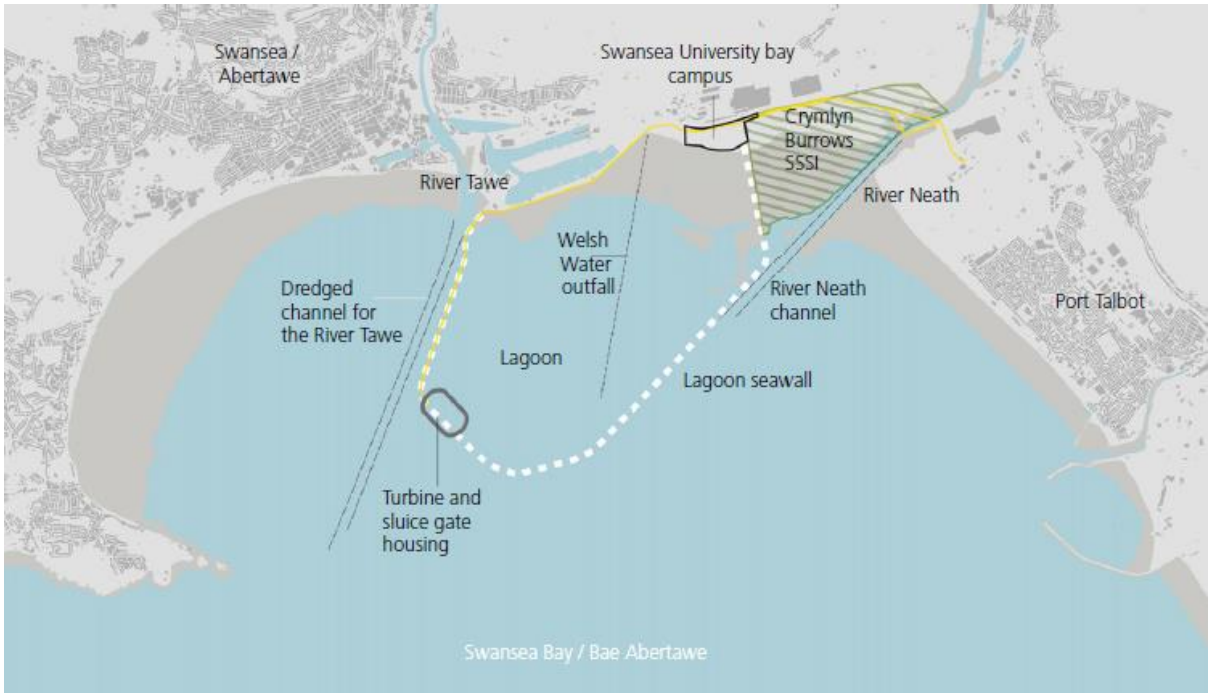


Figure 6.3 – Map outlining the proposed site of the tidal lagoon within Swansea Bay. ***Image Source*** – Binnie, 2016.

The Swansea proposal included a 9.5km long breakwater wall, stretching out in a "U" shape into Swansea bay, making landfall near Swansea University's new Bay Campus and Swansea Marina. Effectively cut off from the rest of Swansea Bay, this would enable the lagoon to trap and release water with the coming and going of the tide. Within the gatehouse of the lagoon were to be 16 bi-directional hydro turbines, meaning the lagoon could generate electricity with water going in either direction. This meant that electricity could be generated four times daily, with a 3 hour gate closure in some instances producing a 4 metre water level difference, and would have a capacity of 320 MW.

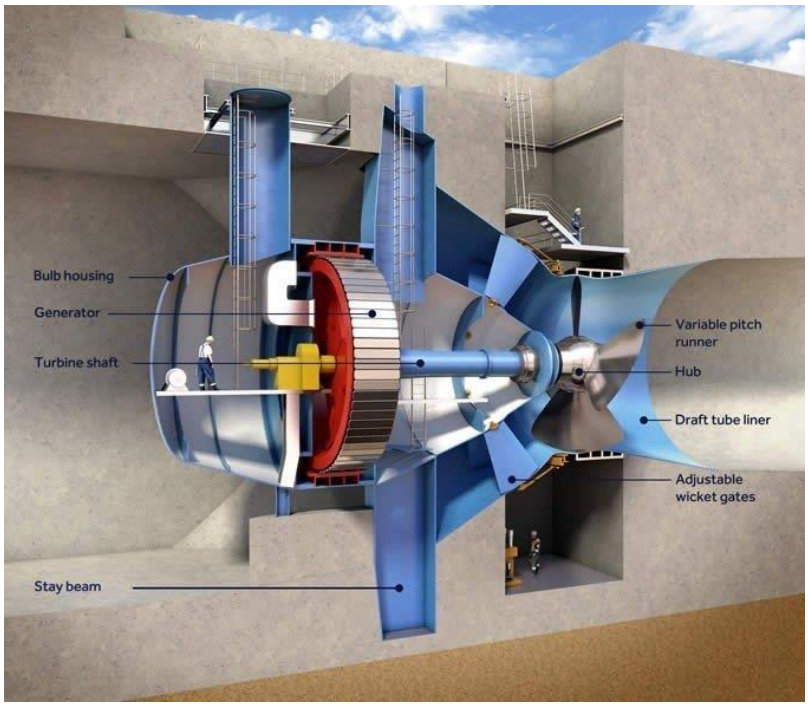


Figure 6.4 – Cross-section of the proposed hydro turbines.

Image Source – Tidal Lagoon Power, 2018.

With a planned construction time of four years, the core infrastructure was projected to last 120 years. The long operating life of the lagoon meant that any electricity generated after the initial agreement period (alternated between 35 and 90 year models) would be significantly cheaper than the original agreement. The proposal was included within the UK government's National Infrastructure Plan for 2014, having raised £22 million by 2015 to fund the exploratory phase of the project, before receiving a Development Consent Order in 2015. Situated within the middle of Swansea Bay, the proposed lagoon site lay between the Tawe and Neath Rivers (see Figure 6.3). To begin operation, the proposal required a Marine License from Natural Resources Wales (NRW), a Welsh Government regulatory body which had taken on the responsibilities of the UK's Environment Agency as a result of Welsh devolution. The Marine License was to be granted upon the developer proving that the project did not pose a risk to human health, the environment or did not disrupt "legitimate uses of the sea".

The public response to the lagoon appeared largely supportive, however, notable opposition to the project was present within Swansea Bay and Cornwall in the form of two opposition groups. The first group was a society of anglers who held fishing rights along the Tawe River (and tributaries). The current incarnation of the group was established in 2008 as a merger of two previously closely aligned organisations. The first organisation had origins dating back to the 1940's and was one of the first of its kind within the region. The second had been formed in 1976 particularly for handicapped persons, motivating and encouraging them to take up fishing. Having held a long and historic association with the river, the current organisation was home to around 300 members – 120 OAP/disabled and 50 juniors. In addition to fishing, they regularly undertook monitoring of stocks, restocking of certain species (to maintain biodiversity) and various research projects involving fish behaviour. They also held classes for new members, competitions for more established ones and hosted various social functions throughout the year - forming a strong community and a valued source of social connectivity for participants.

The primary risk for this group was the threat to migratory fish from the operating of the lagoon. Participants believed that the lagoon would create a powerful "draw" zone which fish would be unable to escape, resulting in collisions with the turbine blades. While barrage technology had been

objected to on these grounds by environmental NGO's, the lagoon did not immediately receive the same kind of condemnation. As such, the developer had the task of presenting evidence that (under the proposed operation) the project would not cause a serious risk to marine life.

Figure 6.5 – Proposed location of the tidal lagoon within Swansea bay. Note – the gatehouse housing the turbines appears as a slightly thicker white line along the lagoon wall.

Image Source – Tidal Lagoon Power, 2018.

The developer applied for a Marine License in February 2014, with a period of evidence submission lasting from April 2014 to August 2016. During this time NRW received independent expert advice from the Centre for Environment Fisheries Aquaculture Science (CEFAS), particularly in relation to the issue of fish mortality. After the public consultation period closed in September 2016, NRW concluded that the Lagoon's operation would likely result in the mortality of 21% of Salmon and 25% of Sea Trout annually. Subsequently, NRW withheld from granting the Marine License.

The developer then requested that the application be paused in December 2016 in order for further evidence submission, which was completed in June 2017. However, a Marine License had still not been granted for the project by December 2018, and the issue remained ongoing. During this time, a back and forth took place between the developer, NRW and some environmental NGO's (most notably Fish Legal) as to the validity of models and evidence that were being utilised (see Developer Conduct – this chapter). As will be shown, this issue was a serious cause for concern by the local opposition group and some expert stakeholders, as they viewed the developer as attempting to engineer a "push" past ecological and technical issues in order to gain the Marine License.

6.3 The Rock Supply Chain

The angling group were the first of two local opposition groups that the lagoon encountered. The second arose in relation to the proposed location of the rock supply at Dean Quarry on the Lizard peninsula, Cornwall. In order to construct the lagoon wall a significant amount of rock armour was

required of a high density. The developer proposed the use of Gabbro, an intrusive igneous rock that was seen as of high enough quality to maintain the sustainability of the lagoon structure while also remaining cost effective. As the intention was to ship the rock direct from source to construction site, some rival potential supply sites included Glensanda, a "Super Quarry" on Scotland's west coast, and coastal quarries in Norway. However, the developer stated that it did not want to be 'hidebound' to sourcing the rock from these locations.

A sister company of the developer purchased the disused Dean quarry and announced plans for its development in early 2015. Before the quarry closed in 2008 it had been a relatively small operation, extracting approximately 200,000 tonnes annually (which was mainly aggregate). However, the developer maintained the right to quarry 6.3 million tonnes by 2035, and announced its intention to remove between 700,000 and 1.2 million tonnes of rock annually. While the developer maintained that the quarry purchase had been largely tactical in nature (to exact leverage within purchase agreements with established quarries) it applied for and received planning permission to develop the site.

The Lizard peninsula is a sparsely populated area of 5,220 (UK Census, 2011) that is home to a small number of traditional (mainly coastal) Cornish villages. The area surrounding Dean Quarry is largely incorporated by an Area of Outstanding Natural Beauty (AONB) and home to Sites of Special Scientific Interest (SSSI).

"The area is dominated by a gently undulating exposed heathland plateau cut by narrow river valleys. The surrounding coastline is rugged and geologically complex with caves, enclosed bays and small rocky islands. To the north flows the Helford River which in the summer carries a ferry linking the north and south banks at Helford Passage. There are long uninterrupted views over the plateau, out to sea and along the coast. These factors lead to a strong sense of place and sense of tranquillity."

Source - Natural England description of The Lizard (as NCA Profile 157: NE434, 2013)

Figure 6.6 – Location of the village of St. Keverne on the Lizard Peninsula in South Cornwall.

Image Source – Google Maps, 2018.

Close to Dean Quarry lies the small village of St. Keverne, home to around 2,000 people, with the smaller village of Coverack located further south along the coast. The intention was to ship rock

directly to Swansea Bay from this site by constructing a new jetty and breakwater, as the existing jetty was too small and had fallen into disrepair. Shipping the rock from Cornwall to Swansea Bay was a considerably shorter journey (see Figure 6.5) than the closest alternatives located in Scotland and Norway.

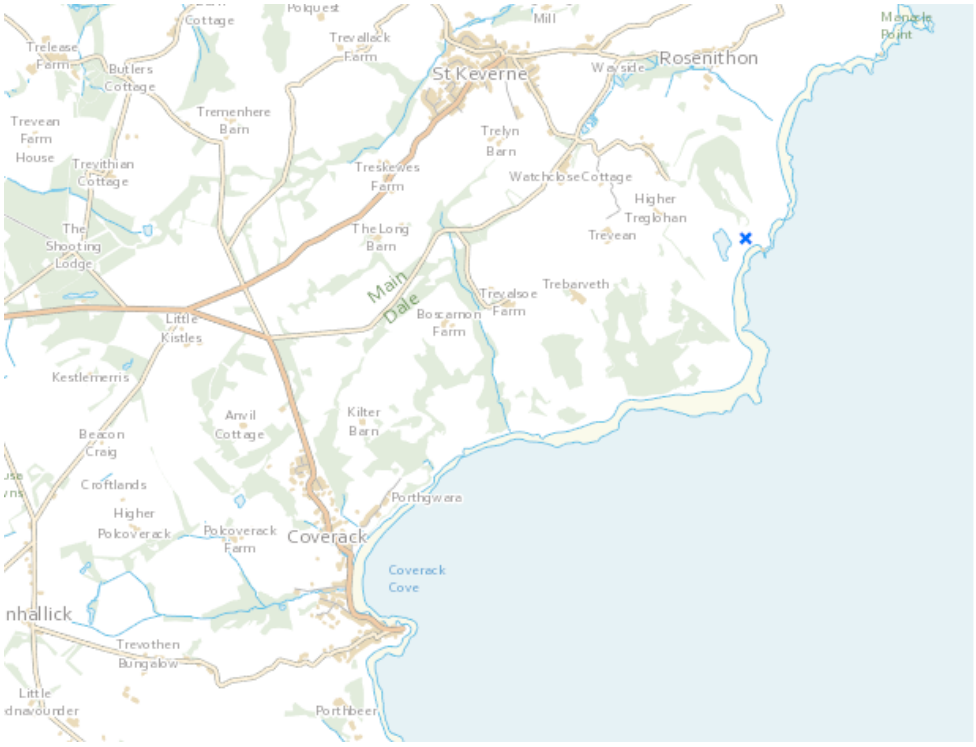


Figure 6.7 – Location of Dean Quarry (marked with blue cross) in St. Keverne parish.

Image Source – Cornwall Council, 2018.

The proposed re-opening first encountered local opposition when the developer outlined the intended quantity of rock to be removed from the site. Previously a relatively small operation, members of the local community saw problems in the greater intensity of work being conducted at the site. To access the required tonnage, the blasting required would need to take place more frequently and the transporting of rock would also be larger and more frequent. This was viewed by some locals as causing great disturbance to what was a tranquil rural setting, while others viewed the potential employment from the project as very welcome to the area. However, the operations of the quarry were also seen as creating non-human disturbances as well.

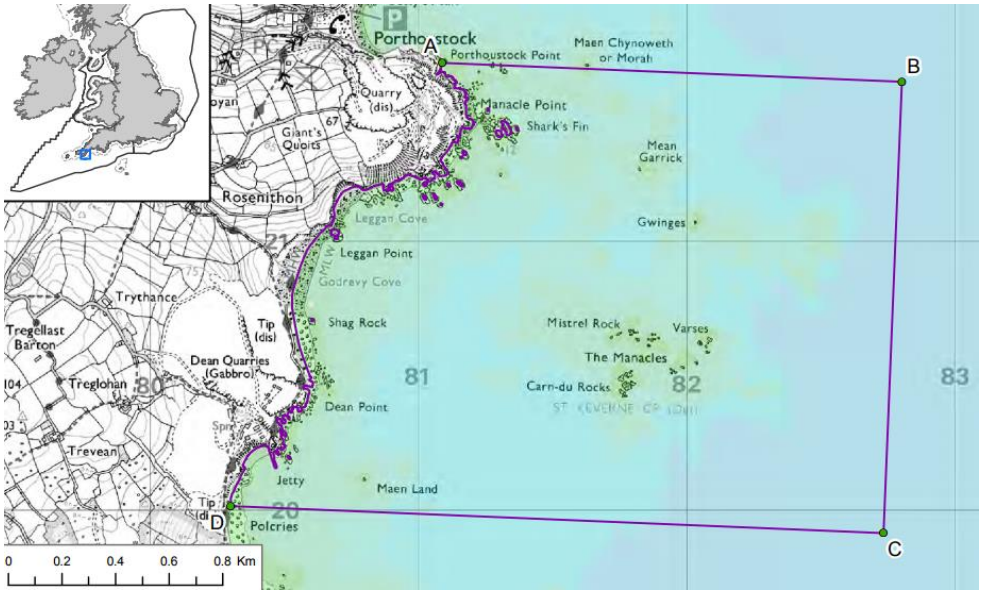


Figure 6.8 – Outline of the Manacles Marine Conservation Zone.

Image Source – DEFRA, 2013.

In addition to being in close proximity to the villages of St. Keverne and Coverack, the quarry also bordered the Manacles Marine Conservation Zone, meaning that the loading of rock onto barges would take place within the MCZ. The Manacles are an important conservation zone due to the "*depth of the site ranging from 14 to 57 metres which creates a diverse seafloor landscape"* (DEFRA, 2013). The rocks the MCZ is named after sit near the water line, meaning that the area was treacherous for passing ships and resulted in many shipwrecks, which have since been colonised by local marine life. In addition to these there are a number of "*vertical rock faces and rocky reefs that support a number of highly sensitive features"*.

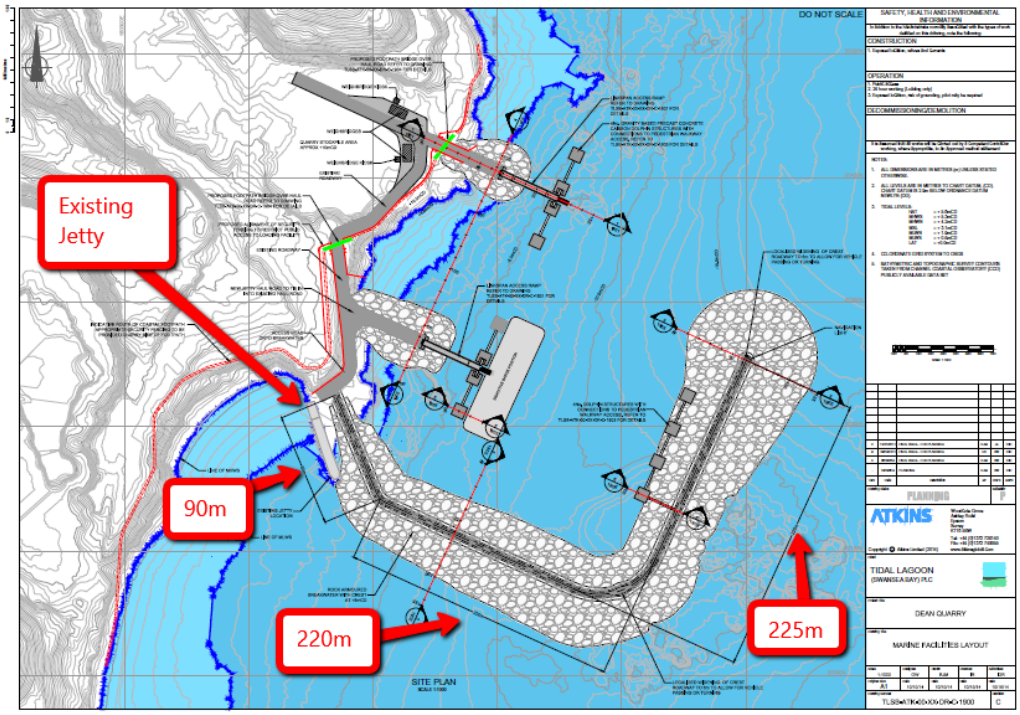


Figure 6.9 – Proposal outline for new breakwater and loading jetties at Dean Quarry.

Image Source – CADS 2015, 2018.

The construction of the breakwater and jetty would have extended directly into the MCZ, harbouring potential for damage to local flora and fauna. In addition to gaining the attention of the local

population, the proposal garnered considerable local and national media coverage. The proposal created controversy due to the developers' seemingly hypocritical stance of bringing heavy industry to such an important ecological area while maintaining the tidal lagoon project as "pro-environment". However, these were not to the only controversies that the lagoon and quarry proposals were to create.

6.4 More Tangible Risks

The first set of risks discussed in this chapter relate to acts of *doing*, a broad term which covers three particular examples of risk to practices (hobbies), livelihood (work and home) and traditional industry. These risks were of a highly tangible nature to participants and elicited the strongest actions and responses, serving as a gateway through which participants initially became interested in the lagoon and/or quarry projects. The nature of these risks also meant that participants viewed the consequences of them actualising as severe, and so these participants deemed the lagoon and/or quarry as exclusively an Endangering Object.

Risk to Valued Practices

Theon and Jamie were both members of the local angling group. Now retirees, both had a long association with the organisation and held leadership roles within it – committing a lot of their time on a voluntary basis. Having fished on the Tawe River for decades, their hobby and the community that had flourished around it formed important types of meaningful connectivity. The risk that the lagoon posed towards the pair was overt. Migratory fish colliding with the turbine blades would lead to mass mortality, which in turn would mean less of these fish within the river – or even possibly none at all. While the developer maintained that fish would be able to pass through the turbines safely, Theon and Jamie believed that in navigating the bay twice (as juveniles leaving and as adults returning) the fish were likely to enter a powerful "draw" zone from which they could not escape. Once within this draw zone, both participants made clear that they saw collisions with the turbines as inevitable. They also highlighted that migratory fish tend not to find their 'home' rivers automatically, but instead have to search around via smell once they were within a certain radius. Already dealing with endangered stocks, and having taken active roles in helping monitor and maintain them, the idea of the lagoon potentially causing the mass mortality was an evident red line.

Both participants had been members of the angling group during the construction of the Tawe barrage in 1992, and so the lagoon was not an entirely new experience for either of them. However, they noted how these experiences with the previous barrage had been largely negative, and so were largely wary of the lagoon proposal from the outset. From the beginning Theon and Jamie believed that the developer had presented a rose tinted view of the project, particularly in relation to potential ecological impacts. They also believed the developers displayed little concern for their risk concerns, causing significant frustration. First coming into contact with the lagoon in 2012, Theon and Jamie described how a meeting between the two groups did little to foster dialogue and understanding. Subsequently both participants felt that the initial meetings were less about public engagement and more a carefully crafted PR campaign.

"The developers have modelled the likely affects and they say the affects will be negligible. We say that the modelling is rubbish and the impacts are likely to be significant." - Theon

"We say the modelling is rubbish, that was our initial perception, but they employ modelling experts or fisheries experts to do the work. We employed our own consultants to review their studies. And the report we had was that the modelling work they had done was not very good." – Jamie

Largely unimpressed with the developer's modelling and use of data, the pair felt that the scientific research produced had been manufactured to present the lagoon in a more ecologically benign light. After employing their own expert consultants, Theon and Jamie's organisation were informed that the modelling utilised by the developer had significant flaws. As such, both participants saw the developer's actions as aimed at circumventing the marine licensing procedure and misleading NRW and the wider public. After the announcement of NRW's fish mortality estimates in November 2016, the developer released a briefing to members of the Welsh Assembly (the body responsible for appointing an adjudicator in the case of a marine license denial and developer appeal) claiming NRW to be acting *"without clear scientific basis"* and publishing a "*grossly misleading*" analysis of the projects impact on fish (BBC News, 14.12.16). Instead the developer claimed that the operation of the lagoon would result in the killing of 2% of all fish species in a "*worst case scenario".*

"Without clear scientific basis NRW has recently published figures based in these 'what if' scenarios despite our request to consider the evidence needed to back them up prior to publication"

Excerpt from a briefing sent from the developer to Assembly Members in the wake of NRW's reply to the marine license application. ***Source*** - BBC News 14.12.16.

"The evidence we have provided has been peer reviewed and shows that impacts for most species are likely to be very low. We look forward to NRW's decision later this year and trust that the people of Wales won't be swayed by any scaremongering in the meantime."

– Tidal Lagoon Power statement. ***Source*** - Wales Online (23.3.18)

In the wake of the developer's criticism NRW expressed strong disagreement and shock at the developer's criticisms. NRW's executive director highlighting that they had held "detailed discussions" with the developer for a year-and-a-half while also sharing data, information and methodology. After submitting a request to pause the marine license process and submit more evidence, the developer produced a statement implying that risk perceptions regarding the lagoon were little more than scaremonger tactics with little factual basis. After the re-submission of further evidence ending in June 2017, Fish Legal labelled the developer's work as "overly optimistic" (BBC News, 4.9.17) and "fundamentally flawed" (Fish Legal, 4.9.17) in addition to outlining a series of assumptions that the developers had taken. Among these assumptions, they highlighted that the developer had "failed to gather basic field data about the behaviour of fish in Swansea Bay itself" as well as having failed to apply evidence from scientific studies elsewhere and adopt a precautionary principle.

The developer's attitude throughout the marine licensing process caused grave concern to Theon and Jamie. For them, it appeared that public support was overwhelmingly behind the lagoon, meaning that the only thing preventing their risk concerns becoming actualised was the delay in granting of the marine license. Both Theon and Jamie saw the developer's attitude towards NRW and the marine license process as an attempt to undermine authority, with the developer not concerned for the public's 'best interest'. This risk was enhanced by the fact that their organisation had few means of mitigating the potential impacts. For them the risk was somewhat absolute. If the lagoon did cause mass mortality then there would be little within the rivers, likely removing their group's capability to fish them altogether. Subsequently the group were not interested in receiving compensation in the case of this eventuality unfolding.

From an identity risk perspective, Theon and Jamie's initial concerns were the most overt examples of the lagoon presenting a threat to meaningful connectivity. Fishing was evidently a valued practice from which they derived enjoyment, while the social interaction from the fishing community and

their connectivity to the Tawe River were also key examples of meaningful connectivity. The lagoon presented a clear and obvious risk as both a physical hazard (supported by NRW assessment) and as an Endangering Object to migratory river fish and the capability to fish the Tawe River. As discussed later (see Risks from Benefit Amplification), neither Theon nor Jamie believed the supposed benefits of the project. For them the lagoon offered no mitigating benefit so that it might also have been considered an Empowering Object. Instead, the lagoon presented a considerable risk to their valued practice, community and place attachment.

Risks to Home and Livelihood

Mandy was a dairy farmer who lived with her family on a diversified farm at the edge of St. Keverne, close to the disused Dean Quarry. Set amidst tranquil settings in one of the most isolated regions of the UK, Mandy and her family had established and maintained a business that enabled them to remain living in the small village. The farm also employed 35 people year round, and 60 in the summer months when the farm café was a popular attraction for tourists often visiting with young families, and so was an important source of local employment. Mandy first became aware of the project when the developer contacted her in 2013 to discuss an "*exciting project up in Cardiff*". She described the initial suggestions put forward by the developer as "*very much a low key quarry*" and nowhere near the scale that it later transpired was actually planned. At the time she admitted to feeling that she did not like or want the quarry to reopen. However, she reasoned that it had "*always been there*" and so (even with the disruption that it was likely to bring her family) they would be able to fit around it and "*make it work*".

When the quarry closed in 2008 it had already been operating on a diminishing scale, with Mandy stating that it had not been properly mined since 2005. Since that time her staff size had doubled and the family business had grown exponentially. In the wake of the quarry closing a number of other businesses had sprung up in the area (notably seaweed and sea salt farming) which relied on the improved clarity of the water. The pristine waters and peaceful surroundings had drawn more tourists to the area, and so Mandy saw the new ventures that had sprung up as under threat from the quarry reopening. Once Mandy became aware of plans for a much larger operation, she described how the developer had promoted the economic impacts towards the local area as a means to encourage support.

"Jobs – I mean initially they said thirty, then it was fifty to fifty five jobs. We recently had a meeting with a representative of [the developer] who is an engineer who was working along the lines of twenty to twenty five jobs. But again they can't promise it will be local jobs because the equipment will be hired in. There's a very strong possibility that they will hire in operators because they are very valuable pieces of machinery and you need the right qualifications to use the things. So how many jobs out of the twenty five will be local? Nobody really knows. In any case it's insignificant compared to the amount of jobs that could potentially be lost if the quarry was to open up again on that scale." - ***Mandy***

The increased size of the operation meant the quarry expanding to more than six times its previous scale. To access the amount of rock required, more would have to be blasted to access it. Mandy believed that an estimation of 50/50 as being highly optimistic and (citing local knowledge) believed a split of closer towards 20/80 was more accurate. The disturbance from blasting twice a week, the dust from operations and the noise from large boulders being dropped into a metal bottom barge were viewed as not only threatening to the continued operations of her business and those around her, but also to hers and her family's continued current existence.

"What we do here we couldn't just pick up somewhere else, so it's so important to live where we are. Being organic farmers as well and looking after the land is a very important part of what we do-being sort of stewards/guardians really. Therefore, this whole quarry becoming neighbours to us again is just . . . well I just can't imagine life with a quarry besides us. We seriously would have our existence threatened here." - ***Mandy***

While the assertion might seem exaggerated, the claim that Mandy's family's current existence to be under threat carried much weight. The intended scale of operations was seen as highly detrimental to tourism revenue streams. If it were to affect their primary businesses of dairy farming and ice-cream manufacturing then it is likely that the family would have been forced to seek alternative income, which in a place as isolated and rural as the Lizard was not always easy. Beyond sheer financial risk, the quarry upscaling created significant identity risk for Mandy. Even if the family were not forced into moving, the tranquil surroundings in which they had made their home would no longer be such. The meaningful connectivity that Mandy and her family had painstakingly created in their homes and the way they lived was seemingly all at risk of being lost.

Risk to Traditional Industry

Morgan was a participant with a deep rooted association with the local region, being fifth generation Cornish and her family having always resided in the small coastal village of Coverack. She described the area as a "boomerang place" that she had always came back to after travelling and living away. For her connectivity to Coverack and the Lizzard was historic and deeply rooted in socio-cultural meaning. One such historic aspect was the continuation of the fishing industry in the village.

"Cornwall is my home and always has been. Coverack is just a unique in its beauty – waking up with beautiful sunrises and everything else. I couldn't think of having anything worse than having the landscape altered light and big ships coming in and out all the time and just messing about. Seeing our little harbour in the village just go would be devastating *– the fishing industry being wrecked by the quarry. Absolutely Cornwall is in my heart and always has been."* - ***Morgan***

Once a staple of Cornish life and the local economy, the fishing industry had seen significant decline since its heyday in the 19th century. Morgan believed that the blasting, dust and sediment created by the quarry reopening would be harmful to marine life, while the operating of rock barges would make the small local fishing industry financially unviable.

Figure 6.10 – Coverack's small working harbour was seen as at risk of being lost. Image Source – Trip Advisor, 2019.

The continued operation of the fishing industry in Coverack was seen by Morgan as an important link between contemporary Cornwall and its past. This had become especially important in a country (Cornwall has its own language that is similar to Welsh, and a distinct history apart from much of the rest of England) that seemed to be slowly losing its identity and that had seen communities displaced by socio-economic change. The presence of a fishing industry in Coverack maintained a living link with historical socio-cultural practice, one of the few remaining as Cornwall become more reliant on its tourism industry. However, Tara was aware that not everyone felt the same on the proposal.

"I absolutely love the place and it will ruin the peace and tranquillity – and it is splitting our community, and that's a really sad thing to see. There are people who do think it's a good thing but because they haven't been given enough information. We keep offering them information and we keep giving them newsletters and things but people don't take on board how big a threat this is and what it really is about. Seeing a community broken by it is not good." - ***Morgan***

Morgan was acutely aware of the difficulties facing locals regarding employment and the economy. As in Swansea Bay, the need for employment opportunities was posed as an issue of key importance and was seen as crucial in maintaining the community itself. However, Morgan was entirely disbelieving of the quarry reopening being economically beneficial for the Lizard. Citing inaccuracies in the developer's proposals, and the belief that the machinery would have come with certified operators from outside of the local area, she viewed the promise of jobs as a dangled carrot. Subsequently she felt a frustration that the ideas promoted by the developers had gained any form of traction in the local community, harming community relations.

Both Mandy and Morgan displayed a keen awareness of what the employment opportunities for the quarry meant for the local community. However, in addition to a lack of trust in the developer both participants considered the quarry a far greater Endangering Object than an Empowering one. Much the same as with Theon and Jamie, the Valued Objects that were threatened by the Quarry re-opening were seen as absolute. The connectivity that Mandy shared with her home, her work and the environment around her was of key importance to her understanding of meaning in her life. For Morgan this connectivity was rooted in the history of Coverack and its small fishing harbour, a key connection to cultural history established through meaningful practice within a valued place, which cemented what she knew as home.

While these risks are framed as threatening valued practices, the details are as important as the practices themselves. Jamie and Theon could go and fish elsewhere, Mandy could feasibly live and work elsewhere and other working fishing villages exist in Cornwall. However, these specific acts of doing have significant value and meaning within their specific locations. It is the historic association that these participants have with these acts of doing specifically within these places that is so important. Viewed from this perspective, the lagoon presents a significant Endangering Object with little by way of mitigation for any of the above mentioned risks.

6.5 Less Tangible Risks

The second set of risks discussed in this chapter relate to the less tangible aspects of identity such as connection to the environment, the developer's conduct and a denial of voice. While some of these risks maintain many tangible elements the ways in which participants constructed these risks was through a less tangible frame. These issues centred upon participants' morality, and so threatened their senses of justice, fairness and self-worth. The origin for many of these risks was a profound lack

of trust in the developer to appropriately deal with many of the risk issues discussed above, and so a recurring theme was the idea of the developer in juxtaposition with participants' wants and needs.

Environmental Risk and Identity

Pro-environmental behaviour has been positively associated with the strength of connection an individual holds with the natural environment (Hinds and Sparks, 2008). However, what could be deemed "pro-environmental behaviour" with regards to the lagoon was a contested subject. Whether participants were positive or negative towards the lagoon and/or quarry, what appeared to unify all was a recognition of the importance of the environment. No opposition group participant was sceptical of anthropogenic climate change, with all recognising the need for greater contributions from renewable energy. However, they differed from public and stakeholder participants in assessing whether the lagoon was beneficial or detrimental for the environment. The following section begins by exploring the thoughts of Jamie and Theon and how they saw the lagoon as an environmental threat, before moving on to discuss how Tara viewed the quarry re-opening as harmful to the local environment. Important here is how the environment is constructed as meaningful to each participant, underlining that individuals with direct experience of an object perform more affectively based evaluation of that object than those with only indirect experience (Millar and Millar, 1996).

Having taken issue with their concerns being seemingly ignored by the developer, Jamie and Theon began looking into what other potential impacts the project might have. In a similar way that they considered themselves guardians of the Tawe and other rivers, the wider bay also held significant value for them as a place considering its role in salmon and trout returning to the rivers. When they attended some of the oral hearings as part of the six month consultation process for the granting of the Development Consent Order, Jamie described his horror at some of the potential ecological impacts being discussed.

"In one of the oral hearings, an NRW consultant was criticising the work done by the developers on the likely effects on coastal processes. He was rubbishing their modelling and saying "you know they haven't taken account of this" and "they're making assumptions". In other words he was saying you can't rely on their predictions. So he was asked "what do you think will happen then?" and he said "worst case? Swansea Bay will become a salt marsh". Jaws dropped and there was silence. So there are other impacts that need to be considered as well, which the general public in Swansea just aren't aware of." – ***Jamie.***

Already mistrustful of the developer, Jamie and Theon's opinions of the lagoon had not improved as they learned more about the project. Instead they found a number of potentially damaging ecological impacts that the developer had not communicated to them, their organisation or the wider public. This was in addition to the risk to migratory river fish that was directly impactful in both participants' capability to engage in valued practices. The lagoon was seen as having impacts much further ranging than first anticipated, according to them the bay and its people were seemingly unknowingly at risk from a predatory developer seeking to take advantage of a lack of scientific clarity surrounding a "new" technology. For participants the images portrayed of the lagoon in local media certainly presented a desirable destination and an almost utopian landscape, which stood in stark contrast to assertions that the bay could be rendered a salt marsh. For Jamie and Theon, the proposal and the developer were unethical actors that the local community needed to be made aware of.

Not only was their connection with the Tawe river at risk (and with it threats to their understanding of the self as a 'guardian' of the river), but the bay upon which they relied for migratory fish to find their home rivers again was at risk also. While they felt that the biodiversity of the Tawe River might be somewhat of a niche concern that the wider public might not necessarily share, they saw the environmental wellbeing of the bay differently. As well as the natural environment, Jamie and Theon felt that the broader interests of Swansea were also threatened by the developer's apparent lack of concern for precaution. Here the lagoon began to take on deeper meaning as a risk issue, as to relent would mean allowing a predatory actor taking advantage of the local environment at theirs and their community's expense.

These risk concerns were not widely shared amongst public or stakeholder participants in this study. Jamie and Theon had only come across these potential risks via their own research into the project, which they were then not keen to communicate more broadly due to the perceived identity risks from doing so (see Risk Communication chapter). Having taken part in exercises to maintain fish stocks and biodiversity in the Tawe River, the lagoon's operations presented a direct risk to something that they had helped nurture. Public and stakeholder participants viewed the potential ecological risks very differently, largely displaying an ambivalence towards local flora and fauna. For them the potential risks were largely intangible, they had no real association with the fish or the Tawe River and so they did not hold much meaning or value. Instead the risk to migratory fish was viewed within a wider context of global climate change, presenting the biodiversity of the Tawe River as somewhat insignificant. This largely fitted with developer promoted ideas that sought to establish pre-existing risk towards the Tawe and its fish as already present through climate change.

It was not only in Swansea Bay that the local environment was seen as under threat. Tara had moved to the Lizard a few years previously having been drawn by the splendour of the natural surroundings and the peacefulness that its isolation provided, something which she drew upon for inspiration for her artwork. A former environmental activist before she moved to Cornwall, Tara had been involved with projects which helped provide insulation to homes. Environmental protection was a key concern for her, both in the global sense and the more local where she saw Cornwall as "complacent" about the creeping degradation of its flora and fauna.

"I was looking at all of Cornwall at that time. I opened the car door and the clarity of the birdsong just absolutely hit me. I came from beautiful Hampshire – but there's always the drone of traffic or that background noise. Then because I do some artwork, it's the clearness of the air, which almost sparkles. When I first moved here and first went out on a clear night, there was the Milky Way. There is light pollution but so little of it. I just love it. The Lizard *is a very special part of Cornwall because it has a different geology and it has different Flora and Fauna. There's fantastic history. But it is just so outstandingly beautiful." –* ***Tara.***

Despite having moved to the area relatively recently Tara felt a particularly close bond to the community. She described it as having a "very strong community feel", and that she had made more friends in the area in those three years than in twenty five in her previous home. When first faced with the quarry issue, Tara admitted to initially feeling that it was not for her to decide as she had only just arrived in the community. Understanding the need for locals to maintain a livelihood, Tara felt that her objections to the disturbance of her desire to live in tranquillity were of lesser importance, stating that she felt *"It's really none of my business. This is something for the local community and I'm not involved with and I'm not integrated enough".* However, this changed after her experience of the initial meeting with developers, which had left a lasting impression on the proposal, the developer and their conduct. Subsequently she began to research the proposal, its

relation to the wider lagoon issue, and the developer and their interests in Dean Quarry. Describing the developer, Tara painted an image of a villain of almost pantomime like quality.

"He's a venture capitalist and a PR man. He does not know anything in depth about ecology and engineering. He hires in people to tell him. When somebody disagrees he has a very nasty temper and we witnessed that at the meeting. He will use blackmail. He made a very poor impression indeed."

In juxtaposition to a majority of participants in Swansea (see Benefit chapter) who believed that the lagoon and the developer were working with and for the community, Tara paints a different picture. For her the developer was only seeking to exploit the local community and environment, two things which had come to mean a lot to her. Feeling that her opinions on the quarry were well grounded, both in what she had found through studies and from her experiences with the quarry owners, Tara portrayed opposing the quarry reopening as the only option.

"I'm very concerned about the environment. There's a professor at Exeter University and he says that Cornwall is very complacent about their wildlife. They've had a decline of 30% of breeding birds over 40 years. We've lost 350 species in the past 15 years. Cornwall has 5% of its land protected and nationally the average is 11%. With Cornish seas the figure is 20% when nationally the figure is 37%. Everybody imagines that Cornwall is in good health, but it's not. So therefore I'll come out fighting and I'll take any insults." – ***Tara.***

Here Tara presents a few instances in which her meaningful connectivity was perceived as under threat. Local flora and fauna is presented as unique and of significant value, with biodiversity remaining an important issue. Intrinsically linked to this issue was Tara's own perceived quality of life in relation to the local environment, with birdsong and natural splendour presented as an important Valued Object that was threatened by the quarry re-opening. Not only did this incorporate elements of connectivity to nature and a place that she was emotionally (and financially) invested in, but also a community that she was connected too. In this sense Tara's account bore many similarities to those of Jamie and Theon in Swansea Bay, with the idea of standing up for things that could not (nature and environment) speak for themselves being prominent.

Participants seemed to agree that the global environment was at risk, yet there was divergence on the best course of action to take. Unsurprisingly, a key difference between public/stakeholder participants and opposition group members was the assumed benefits stemming from the project. Opposition group members viewed the lagoon as largely inconsequential in helping reduce carbon emissions as it was seen as having limited potential to be located sustainably. While participants in Cornwall were not explicitly in opposition to the lagoon, all agreed that any public or private investment in the lagoon would be better spent on other renewable technologies. They also agreed that there were more appropriate locations from which to source the required rock. This contrasted with the majority of participants at public level, who ultimately saw any ecological or environmental risk caused by the lagoon as worth enduring for the sake of obtaining the supposed benefits. As previously discussed (see Benefit chapter) these benefits were deemed worthy of enduring some negative consequences in order to obtain.

Meaning derived from the environment was impactful on identity in two key ways. First, the tangible nature of the local environment meant that it was seen as having a direct impact upon participants' quality of life. For Theon and Jamie this value was established through repeated interaction. The time spent fishing on the river, caring for its biodiversity and encouraging others to do likewise accumulated into an embodiment of a 'life worth living' (Henwood et al, 2016). For Tara this value

was projected into the future, with her relocating to the Lizard peninsula because of its natural environment presenting a considerable investment. Kellaher et al. posit that "trajectories or pathways . . . come into focus through informants accounts of their homes, neighbourhoods, lives and hopes" and that "these show how people try to manoeuvre themselves into positions that are comfortable both physically and socially" (2004; 61). Tara's account presents a hope for a good quality of life derived from living amongst a peaceful and rich natural environment – something which the quarry reopening directly threatened. Despite having not lived in the area for a great deal of time, the perceived risk to her future quality of life was just as severe as the one experienced by Theon and Jamie.

From an identity risk perspective, the majority of public and stakeholder participants did not consider the local environment of Swansea Bay and the Lizard to be a considerable Valued Object. While some participants did express some minor concerns with some of the issues discussed, the value placed in the local environment was largely intangible. These participants placed greater value in the concept of the wider environment, with the lagoon being viewed as a powerful Empowering Object which enabled the production of renewable energy, which in turn mitigated pre-existing risk in climate change. Local opposition group members viewed this scenario very differently. The local environment which participants had interacted with held strong tangible meaning within their daily lives. The risks to the Bay, Tawe River, local biodiversity and calm environment were not abstract, but rather well defined and understood. For them the lagoon was not the only option to produce more renewable energy and the quarry was not the only location from which rock could be effectively sourced. For these participants the lagoon was not seen as Empowering Object but instead exclusively an Endangering Object threatening valued connections.

Developer Conduct – Unethical Actions

In addition to the lagoon and quarry re-opening being perceived as Endangering Objects, opposition group participants also highlighted the developer's actions as a risk issue. How participants portrayed these actions as endangering split into two types of risk. The first type (discussed in this section) centred on how the perceived unethical actions of the developer (largely in relation to planning procedure) translated into identity risk. These actions were seen as threatening participants' sense of self-worth as well as an implicit sense of justice and fairness. The second category of risk (next section) relates to how the proposed benefits of the lagoon were 'amplified' through social processes that established these benefits as of superseding importance over the relevant risks. This amplification threatened participants' capability to effectively communicate their risk perceptions, in effect partially denying them voice. The importance of voice is that it acts as a way of making meaning and of making that meaning apparent (Dolar, 2006).

Opposition group participants were unanimous in the low levels of trust they held in the developer, both in their motivations and relevant expertise. Trust is an important concept within the study of both socially controversial technologies (Poortinga and Pidgeon, 2005) and siting issues (Wustenhage et al, 2007). It could be described as "a feeling that another person is caring, morally good and has positive intentions towards the person who trusts" (Midden and Huijts, 2009; 744), yet it is also just "largely an expression of a more general attitude" (Poortinga and Pidgeon, 2005; 208). As previously discussed (see Jamie and Theon this chapter), some participants were already mistrustful of the developer having had negative interactions with similar enterprises in previous encounters. In the previous section, opposition group participants outlined how their initial interactions with the developer had only served to further erode what little trust there was. As Slovic (1993) highlights, trust is slow to create but may be destroyed quickly. The following section

explores the accounts of Mandy, Morgan and Tara and describes how their initial interactions with the developer proved the foundation for a very poor relationship.

Already in possession of planning permission to operate at Dean Quarry, the developer maintained the option to remove the quarried rock by road. However, this option was less preferred as it was more expensive than shipping and also would have seen heavy duty trucks passing through the village of St. Keverne for a considerable time period. This threatened a host of Valued Objects and meaningful connectivity, particularly in relation to the 'untouched' quality of the natural environment. A meeting between developer and local community took place in early 2015 where these plans were outlined and discussed. However, participant accounts highlight how it did not take long for relations between the developer and the local community to turn sour.

"He pointed his finger and said if you don't let me take it [by boat] I will bring two hundred Lorries through your village. That's why we formed our group." - ***Mandy***

"That's why we have to fight it. When someone says they're going to take two hundred Lorries through your village – well we have a primary school there!" - ***Morgan***

Mr Shorrock told a residents' meeting in the nearby village of St Keverne: "We've got two choices of taking the rock away. We can, under the existing permission, take the rock out by road starting from next week. What we would like to do, is take it out by ship because no one will see it and no one will hear it."

Andrew George, Lib Dem MP for the area, said: "They more or less presented it as a form of blackmail. They're saying, 'we have got the licence to extract it anyway and if we don't get the jetties it'll be going by road, so it's up to you'."

Figure 6.11 – Excerpt from the Daily Telegraph reporting on the village meeting.

Source – Daily Telegraph (15/2/15).

The meeting was viewed by participants as a thinly veiled threat. Instead of seeking dialogue on how to accommodate each party's needs, participants believed the developer had issued an ultimatum. While some members of the local community were apparently interested in the employment the project might bring to the area, participants largely described dismay at what appeared to be aggressive tactics aimed at coercing them into accepting a bad deal in order to avoid a worse one. In the wake of the meeting, the participants decided to form a limited company as a means of representing the local community and to oppose the quarry reopening.

Implicit within Mandy and Morgan's accounts are some important examples of meaningful connectivity. For Mandy the risk issue centred on a potentially severe one in a threat to her family home and livelihood, yet was relatively accepting of the quarry re-opening if it meant employment opportunities for the area. However, the tone through which the developer chose to communicate their plans was viewed by Mandy as threatening, which she was keen to stand up to. For Morgan this threat tied more broadly with her meaningful connectivity, the peace and tranquillity of the surrounding environment. However, as with Mandy, Morgan felt that the threat the developer posed was not one to shy away from. Both participants present an underlying sense of injustice with the developer's actions, one that threatened valued connectivity between themselves and their community and a sense of moral justice.

When the developer received planning permission to establish ancillary facilities at the site, the group sought a legal review claiming that Cornwall Council had not insisted on an Environmental

Impact Assessment before granting the application. While the high court ruled in the group's favour later in 2015, the legal battle had further entrenched a lack of trust between participants and the developer. When discussing the granting of the application, participants described a belief that the process had been rushed and that the developer had applied pressure in order to obtain the desired outcome. There was also a belief that the scientific research conducted by the developer had been little more than a box ticking exercise, with one participant describing it "*as not worth the paper it was written on"*.

"They were led to believe at the meeting by the county solicitor that if they didn't grant the planning permission then there would be repercussions from [the developers] Quarries." - ***Morgan***

"I think it points in my opinion to the very close relationship between developer and planning officer."

"It felt like one colleague talking to another and saying "let's see how we can push this through really quickly". – ***Mandy***

These extracts conveyed a clear absence of trust in the developer, with their initial attempts at community outreach being seen as disingenuous and later attempts being portrayed as deaf to local concern. Here Mandy and Morgan present themselves and their community as being taken advantage of by a predatory actor not averse to using aggressive and unethical tactics with regulatory bodies. They presented a frustration with the quality of scientific research that had been conducted into likely impacts, again presenting the idea of themselves and their community as unimportant to the developer. Implicit here is a value within the planning process and for the quarry re-opening to be given due consideration prior to judgements being made. Both Mandy and Morgan felt that this had not been the case, something which concerned them considerably and again made both of them feel as if their concerns were not being treated as important.

The initial meeting made it clear in participants' minds that the developer had not come to seek dialogue, but instead possessed a single-minded attitude that the project would come to fruition regardless of local support. The granting of planning permission by the local council also gave the impression that the developer knew how to work the system when it came to the procedural aspects of the planning process. These beliefs were furthered by what these participants perceived as the developer being well networked via their relationship with Good Energy, a provider of renewably sourced electricity. The CEO of Good Energy held a close connection to the developer, and was an early investor in the tidal lagoon project. Looking to raise awareness of the Dean Quarry issue and gain some answers on the relationship between the three entities, participants described how two opposition group members attended Good Energy's AGM.

Mandy - *"[Good Energy] said it was her job to fight local groups. The applications that are put into local councils are never received well because they're usually a wind turbine or something that people don't want. So it's my [Good Energy] job to fight those people."*

Morgan - *"And we [Good Energy] always win in the end."*

Mandy - *"So the two people that were there were silenced pretty quickly."*

The response to their friend's questions served to underline what the participants already thought of the developer's stance. Mandy and Morgan portrayed the developer as part of a well networked 'elitist' circle within the UK's renewable energy sector, one which had seemingly little concern for local risk issues. Phrases such as '*fight*' and '*we always win in the end*' fed into a portrayal of the developer and associated entities as enemies of locals with risk concerns. Mandy and Morgan present the developer's stance as an overly aggressive one, which they did not find conducive to a

meaningful dialogue between both parties. While participants maintained that their opposition to the quarry reopening did not necessarily equate with opposition to the lagoon, the well networked appearance of the developer created large levels of mistrust towards all of these organisations.

"We have done some things in the wrong way but we are not doing the wrong thing. We're trying to create long-term employment and investment on the back of the UK's transition to low carbon energy."

- The developer in The Daily Telegraph, a national broadsheet newspaper (15/2/15).

The High Court ruling on planning permission reframed the balance of power between the two parties. Prior to the ruling, a proposal had been put forward by the developer that would have seen the establishment of a community benefit fund for the local parish council; a fairly common occurrence among renewable energy schemes within the UK. However, participants described how the initial offer had been considered low by the local community - *"sort of in the low ten to twenty thousand [pounds] a year*" which then "*shot up to two hundred and fifty thousand per year"* after the review. The large increase in the figure did little to change the attitudes of the participants and the wider local community. Previous research has outlined that when the underlying motivations of the provision of community benefits is questioned, the provision itself can be perceived as bribery (Aitken, 2010). The lack of trust that the participants had in the developer translated into a disbelief that the developer had any motivation to act with the community's best interest at heart. Subsequently the provision of community benefit was largely viewed as an attempt to buy the community's co-operation.

These perceptions became further entrenched when the developer was accused of offering a financial inducement to the local parish council. While the community benefit fund that had been offered was legal, participants felt that the offer that followed was not. An agreement was proposed to the local parish council offering to provide an annual sum of money related to the amount of rock extracted (which was legal). However, it also maintained clauses proposing that the local parish council would give "reasonable support" to the application for planning permission to reopen Dean Quarry "and not make representations against such application" (BBC News, 16.5.18). It also stated that "[the developer] may terminate this agreement at its absolute discretion if the parish council is in breach of this clause". The developer would eventually go before a select committee of MP's and state that it had not offered a financial inducement, yet this did little to persuade participants.

Wustenhagen et al (2007; 2687) highlight that "when investors and facility owners are outsiders, trust in their aims, attitude and competence becomes an issue". Initially possessing little information about the lagoon and quarry projects, the conduct of the developer served as a gateway to how opposition group participants came to view both them and the lagoon. While these participants were initially sceptical, it was the initial interactions between themselves and the developer that served as the basis for a very poor relationship. This in turn led to a closer scrutiny of the developer and both the lagoon and Dean Quarry projects. While early engagement with the local community has been viewed as resulting in 'lower costs, fewer delays and less uncertainty in the planning process' (DTI, 2007, p.259), poorly performed early public engagement appears to prove anything but.

As Kasperson and Ram (2013; 92) outline, the "stakeholder involvement imperative" presents an illusion of democratic power in such situations, with the implicit assumption that "broad public involvement is the principal route to improved decision making". However, in both initial meetings between the developer and local opposition groups it seemed apparent that the involvement of

local stakeholders was essentially being treated as a box ticking exercise. Compounding this issue was the fact that the developer insisted on outlining fairly advanced plans regardless of initial public reaction. As Poortinga and Pidgeon (2005; 207) highlight, "trying to increase trust by simply providing information may be interpreted as not taking concerns seriously, and is more likely to destroy than create trust". From an identity risk perspective, the feeling of being ignored by the developer served to reduce trust and present participants' concerns as unworthy of proper consideration. The Valued Object within this situation is both the participant's concerns and a broader sense of self-value derived from having one's communication acknowledged by the recipient. The Endangering Object within this scenario is the developer's specific actions, in this case the perceptions of feigned concern and ignorance towards local concerns.

ENDANGERING OBJECT	RISK RELATIONSHIP	VALUED OBJECT
Bribery, Aggressive tactics with regulatory bodies, Ignoring of local concern.	Developer seen as predatory, uses bully tactics to circumvent proper procedure.	Self-worth, Fairness, Justice.

Table 6.1 – A relational risk model (Boholm and Corvallec, 2011) analysis of how the developer's conduct was perceived as an identity risk.

It has been argued that there is an implicit assumption among policy makers that the offering of community benefits is a positive for local support of a project (Cowell et al, 2011). However, research has highlighted that when the underlying motives of that offering come into question then the provision of community benefit can be seen as a bribe (Cass et al, 2010; Aitken, 2010). The motivation to question these underlying motives appeared to be derived from a lack of trust in the developer, some of which stemmed from more general attitudes based on past experiences. Another common factor between these participants was an agreement that the benefits from the project were unsatisfactory considering the perceived risk. If trust is indicative of a wider attitude (Poortinga and Pidgeon, 2005), it has been argued (Midden and Huijts, 2009; 750) that benefit creates a positive contribution towards these wider attitudes. Subsequently, a disbelief in the apparent benefits seemed to correspond with low levels of trust (and general attitude) towards the developer and the project. Unethical tactics and the perceptions of bribery were impactful upon participant identity largely through negatively impacting participants' sense of moral justice and sense of self-worth in relation to their concerns being seen as *to matter*. While risk issues still remained for these participants, this idea of being seen and heard was clearly a critical issue for them.

6.6 Communicative Risk

Underlying this issue of feeling ignored was a belief that wider public opinion was with the lagoon developer. As discussed (see Benefit chapter) there was a general attitude among some public participants that the potential benefits from the project greatly outweighed any risk issues. However, *at risk* participants viewed the situation very differently. For these participants the benefits were viewed as a ploy aimed at manipulating public support in favour of the project, which was then used in turn to drown out critics. The promoting of these benefits by the developer was viewed as a risk, as it was seen as a deliberate attempt to drown out criticism of the project through providing the appearance of overwhelming public support. As discussed (Sara and Diego – benefit chapter) the apparent benefits of the project were seen as a strong motivation to "overlook" legitimate criticisms and risk issues related to the lagoon.

Discussed in the next chapter, a dynamic unfolded whereby the benefits stemming from the project were socially amplified – which occurred largely through two key phenomena. First, through social repetition the benefits that were considered "possibilities" by the developer were established as *de*

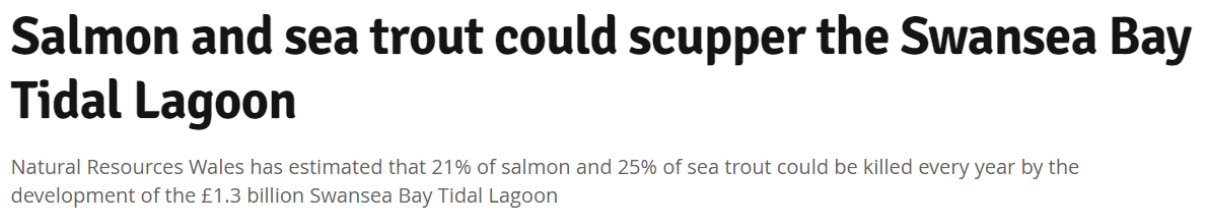
facto certainties in the minds of participants. Second, the developer tapped into a number of local community concerns (e.g - unemployment, lack of symbolic imagery) to present the project as in the community's 'best interest'. This appealed to participant's sense of care toward their community (see Benefit chapter) presenting the individual's risk concerns as inconsequential weighed against a greater "community" level of need.

Having committed a considerable amount of time and effort into trying to communicate the risk issues to the wider community, Theon described a frustration with what he described as the "gloss" of the lagoon. He saw the discourse surrounding the lagoon, and particularly the local contextualised Swansea discussion-scape, as almost entirely one sided with the local public as heavily in support of the proposal for the wrong reasons.

*"General public perception and support is high, most people support it, and I think it's because they don't understand it – they've only seen the gloss that the promoters have pushed. If you talk to them and explain what it's about, the risks that are involved and what's likely to happen and what it's going to produce – then they say "oh I don't know, I didn't realise that!" They all seem to change their perceptions once you explain to them. And the more worrying this is that the politicians don't seem to understand the issues and the local press haven't established what the real issues are – and so the local reporting has been abysmal." – **Theon**.*

Theon's assertion that the public failed to see past a "superficial" understanding of the lagoon was common amongst at risk participants. For them the developer's promotion of an ecologically benign, economic catalyst and flagship project was an all too obvious ruse that the public had fallen for. Here the lack of an informed public is problematic for Theon, and the lack of an informed political sphere an even larger problem. He also presents much frustration with the media, who he views as largely responsible for the resulting lack of an informed public and politicians.

Of particular concern to Theon was how he perceived political support to be behind the developer. As discussed (see Case Study chapter), the lagoon proposal held the status of a political football, with mainly opposition party members in Swansea utilising the lack of development as symbolic of the Westminster Government lacking green credentials and concern for Swansea and Wales. Within the local discussion-scape, there was seemingly little to be gained politically from positioning oneself in opposition to the lagoon, as to do so would be going against a project that had taken a firm grip on the popular imagination (see Benefit chapter).


Salmon and sea trout could scupper the Swansea Bay Tidal Lagoon

Natural Resources Wales has estimated that 21% of salmon and 25% of sea trout could be killed every year by the development of the £1.3 billion Swansea Bay Tidal Lagoon

Figure 6.12 – Local media headlines in Swansea seemed to posit participants risk perceptions as problematic to the lagoon's completion. ***Source –*** Wales Online (11/12/16)

For at risk participants there was a considerable amount of frustration with the media, which they saw as not fulfilling an obligation to provide a balanced assessment of the proposal (see Risk Communication chapter). Theon's frustrations in particular underlined how the media appeared overly one sided, with local media seemingly on the side of the lagoon and the developer. Even in instances where lagoon risk was communicated (see Figure 6.12) it appeared to be done so in a form that favoured the developer and that communicating lagoons risk threatened the project itself. As

such, Theon's account portrays the media as a willing culprit within the unfolding risk dynamic, establishing it as an Endangering Object.

This experience stood in contrast to experiences in Cornwall, where local MP's had come out firmly against Dean Quarry reopening and supported the local opposition group. Here local media appeared to firmly side with the opposition group, with even some larger national publications painting the group in a favourable light. Participants here viewed risk from benefit amplification differently to Theon. While Theon posits the media as a more active agent within the problem, Morgan and Tara present the issue differently.

"I don't trust him. I think he's manipulating the media and I think he's in a position to do that being married to [Good Energy CEO] because she is the green movement with the government at the moment and they listen to her voice." - ***Morgan***

"In the national media so many of them seem like puff pieces for [the developer] and there's no deep analysis. Tidal Lagoon? I think it's [the developer] that most worries me about that. What are people falling for? A project that was brought in by another group possibly I wouldn't mind, but I just don't trust the man. I would like to see a greater analysis of what he's up to." – ***Tara***

Here Morgan and Tara describe how their distrust of the developer came to foreshadow their opinions on the lagoon. Both participants viewed the national media as positive towards the project, which they attributed to the developer's capability to manipulate media discourse. While Theon constructed the media (particularly locally) as a willing party in the construction of a one sided discussion-scape, Morgan and Tara's accounts portray the media (mostly national) as a more passive entity that had been manipulated. Both agree that passive media presented a problem as it did not interrogate the developer or their proposals, however Morgan and Tara present this issue as part of the risk relationship as opposed to an endangering agent. For them, the role of Endangering Object was fulfilled by the developer alone.

In addition to the media and developer representing Endangering Objects, public perception was also viewed as such. Jack was a member of the stakeholder participants, and a faculty member at a local university. Having been involved with the design and testing of tidal energy projects for much of his professional career, he saw the tidal lagoon proposal as having significant importance for the wider industry. Largely disbelieving of the developer "gloss" on the lagoon, he instead saw the proposal as being portrayed inaccurately in order to gain support amongst the larger public. He viewed this as a concern due to his belief that the future of tidal energy technology could be at risk if the lagoon were to not fulfil its promoted role. In particular he voiced a series of concerns regarding design flaws within the Swansea proposal, which he saw as leading to serious and costly maintenance issues as well as more serious fluvial and ecological issues for Swansea Bay. If the flaws he saw in the design were to cause serious trouble for the lagoon, he worried that it would likely harm tidal energy technology in the long run due to reduced public support for the technology.

Jack: *"I think it is very important that any lagoon is designed properly. My fear is that this is the first time these are proposed and are near to the drawing board – and near to completion. If they don't work well then it puts tidal energy back some considerable amount of time. So I do hope that the lagoon can be designed properly and deal with the flow problems that are very difficult to manage. There is a lot of enthusiasm for the lagoon at the moment in certain parts of Wales – that's very much built around a Welsh identity – and I hope it is able to deliver on those fronts and so forth. Create jobs, provide an industry. But we do need to make sure that it's designed properly."*

Researcher: *"Is there a push to overlook these technical issues?"*

Jack: *"Yes."*

Researcher: *"And how big a risk is that?"*

Jack: *"I think it's big."*

Researcher: *"Who is necessarily at risk because of this? The industry? The profession?"*

Jack: *"Yes. Everything. I think that I would like to have seen independent peer review."*

In addition to drawing upon Swansea's historic employment anxiety, he saw the lagoon as directly addressing and massaging elements of a "Welsh" identity (see Benefit chapter). While many participants saw this as a beneficial Empowering Object (one terming it the "*reigniting of a great Welsh manufacturing industry*") Jack perceived it to be an Endangering Object by creating a distraction. Instead of a focus on the core issue of whether the technology would work (particularly as it had been promoted), from his perspective as a professional engineer public and political gaze seemed to be firmly locked upon side issues.

PARTICIPANTS	VALUED OBJECT	RISK RELATIONSHIP	ENDANGERING OBJECT
Theon	Place attachment and social group	Uninformed public and political sphere	Willing Media and Predatory Developer
Morgan and Tara	Community and Quality of Life	Media being manipulated	Manipulative and well networked developer
Jack	Industry and Profession	Developer capable of distracting public	Public unconcerned with technical aspects

Table 6.2 – Overview of how participants differed in their constructing of the communicative risks.

Commonalties between the accounts portray the promotion of benefit as a risk issue to entities that they value. While all participants present the media, the developer and the public as central to their risk concerns, they varied on what role they each took. For Theon, the Endangering Object was the developer and a media willing to promote the project as overly positive for the local community. Morgan and Tara portray the media in a more passive manner, as more of a mechanism that the developer (the Endangering object) is capable of manipulating. Jack portrays this differently again, presenting the public as the willing agent that enables the risk, fulfilling the role of Endangering Object.

VALUED OBJECT	RISK RELATIONSHIP	ENDANGERING OBJECT
Voice – capability to inform those around them of their perceived risk issues	Participants feel ignored, inconsequential and developers actions are unjust	Developer, Media, Public Opinion, Benefit Amplification

Table 6.3 – Relational risk analysis of a threat to "voice".

While the effects of not being listened to caused worry and concern, they also created feelings of frustration, resentment and confusion at how the developer could seemingly "get away" with misleading people. This could be broadly viewed as a denial of voice, as it constitutes the means of providing an "account" of one's life and its conditions (Couldry, 2010; 7). Voice is the "vehicle" through which meaning is constructed (Dolar, 2006; 4) and identity is made apparent. Participants' perceptions of ignorance on the part of the developer towards their concerns presented a serious Endangering Object that threatened the individual's sense of self-worth (i.e the Valued Object). What appeared to make this issue particularly important for participants was a deep sense of injustice present in the developer's actions, which appeared to elicit powerful responses from all opposition group members. These responses were "powerful" in the sense that they inspired much

action on the part of the participant, with opposition group members contributing much personal resources in order to stand up to what they saw as bully tactics.

The Messenger will be Shot – risk from communicating risk

What Jack saw as a push to look past the proposal's technical design issues was not only of serious concern to himself, but also to the larger profession and industry. In order to orchestrate this push, Jack highlighted the developer's tapping into socio-cultural context as a means to amplify their message. This bore some similarity to Morgan's account, who saw the developer's promoting of benefit as highly divisive among the local community in Cornwall, causing a fracture along support and opposition towards the quarry re-opening. However, while the risk to Morgan's identity was through more casual social relationships, Jack's voicing of concern about the lagoon presented risk to highly valued professional relationships. As discussed in the next chapter, going against popular public opinion on the lagoon presented a host of potential identity risk issues, mainly towards valued social relationships.

There was a persistent perception among *at risk* participants that public opinion firmly supported the lagoon. This presented a serious identity risk issue to individuals seeking to communicate lagoon risk as it meant potentially alienating valued relationships. In addition to the splitting of community felt by Morgan, this also meant potentially risking valued professional relationships (see Geraint Davies MP – next chapter). As such, some participants opted not to engage within the public discussion on the lagoon, as to openly communicate risk issues in such a way would have meant enduring an identity risk themselves. Gwyn was one such participant. A stakeholder who was part of an environmental NGO who had seen various projects proposed for the Severn Estuary/Bristol Channel area, Gwyn possessed a good awareness of the various actors involved and their positioning. Gwyn had opted to take a stance of not being seen as actively for or against the lagoon, but rather as long as the project was sound in terms of the relevant legislation then it was seen as beneficial by him and his organisation. This was in spite of the project developers making overtures towards the organisation for a public show of support.

Researcher: *Do you think there is a pressure to come out as either for or against the lagoon?*

Gwyn: *"Yes. So the company obviously wants us to come out as in favour of the project. But what we've always said is that we're broadly supportive of projects, providing everything is done well then we would see no reason to oppose it. And on the other side we've had discussions with the angler's representatives - "with the impact on the fish you should be opposing this". We say it's your job to oppose it if you oppose it on the fish, we've got a million other things to be doing. We're fighting coal mines and stuff as well.*

The people of Swansea are going to have a jolt in the morning when they wake up and see thirty metre high walls at low tide. I think that side of things hasn't been properly communicated – but then who wants to communicate it? I'm not going to go down Swansea and shout about this huge structure that's going to be there. Why would I when I've got other things to do? So there's that post-commissioning risk, where the company will be like "oh, oh well it's done now". There are environmental risks I'm sure, but as I said prior to the recording – there's a lot more information about that are now than there was previously, because the work has been commissioned by the company."

"We are quite often fighting a rear-guard action against inappropriate development. There's lots of inappropriate developments going on but we just haven't got the time or the resources to get into it."

Gwyn appears to acknowledge a well-defined remit within his NGO role, being careful not to overextend into areas that he views as being the responsibility of others. However, his non-committal stance also demonstrates an experienced approach in dealing with potential identity risk issues surrounding personal and organisational reputation. These identity risk issues are likely to have been more apparent considering the "climate" within the lagoon's discussion-scape (see case of Geraint Davies MP - next chapter). Implicit here then is the value he places in his career, his professional reputation and his organisation's reputation, entities placed at risk by engaging in discussing risk and the lagoon. More explicitly stated is the more tangible cost to himself and his organisation, particularly time and resources. The effective use of this time and resource are what enables Gwyn to effectively perform his role, as well as for his organisation to achieve its aims, both of which are inherently meaningful.

ENDANGERING OBJECT	RISK RELATIONSHIP	VALUED OBJECT
Communicating risk about the lagoon, public opinion, alienating working relations and support base.	Degradation of social and professional relationships via the alienating of individuals and entities with opposing opinions on lagoon.	Career, professional and organisational reputation, resources, effectively carrying out role and achieving organisations aims, satisfaction within working role.

Table 6.4 – Analysis of Gwyn's identity risk arising from communicating risk perceptions regarding the lagoon.

From an identity risk perspective, the *valued objects* that formulate Gwyn's meaningful connectivity to the world mainly pertain to his professional role. Unlike many of the risks discussed in this chapter, which mainly relate to non-work related types of meaningful connectivity, the Valued Objects discussed here are more "visible" by comparison. Like Mandy, who similarly saw her livelihood as threatened, work related risk carries with it value sets (largely monetary) that are more easily understood within narrow framings of risk. However, an identity risk perspective moves away from a focus on the quantifiable and instead brings into focus what remains less easily communicated, or "invisible loss" (Satterfield and Witter, 2014). In Gwyn's case, this mainly relates to his and his organisation's capability to fulfil their professional objectives and ultimately derive satisfaction from his working role. The *endangering objects* within this scenario originate from communicating risk with regards to the lagoon, with Gwyn's understanding of the *risk relationship* being that to do so would mean potentially alienating existing valued relationships. As discussed in the next chapter, this risk in particular appeared to have a profound effect upon how risk was communicated in relation to the lagoon, and formed the basis of a social amplification of benefit.

6.7 Absent Risks

The Swansea lagoon case study was also notable for being largely absent of a number of risks, which findings from previous research have highlighted as present in other renewable projects. The lagoon was viewed by a majority of participants as beneficial to either themselves or the local community, and so carried with it a motivation for participants to "look beyond" potential negatives (see Diego and Sara – Benefit chapter). However, there were some risks that were anticipated, either because of the existence of potential hazards (ecological risk) or previous research indicating the potential for landscape aesthetic risk, which remained almost entirely undiscussed.

As could be expected with new technology, participants were often unclear as to how the lagoon would operate and what it would look like. Despite participants presenting a good awareness of some aspects of the proposal, few displayed a good knowledge of the project as a whole. Subsequently the participants' lack of understanding of the proposals resulted in some being unsure

as to how the lagoon would pose an ecological threat (see Figures 6.13 and 6.14). For the most part, participants bought into the developer's promotion of the lagoon as an ecologically benign project that would also be a community recreational asset. As one participant put it, there was no reason to doubt what the developer had said the project would do.

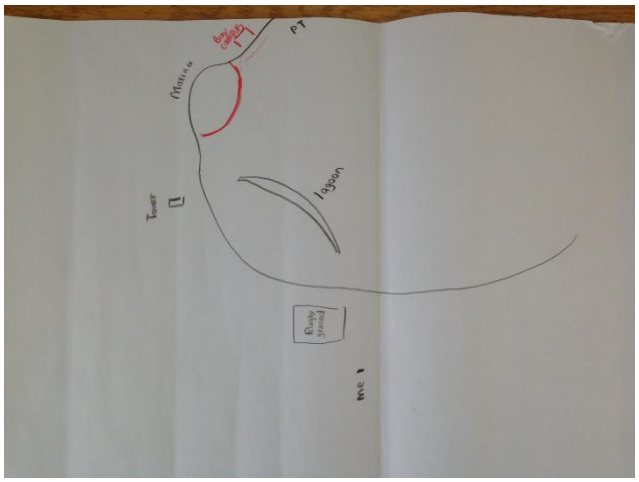


Figure 6.13 – Participants drawings (often as maps) displayed an unfamiliarity with how the lagoon would look and operate. In this drawing a participant outlined how they thought the lagoon would not reach landfall, but was instead shaped like a "banana" within the bay.

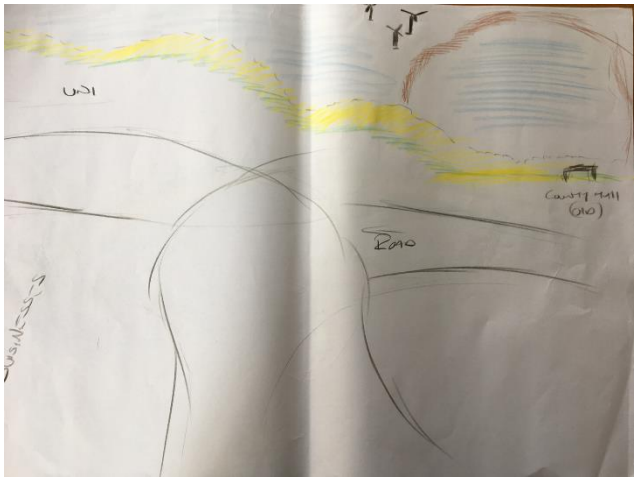


Figure 6.14 – In addition to not being clear on how the lagoon would look, some participants were also unsure as to how the lagoon would operate. This participant believed the lagoon to be operated by wind turbines (drawn in black top and centre) which would then "power the lagoon".

Despite there being a potentially serious ecological hazard to migratory river fish, the risks perceived by the local angling society were not widely shared by the larger Swansea public. Some participants displayed a willingness to look past these potential issues, while others admitted to not valuing what was under threat (fish) and so for them there was no risk present at all. However, as Figures 6.13 and 6.14 demonstrate, there also remained fundamental misunderstandings about how the fish could be threatened in the first place if the lagoon could be manoeuvred around (Fig. 6.13) or else did not utilise underwater turbines (Fig. 6.14).

As previously highlighted (Isobel and Sara – Benefit chapter) the stretch of beach and dockland where the lagoon would make landfall was often thought of as 'dead space' within Swansea's landscape. Most participants thought of the space as polluted (or else 'tainted' by heavy industry) and so tended not to utilise the area, resulting in it having little or no meaning to them in its current form. Contrary to findings highlighting that the sea should not be 'developed' because of symbolic understanding of it as a place of nature (McLachlan, 2009), or that the sea should be 'kept free' from technology (Kempton et al, 2005), participants displayed little objection to the sea and seabed being developed in this particular location.

Researcher: *"So what do you think when you see these wind turbines here?"*

Doug: *"They don't bother me. There aren't many to see from here actually. Only when you get outside the city you really see them. There's the ones by the docks over there."*

Researcher: *"So what if the turbines were over this side, over towards the Mumbles? Would that annoy you?"*

Doug: *"The thing is they are in an industrial area over there, so it is acceptable. I can understand people living up in the Valleys in the farm houses"*

Understandings of the appropriateness of developments are deeply contextualised in relation to aesthetic, historic or natural 'values' emplaced within them. While areas such as bays have been highlighted as having scenery of a symbolic nature, and so have been seen as unfit for developments such as wind turbines (Firestone, 2010), Swansea Bay was already viewed by many participants as an "industrialised space". In this extract from a walk along interview, Doug describes how he did not mind the east of Swansea seeing developments as he had always associated the view as industrial in nature (the Port Talbot steelworks being prominent within the landscape). However, Doug would have been largely opposed if the lagoon had come further west, or other infrastructure such as turbines had entered "non-industrial space".

Sentiments such as these were common among public participants. While for some participants the eastwards view was a treasured one in its own right as a sign of home and familiarity, participants remained open to aspects of it changing as it was already viewed as tainted by human contact. Subsequently the westwards view (towards the Mumbles and Gower peninsula) was considered a more natural landscape and so unsuitable for large structure siting.

"From my perspective I don't think the aesthetics of Swansea Bay will be that impacted – because I don't look that way . . . I never look east. It sounds daft but I have no reason to look over there -it's only industry I'm looking at so from my point of view there is nothing aesthetically pleasing. It won't affect me in that sense I don't think personally." – ***Tim***.

Tim's account is an example of how the eastwards view was not seen as holding great aesthetic value, and so he was open to change in the landscape as they had little feelings towards it. As an incomer to the region, Tim held a great affinity with spaces of nature which largely reflected his professional role and recreational pursuits (see Tim section – Benefit chapter). His account differed to participants who described an affinity for the view in spite of the looming presence of heavy industry on the horizon. As such, participants saw developing the east of Swansea Bay as acceptable for differing reasons. For Tim there was little or no value in the landscape status quo, while others held value in the landscape but deemed it acceptable for change to take place as it was already deemed "developed". In both instances, no value is under threat or endangered, but rather only viewed as potentially improving.

6.8 Discussion

Risks to identity are ways in which we as individuals perceive potential harm to different types of meaningful connectivity we share with the world around us. This chapter has explored how these identity risks were perceived in relation to both the lagoon and its supply chain, spread across two locations – Swansea Bay and the Lizard Peninsula. The identity risks that emerged can be grouped into two broad categories pertaining to the ways in which they affected the individual (ie Valued Objects) – the highly tangible and the less tangible. Highly tangible risks that were discussed included hobbies (valued practice), social groups, home, livelihood and traditional industry. These

activities are all ways in which participants physically interacted with the world around them, and entail some of the most rudimentary types of connectivity such as doing, touching, seeing and being. The less tangible identity risks that were discussed included threats to the environment, threats to justice and procedure as well as a "denial" of participant voice. These risks pertained to less tangible values that threatened participants' notions of justice, fairness and morality.

Endangering Object	Risk Relationship	Valued Object
Lagoon/Quarry Operations – Highly Tangible	Physical operations of turbines and/or quarrying cause physical hazard to ecology. Noise and other pollution from industrial activity creates risk of losing commerce and "feeling" of home as well as threaten local fishing industry. Little to no trust in developer, little mitigation opportunity.	Hobbies, Social Groups, Home, Livelihood, Community, Traditional Industry and Historical Connection.
Lagoon/Quarry Operations – Less Tangible	Physical operations of turbines and/or quarrying causes physical hazard to ecology. Damages environment, little to no trust in developer and little mitigation opportunity.	Value and Relationship with Environment, Sense of Justice and Fairness.
Developer Actions/Behaviour	Developer actions seen as highly unethical. Little to no trust in developer, corporate ventriloquism, undermining of regulatory bodies, greenwashing, developer attenuating local risk concerns, unethical approach	[Exploited] Self, Community and Environment. Justice, Fairness and Morality. Adherence to procedure.
Amplification of Benefit	Corporate Ventriloquism, Exploiting local community/environment concern, appropriation of community voice	Individual's capability to communicate concerns, undermine risk perception legitimacy, Individual expression, Social relationships.
Risk from Communicating Risk	Degrading existing valued relationships, alienating support base and/or new potential relationships.	Capability to effectively carry out role, individual and organisational reputation.

Table 6.5 – Risks in relation to the lagoon using *Relational* theory's (Boholm and Corvallec, 2011) tripartite model.

In the cases of Theon and Jamie, being able to fish along the river meant being a part of a valued community and engaging in meaningful practices. The threat posed by the lagoon meant that these risks were seen as severe and with little potential for mitigation, likely causing long lasting damage to fish stocks which would inhibit both participants' engagement with their hobby and community. These findings bear similarities with some from North America, where the threat to fish stocks was part of a wider risk that had social repercussions. There hazards to salmon stocks formed an identity risk due to the fish holding deeper cultural meaning to Native American tribes in California (Chaffin and Gosnell, 2017) and the Pacific North West (Wilkinson, 2005). The risk to Mandy and her family's way of life in their rural home is again a good example where risk in a 'traditional' sense is visible

(loss of income, costs incurred from moving etc.) yet the 'invisible' losses are potentially far more severe for her. The value and meaning that Mandy and her family had painstakingly constructed in their rural home seemed to be at risk of being lost entirely, with the quarry operations completely changing the tranquil settings. Similarly, the noise pollution that Morgan anticipated is a well-recognised problem, yet narrow definitions of risk fail to recognise the threat to value and meaning.

Trust is a major issue within all siting contestations (Wustenhagen et al, 2007), and the lack of trust that participants had in the developer was certainly impactful upon the framing of risk perceptions. In Swansea Bay, the first meeting between the local opposition group and the developer formed the foundations of a poor relationship, with participants portraying the initial public engagement as superficial. Public attempts to undermine the regulatory body responsible for the Marine License assessment furthered these opinions of the developer as an unethical actor that was not to be trusted. In Cornwall, participants described their first meeting with the developer as an attempt to bully the local community into not opposing the quarry re-opening, while a later offering to the local parish council was viewed by participants as a clear attempt at bribery. They also saw a 'streamlined' planning process (Blowers, 2010) that seemingly shirked the developer's responsibilities towards the environment (in the form of Environmental Impact Assessments), and a manipulative relationship between the developer and the council.

ENDANGERING OBJECT	RISK RELATIONSHIP	VALUED OBJECT
No trust, "bully" tactics, not listening to local concern, superficial public engagement, bribery, circumvent procedure.	Developer seen as highly unethical agent and so opposing projects linked to them is seen as the "right thing to do".	Sense of justice, morality, self-worth. Concern for community. Value in environment (local and global).

Table 6.6 – Less tangible identity risks from the developer's actions/behaviour towards moralistic aspects of self – evidence of "symbolic tangles" (Horlick-Jones et al, 2003.

These actions seemed to confirm to participants that the developer could and should not be trusted. The way in which they acted towards both of the local communities was portrayed as predatory, unethical and deaf to local concern - and so participants described how they felt they held some kind of moral duty to oppose the developer and/or the lagoon/quarry. The duty that participants' felt were orientated towards some form of meaningful connectivity, which they presented through their accounts. Many felt this duty towards the environment (particularly Morgan, Theon and Jamie), while others felt they owed a duty to their community (Jamie, Theon, Morgan and Tara), or else to themselves and their family (Morgan and Mandy). In each case participants' felt a deep sense of injustice, and so the Endangered Objects within these risk scenarios often centred on intangible and abstract concepts of fairness and justice. Mirroring the findings of some previous research (Gross, 2007) community well-being was seen as fractured as a result of the lagoon and quarry proposals – which were perceived as deliberate attempts by the developer to mislead local communities. As the case of Morgan highlighted, tapping into deeply embedded underlying risk concerns (e.g - employment) shows that while marine renewables present opportunities for 'high value' employment within isolated and economically disadvantaged communities (Johnson et al, 2013), it also means that they are viewed as open to exploitation.

All participants considered themselves environmentally "concerned" in some form or other and so contextualised 'relevant selves' (Andersen and Chen, 2002) were brought to the fore in order to handle particular risk information appropriately. It is important then to understand individuals as 'mosaics' (Thompson et al, 1990) and so it is not contradictory to consider oneself an environmentalist and be in opposition to a renewables project. If further marine renewables

proposals are be contentious, and are considered to be 'green on green' debates, then an identity risk approach is useful in helping understand these issues. Simplified notions of local opposition as 'anti' and 'pro' (Pidgeon et al, 2008) are also deemed too black and white, with participants' contingent support and opposition to projects being instead expressed in varying shades of grey. "Disconnects" (Shirani et al, 2013) between contemporary practices and responsibility towards future generations are not always applicable as the apparent need for particular installations is questioned and re-contextualised within wider socio-economic and political systems.

Communication risks (i.e Social) emerged from what participants saw as concerted efforts by the developer to distort risk messages and present the proposal in a more amenable manner to the public. The denial of risk legitimacy, and the re-contextualising of risks within 'bigger picture' climate change discourse, became a risk issue in and of itself. This denial of voice, the most rudimentary tool through which people construct their identities (Couldry, 2010), presented a serious risk to participants' sense of self-worth; as to not be heard appeared to equate with not seeming to matter. Participants' view of the developers influencing the UK and Wales' "sociotechnical imaginaries" (Jasanoff and Kim, 2009) was one of apparent 'corporate ventriloquism' (Bsumek et al, 2014). Here the developer was seen to engage in appropriating the voice of local communities (employment and economic benefit) and the environment ('risk-free' renewable energy). An amplification of benefit (see next chapter) was seen as largely benefitting 'imagined communities' (Anderson, 1983) as opposed to *well-known* ones – leading to at risk participants viewing the proposed benefits (particularly employment) as misleading. This amplification of benefit was viewed as simultaneously occurring with risk attenuation on the behalf of the developer, which was seen as establishing a hostile discussion-scape (see next chapter) for some participants. Risks were also deemed present from the participant opting to engage in communicating their risk perceptions. Public opinion on the lagoon seemed to clearly favour the project's development, with it being viewed as largely environmentally benign and a strong positive for the local region and its economy. Those seeking to communicate risks seemed to be under threat of being seen as against the public opinion and the "common good".

The findings are also notable for the absence of a number of anticipated risks that the literature had indicated as likely to arise. The space that the lagoon proposal occupied was not seen as one, but rather a place already tainted by human industry and activity. Places that are stigmatised have previously been viewed as more appropriate for development than those that have not (Van der Horst, 2007), an assertion which this data strongly supports. However, evidence from this chapter also indicates that this perception of developed space as "tainted" by industrial action can also have an effect on perceptions of the places close by as well. The 'low' aesthetic value of the landscape (highly contextualised as an eastwards view within Swansea Bay) presented development and human traces in the space as 'ordinary' and possibly beneficial, supporting the findings of Venables (2011) and Lothian (2008).

In explanation for the presence of a 'social gap' (Bell et al, 2005; 2015) this thesis offers that instead of 'selfish' motivations (Ibid, 2005; Van der Horst, 2007) for objecting to renewable energy infrastructure, individuals place significant value in the lives they have made for themselves and deem that these should be allowed to continue. How individuals construct a meaningful life is of central importance to how they understand their lives (Henwood et al, 2016). Approaches that construct local opposition as troublesome are not only unhelpful, but also promote non-participatory and unjust approaches to renewables siting. An identity risk approach brings these issues to the fore, by assessing what individuals present as of importance and meaningful to them. So while these risks remain very visible in some sense, understanding the 'invisible' losses (Satterfield and Witter, 2014) means paying particularly close attention to the lived experiences of

those affected. It is important then that those affected individuals are able to communicate their risk concerns, as to give voice is the plainest way of making an account of one's life and its situation (Couldry, 2010).

To paint these issues as 'selfish' motivations (Bell et al, 2005; Van der Horst, 2007) unfairly characterises affected individuals for two reasons. First, it establishes a false dichotomy that proposes singular projects as essential to delivering a low-carbon future, when instead individuals contextualise the project as one of many alternatives. Secondly, a selective acknowledgment of risk and value, based on an informal register of developers/regulatory bodies/government need (all under the guise of 'rationality'), denies the legitimacy of the individual's risk perception. For example, the developer promoted the idea that some risk to marine ecology should be acceptable considering the greater threat of climate change. However, at risk participants in Swansea Bay were dismissive of this idea (amongst other reasons) because of the importance that the local environment meant to them personally. In both risk scenarios the environment is established as threatened, and so the superseding issue of climate change is constructed as the risk which warrants greater action. An identity risk perspective frames the issue differently, recognising the emotion present within risk decisions as both natural and rational (Lupton, 1999).

We do not secure the temporal connections (Henwood and Pidgeon, 2013) that make long term sustainability possible by ignoring local concerns and opposition to renewable energy on the grounds that they amount to some kind of 'democratic deficit' (Bell et al, 2005). Instead the siting of renewables needs to be acknowledged as holding potential to become embroiled within 'symbolic tangles' (Horlick-Jones et al, 2003) whereby the issue takes on meaning beyond the initial risk object. Denying local opposition agency at the individual level serves to further entrench opposition and foster symbolic tangles that may manifest into a more generic anti-renewables stance. Local publics then are active agents in risk handling (Horlick-Jones et al, 2003) and this agency with which they attribute value should be acknowledged as imbued with emotion (Lupton, 1999). Beyond this it should be acknowledged that risk concerns regarding identity can be normal, rational and legitimate. How individuals understand their connectivity to the world around them (historically, in the present and in the future) and how they understand that connectivity to be threatened should be considered an important issue when considering project siting.

7. Risk Communication and the Swansea Discussion-scape

The following chapter explores how risk and benefit were communicated in relation to the lagoon and contemporary lives and times, and what effect this had on perceptions of it. Building upon the previous two chapters, it explores how and why actors within the discussion-scape came to carefully tailor communication on the lagoon due to the nature of the public discussion. As outlined previously (see Benefit chapter), the project was largely seen as beneficial to the local community, leading to the perception of the lagoon as for the "common good". This came to be seen as a risk issue for at risk participants through the potential degradation of their social and professional relationships (see Morgan, Jack and Gwyn – last chapter). This chapter posits that a process of *Social Amplification of Benefit* established the perceived "goods" of the project as inherently within the community's interest by tapping into deep rooted socio-cultural issues (see Case Study chapter) that were embedded within the local context.

The absence of a number of anticipated risks within the data was an important line of theoretical enquiry. Key to this was the impact of media in informing discussions, and their potential role in the attenuating and amplifying of risk and benefit perceptions. As this chapter outlines, there was a tendency within the discussion-scape for the potential ecological risks emerging to be "overlooked" or seen as "worth bearing" for the sake of obtaining the supposed benefits of the project. Pursuant to the third research question (*"How were these risks and benefits communicated?"*) the chapter seeks to build on the work of the Case Study chapter by understanding how the lagoon was promoted by the developer and portrayed within local and national media. The chapter draws upon, and posits expanded thinking upon the application of the Social Amplification of Risk Framework (Pidgeon et al, 2003), as well as the mathematical theory of communication (Shannon and Weaver, 1949) and its re-purposing as a tool for analysing risk (Boholm, 2015).

The chapter begins by outlining how *Risk Communication* and *Communication of Risk* differed in relation to the lagoon, and how the discussing of benefit impacted both. It then addresses how risk was communicated by local political actors, demonstrating a simultaneous attenuation of risk and amplification of benefit. It then looks at reasons why participants chose not to engage in public discussion regarding the lagoon, before providing an overview of the media portrayal of the project. Finally, it explores how a social amplification of benefit occurred by drawing upon the Social Amplification of Risk Framework (Kasperson et al, 1988).

7.1 Separating Risk and Hazard

The Swansea Lagoon appeared relatively unique for renewables infrastructure due to its perceived widespread local support and for being seen as providing a tangible benefit to individuals locally. As previously discussed (see Risk chapter), the project presented an Endangering Object to a number of identity oriented Valued Objects*,* while a number of ecological hazards also resulted from the proposed operations. The dynamic of benefit and risk within the lagoon's discussion-scape resulted in a seemingly widespread attenuation of risks (including ecological hazard related risk). As previously discussed (see Sara and Diego – benefit chapter), the perceived identity benefits from the lagoon provided motivation to attenuate risk. In addition, communicating lagoon risk presented potential identity risk to some stakeholder participants, leading to their limited interaction within the discussions-scape (see Gwyn – risk chapter). Subsequently, the relationship between risk and benefit in relation to the lagoon saw a conflating of *risk* with *hazard*, as some participants viewed some risk as worth enduring in order to attain the potential benefits.

Boholm (2015) posits that a separation between *Risk Communication* as a socio-technological tool/practice and *Communication of Risk* (as social interaction) is useful for analysing the social phenomenon in its own right. *Risk Communication* as a design science holds the purpose of enabling consumers and stakeholders to make more informed decisions (Bostrom, 2003) which in turn provides legitimacy to the decisions made by relevant bodies (Renn and Levine, 1991). The *Communication of Risk* is a wider sociological phenomenon in which *Risk Communication* is a part, but expands to include a wider diversity of perceptions, preferences and thought (Petts, 2001; Renn, 2004). As such, there has been a trend within Western society for *Communication of Risk* to involve a two-way format instead of a one-way dissemination of scientific information (Boholm, 2015), in order to challenge the underlying assumptions of the aims and goals of *Risk Communication*.

Within the Swansea Bay discussion-scape, the difference between *Risk Communication* and *Communication of Risk* became somewhat blurred. As Lofstedt and Boholm (2004) highlight, the incorporating of alternate viewpoints has been useful in deconstructing the idea of the state as the

sole assessor of "public good" and an objective sense of right and wrong in siting contestations. This deconstruction has been useful in refuting the concept of decision making bodies as inherently "objective" and removed from context. However, the use of *Risk Communication* by regulatory bodies to inform publics of relevant hazards (in this case NRW communicating ecological hazards of migratory fish mortality) is objective in the sense that it has an obligation to be consistent with relevant legal frameworks. While the two have become increasingly conflated, the normative "rules" (Renn, 2008; 207) by which *Risk Communication* abides by seemingly do not hold true for the wider *Communication of Risk*. While some rules were followed by both (such as that communication be informative, the information be factual/based on scientific evidence) other rules were not. For example, the need to promote trust within citizens and stakeholders towards managing agencies/bodies was one such 'rule' (Renn, 2008) that was broken, while the need for agreement and co-operation in decision making was another.

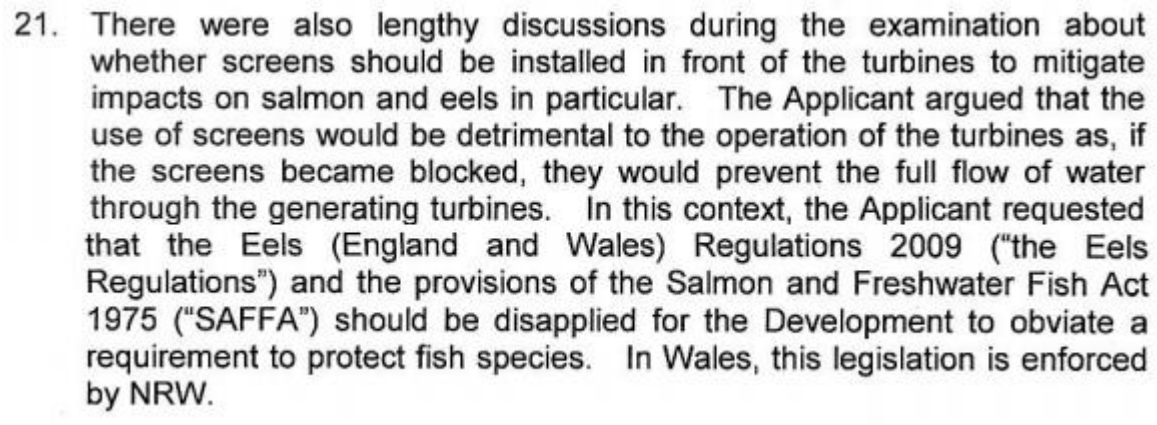
Risk Communication and the *Communication of Risk* became conflated due to the developer and some political actors introducing the concept of benefit to the equation. This conflating created a difficulty for the public in differentiating between the two, which in turn had a significant effect on risk perceptions of the lagoon. While the tool of *Risk Communication* was utilised to inform the public of relevant hazards, some primary actors within the wider *Communication of Risk* presented these hazards as 'worth' ignoring in order to obtain the supposed benefits. Similarly, the conflating of the two saw instances where the wider discussion of the proposal prompted mistrust on the part of the public towards the managing bodies. While benefit was an inherent part of the *Communication of Risk* with regards to the lagoon, the *Risk Communication* (as practiced by the relevant managing bodies) was devoid of it as per its remit and objectives. While a conventional resolute *Risk Communication* process was undertaken by NRW, the wider *Communication of Risk* was so significantly affected by the inclusion of benefit that it overshadowed the practice of *Risk Communication* and made it largely obsolete for many participants. As such, there was a simultaneous attenuating of risk (Pidgeon et al, 2003) by key actors within the public discourse of the lagoon, as well as an amplification of the emerging benefits from the project.

Risk Communication and Natural Resources Wales

The following section details how risk was communicated by NRW in its capacity as a regulatory body, before demonstrating how this differed significantly from the *Communication of Risk* that followed. The difference between these two formats of signalling risk to the public demonstrate the different roles that benefit plays in each situation, and how this in turn affects perceptions of risk; particularly within the framing of the risks being worth enduring. *Risk Communication* as a tool of government agency was for the most part performed by Natural Resources Wales. NRW are the body responsible for the management of natural resources after the merger of the Countryside Council, Environment Agency and Forestry Commission in Wales in 2013. It holds a responsibility towards maintaining natural resources for future generations via the Well-being of Future Generations Act (2015), with a commitment to "sustainable development" being a key principle. The organisation held a responsibility to administer Marine "Licenses" via the Marine and Coastal Access Act (2009) which oversaw the management of marine and coastal development and potential subsequent impacts.

The developer needed to obtain three primary goals in order to move forward with the construction of the project. The first goal was planning consent, which was obtained on 9th June 2015 (application received 7th February 2014) and an inspection taking place between June and December 2014 (conducted by UK government). Correspondence from the Department for Energy and Climate Change (DECC) referred to how there had been disagreements on how the potential impact to fish

should be modelled between NRW and the developer. In addition, it was noted that the developer had requested that the Eels Regulations (2009) and provisions of the Salmon and Freshwater Fish Act (1975) be “dis-applied” for the project. This proposal was ultimately rejected as it circumvented the remit of NRW and the devolution of powers between the UK and Welsh governments.



21. There were also lengthy discussions during the examination about whether screens should be installed in front of the turbines to mitigate impacts on salmon and eels in particular. The Applicant argued that the use of screens would be detrimental to the operation of the turbines as, if the screens became blocked, they would prevent the full flow of water through the generating turbines. In this context, the Applicant requested that the Eels (England and Wales) Regulations 2009 ("the Eels Regulations") and the provisions of the Salmon and Freshwater Fish Act 1975 ("SAFFA") should be disapplied for the Development to obviate a requirement to protect fish species. In Wales, this legislation is enforced by NRW.

Figure 7.1 *– Point 21 of the decision letter on the planning consent application for the lagoon. (Source – DECC, 2015).*

The second objective was to achieve a guaranteed price for the electricity produced (strike price) and a contract for difference - set out initially over a 30 year period before extending to 90 years. The strike price and contract for difference were later put to an independent review which considered the feasibility of lagoon technology in the UK energy mix. Chaired by former Conservative Minister Sir Charles Hendry, the review eventually concluded in favour of the project. However, with the political and economic uncertainty created following the results of two UK elections and the EU referendum, the discussions on these issues remained ongoing until the project was dismissed by the government in June 2018.

The third objective was the obtaining of a marine license from NRW. The Marine License would enable the operation of the project pursuant with the relevant legal requirements as provided by the Welsh and UK governments in accordance with EU directives. The application for a Marine License was received by NRW in April 2014, close to the same time that the planning application was submitted to the National Planning Inspectorate. In December 2016, NRW paused the license determination at the request of the developers in order for “further evidence” to be submitted after the anticipated impacts were communicated to the developer. Further evidence was then submitted in June 2017 after a disagreement on the anticipated impact between the developers and NRW, and the issue remained ongoing (NRW, 2017).

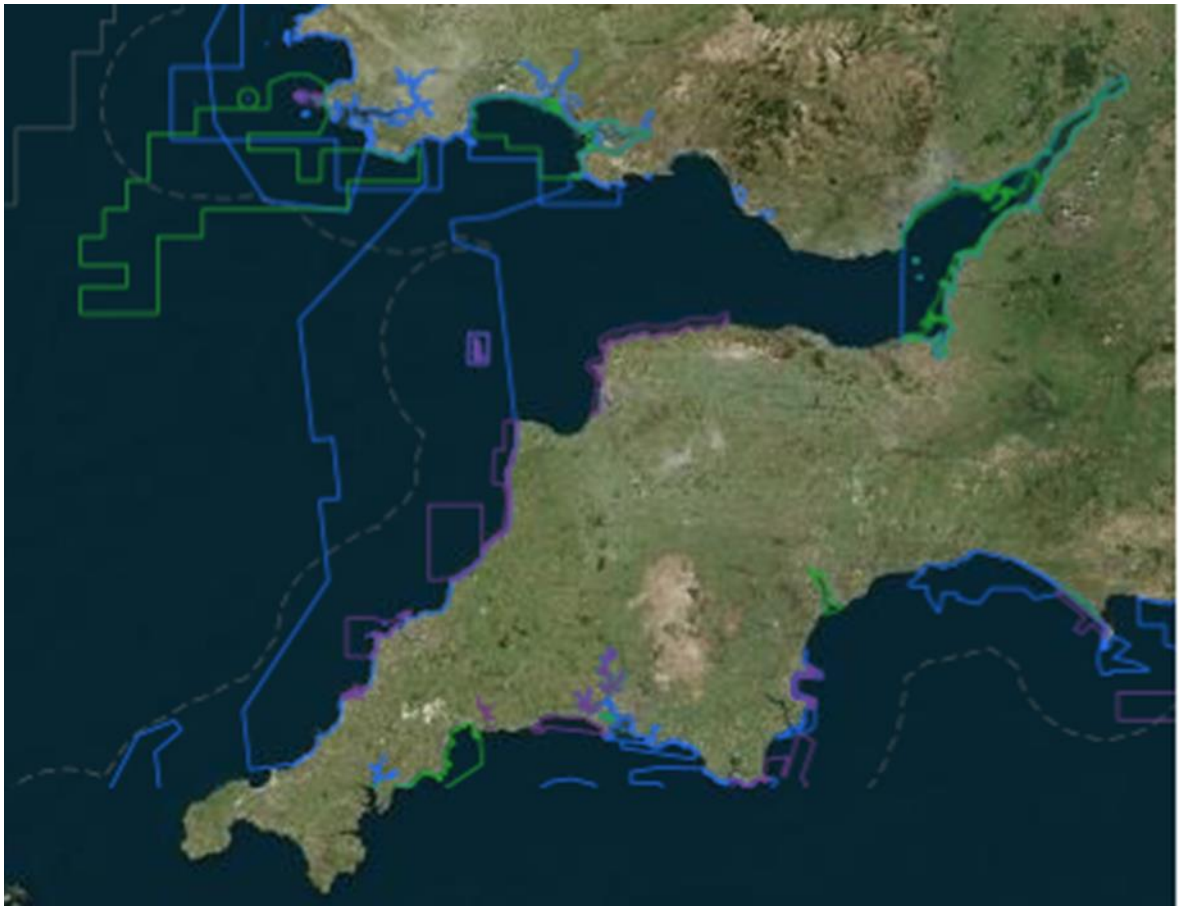


Figure 7.2 *– Locations of Marine Protected Areas on South Wales and South West England Coasts and Waters. Key – Blue = Special Area of Conservation Green = Special Protected Areas Purple = Marine Conservation Zones. Note that Swansea Bay is the only proposed lagoon site in Severn Estuary/Bristol Channel that is not in any one these areas (Image Source – JNCC, 2017).*

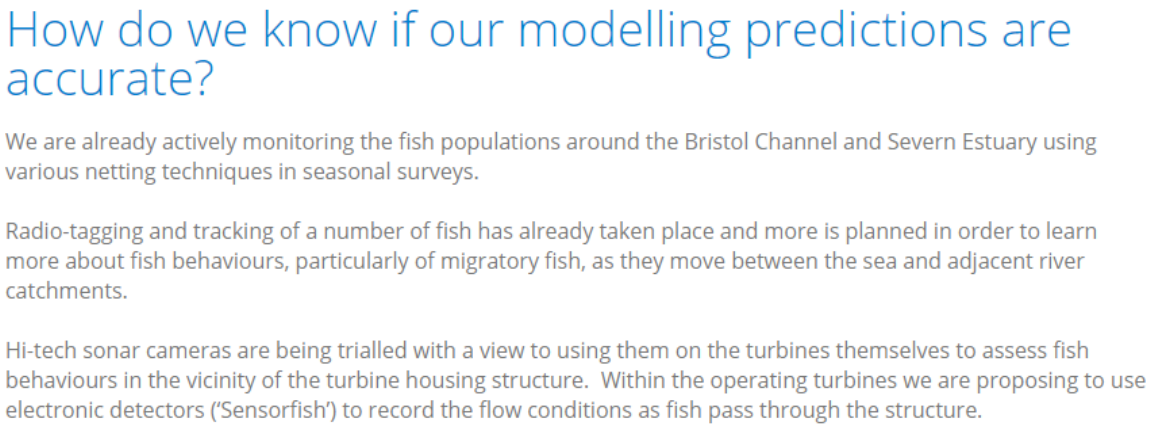
In granting Marine Licenses, NRW remained responsible for ensuring that the operations of projects corresponded with the aims of EU legislation via several directives (see Case Study chapter) including Marine Strategy, Water Framework and the Habitats Directives (NRW, 2017). For projects to be considered compliant with these directives they need to provide evidence of potential environmental impact and demonstrate that they would not "interfere with legitimate uses of the sea" (NRW, 2017) - with NRW also having to consider impacts to human health. The developer had to demonstrate that the project would not present a hazard to human life or health, as well as ensure that it would not prevent the usual engagement of activities in the sea. As Swansea Bay is not covered as a protected Marine zone via EU legislation (whereas other proposed lagoon sites are – see *Figure 7.2*) the lagoon did not have to demonstrate that the pilot project could *only take place in that location*.

The main technical risk issue emerging from the lagoon, as was the case with barrage technology (see Risk Chapter), was the potential mortality of fish and other marine life via collision with the turbine blades. One of the primary reasons that barrage technology in the Severn Estuary/Bristol Channel received opposition from environmental organisations was due to the anticipated impact on fish. In addition, a government review found that extinction of species such as Salmon were likely in the rivers cut off by the barrage wall. Therefore, NRW were tasked with examining the evidence as to whether there would be an impact to marine life and whether that impact was acceptable in terms of their legal duties and responsibilities. While dialogue continued between NRW and the

developer, the *Risk Communication* by NRW was mostly muted. As such, only those paying close attention to the details of the project would have been aware of the potential risk/hazard issues. A major change came in December 2016, after what the developers had described as an "exhaustive year of scrutiny" on the data and modelling of ecological impact, when NRW made public their estimates of 21% salmon and 25% sea trout being killed each year as a result of the lagoon (BBC News, 14.12.16). After this public disagreement the application was halted at the request of the developers in order for more evidence to be submitted – which was then completed in the summer of 2017. A marine license had still not been granted at time of publication.

Risk Attenuation and Ecological Hazard - *"We don't need the Marine Licence holding it up"*

Throughout the Marine License application process the developer claimed that any impact on migratory fish stock would be both "minimal" and "manageable" (BBC News, 10.06.15). They also claimed that the lagoon would affect 3% of all species in a *worst-case* scenario after having claimed to have conducted enhanced surveys within Swansea Bay and the Severn Estuary/Bristol Channel area. However, upon the publication of findings by NRW in December 2016, the developer sent a briefing to the Welsh Government (BBC News, 16.12.16) that claimed that these findings had "no clear scientific basis" and complained that NRW had refused to share their methodology with them. They further stated that "these scenarios give unrealistic and grossly misleading impact figures", to which NRW responded that it was surprised and disappointed by the criticism, as well as highlighting that they had shared data and methodology and had legal obligations in making their decisions.



How do we know if our modelling predictions are accurate?

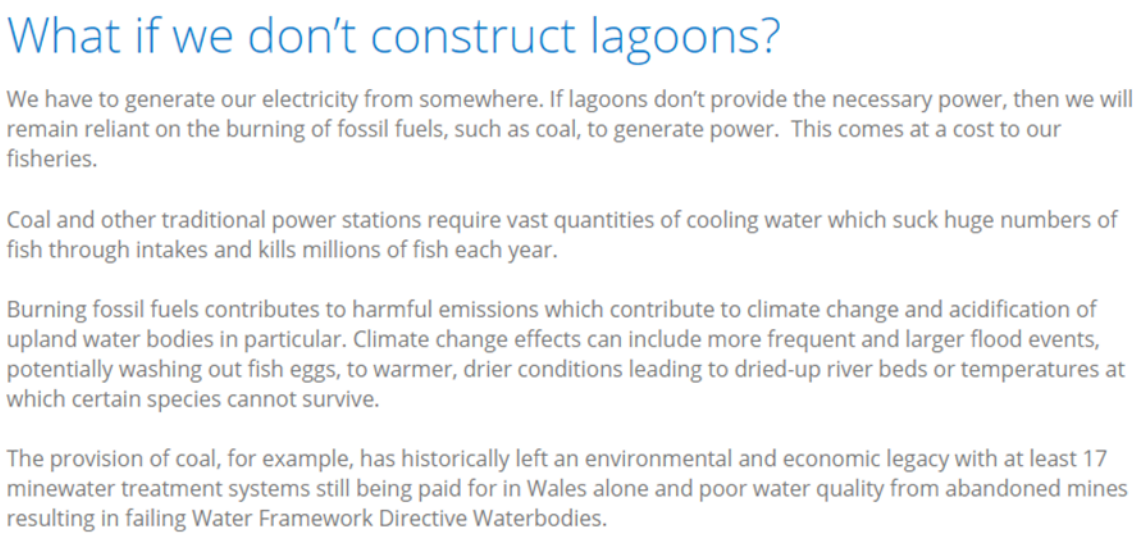
We are already actively monitoring the fish populations around the Bristol Channel and Severn Estuary using various netting techniques in seasonal surveys.

Radio-tagging and tracking of a number of fish has already taken place and more is planned in order to learn more about fish behaviours, particularly of migratory fish, as they move between the sea and adjacent river catchments.

Hi-tech sonar cameras are being trialled with a view to using them on the turbines themselves to assess fish behaviours in the vicinity of the turbine housing structure. Within the operating turbines we are proposing to use electronic detectors ('Sensorfish') to record the flow conditions as fish pass through the structure.

Figure 7.3 *– Part of the risk communication on fish taken from the developers website (Source – Tidal Lagoon Power, 2018).*

This represented the first instance whereby the developer had become directly involved within the purposeful attenuating of risk messages in relation to *Risk Communication.* Here the developer appealed primarily towards "alternative audiences" outside of decision-making authority (Peeples and Depoe, 2014), as means of attempting to influence the licensing decision. The briefing sent to the Welsh Government (which had previously signalled strong support for the project) was the latest manoeuvre in the project being used as a "political football". Various Welsh based politicians had utilised the project as a means of criticising the Conservative government operations in Wales, or else drawing upon the perceived high public support as a means of projecting "oneness" with their constituents.



What if we don't construct lagoons?

We have to generate our electricity from somewhere. If lagoons don't provide the necessary power, then we will remain reliant on the burning of fossil fuels, such as coal, to generate power. This comes at a cost to our fisheries.

Coal and other traditional power stations require vast quantities of cooling water which suck huge numbers of fish through intakes and kills millions of fish each year.

Burning fossil fuels contributes to harmful emissions which contribute to climate change and acidification of upland water bodies in particular. Climate change effects can include more frequent and larger flood events, potentially washing out fish eggs, to warmer, drier conditions leading to dried-up river beds or temperatures at which certain species cannot survive.

The provision of coal, for example, has historically left an environmental and economic legacy with at least 17 minewater treatment systems still being paid for in Wales alone and poor water quality from abandoned mines resulting in failing Water Framework Directive Waterbodies.

Figure 7.4 *– Taken from the developer's website on the same page as the risk communication on migratory river fish. (Source – Tidal Lagoon Power, 2018).*

In an attempt to attenuate risk within the Swansea discussion-scape, the developer engaged in what Bsumek et al. (2014) term "corporate ventriloquism", appropriating the 'voice' of beleaguered entities (environment, Swansea and South Wales communities) in order to further their own objectives. Figure 7.4 (above) is one such example, demonstrating how the localised risk issues were re-contextualised within wider risk issues (in this case climate change). This process aims at establishing a superseding value system which deprives the original communication (risk to migratory fish) of 'voice' by presenting it as of inferior value (Couldry, 2010). It also seemed to establish a dichotomy whereby lagoons were presented as an only 'option scenario' for mitigating the endangering object of climate change. This dichotomy was then echoed by many stakeholders who saw the project as "ready to go" and deployable somewhat immediately.

The developer's perspective was indicative of wider thinking within the discussion-scape in that the lagoon was portrayed as wholly beneficial to Swansea and a wider global environment, to the extent where the developer declared it was "inconceivable" that the project would not go ahead (Wales Online, 19.10.16). The developer's discourse within the discussion-scape advanced the ideal of "environmentally benign growth" (Dryzek, 2013) as not only possible within the case of the lagoon, but almost guaranteed. This concept of a sustainable lagoon, that was inherently beneficial to the environment, contrasted starkly with the *Risk Communication* messages from NRW which highlighted the project as a potential ecological threat. However, the developer was not alone in promoting these discourses and ideals.

Figure 7.5 *– Facebook post from Suzy Davies AM on the tidal lagoon. (Source – Facebook/ Suzy Davies AM).*

Figure 7.5 (above) is taken from the Facebook page of Welsh Assembly member Suzy Davies, a Conservative representing the South Wales West regional since 2011. While many politicians across the political spectrum (including some politicians from the climate change sceptic UKIP – see Case Study chapter) had publically supported the lagoon, the majority refrained from discussing the ongoing marine license issue. The post highlights frustration with a lack of progress in the marine license application, with "16 months" being framed as an overly excessive amount of time. The framing of the account portrays the NRW's job as a mere box ticking exercise, something which needs to be "performed" but is supposedly not meant to impede project development. This "Promethean" style discourse (Dryzek, 2013), that views the environment as ultimately changeable to human will, was another core characteristic of the discussion-scape. This arose particularly in relation to the use of the sea (see Risk chapter) and places deemed 'tainted' by previous human activity – two categories which the lagoon proposal site fitted into. The sentiment conveyed by "*we don't need the marine license holding it up*" was tacitly echoed by actors including the developers, industry and other politicians although never as explicitly stated as it was here. This particular post was perhaps the most direct example of *noise distortion* (Boholm, 2015) or else signal tampering, which sought to undermine the *Risk Communication* by presenting the procedure as another 'hurdle' to be cleared. Criticism of the Social Amplification of Risk framework (Horlick-Jones et al, 2003)

made note of the framework's restricted capacity for understanding individuals as active amplifiers and attenuators (as evidenced here) of risk messages.

Here we could posit two potential reasons for the practice of risk attenuation in this instance. First, that the perceived benefits of the project have an impact on the chosen social response. As Couldry (2010) outlines, systems which take no account of voice (i.e the reducing of NRW legitimacy to box-ticking) often utilise differing forms of rationalisation which posit higher values which "trump" the original – and so amplify benefit. As such, there are two scales of context that are particularly relevant to this case – the global and South Wales. Within the global context, the lagoon is re-contextualised as a much lesser endangering object (Boholm and Corvallec, 2011) than the constantly superseding issue of climate change. Indeed, in this instance the lagoon could be considered an Empowering Object that alleviates wider environmental degradation. Within the South Wales context, the lagoon need not necessarily be portrayed as an Endangering Object, but evidently constitutes an Empowering Object that would seemingly alleviate a number of socio-economic risk issues through its creation (see Benefit chapter). Secondly, there is a desire to present a perceived "oneness" with the individual's community, in this instance the constituency or electorate. Public displays of support for the lagoon were common from politicians throughout the UK and across the political spectrum. However, there was little discussion of the risks emerging from the project, even when the lagoon was debated in Parliament, and was largely subjected to practices of risk attenuation.

"It will be a terrific draw to the area. Environmental tourism is in its infancy, and Swansea will reap significant financial benefits if this project goes ahead.

"Yes we need to concern ourselves with all local environmental impacts, but this must be in the context of chronic overfishing of the seas, and the harmful greenhouse gas emissions gushing out from dirty power stations."

"Low carbon energy is the only way forward, and this is why lagoons make so much sense. Swansea will be well on the way to being Wales' first carbon zero city"

- ***Pippa Bartolotti, Leader of Wales Green Party*** **(Wales Online, 10.06.15)**

A key demonstration as to the extent of risk attenuation by political actors was Pippa Bartolotti's comments published in local media. Bartolotti, leader of the Green Party in Wales (which had largely opposed barrage technology), was placed in an important actor role within the lagoon's discussion-scape with many stakeholders and 'environmentally concerned' publics looking towards the party for guidance on their stance. Bartolotti's re-contextualising of ecological risks from the lagoon into a global setting establish climate change as an underlying risk issue, with the lagoon the apparent remedy. Bartolotti's comments indicate the extent to which (particularly from an organisation that had opposed barrage development) the ecological hazards emanating from the project remained undiscussed within the Swansea discussion-scape.

For many participants, there was no separation between *Risk Communication* (i.e technical communicating of hazards) and the *Communication of Risk*. While this could be constructed as a democratising of risk among the multiple actors within the discussion-scape, it also enabled what *at risk* participants saw as an attempt to ignore certain issues (see risk chapter). Due to the *Communication of Risk* being heavily influenced by the incorporation of benefit, many *at risk* participants believed there was a fixation on the "gloss" of the project and not on core issues. While *Risk Communication* maintains an inherent purpose of informing stakeholders and publics and

enabling more informed decision making (Bostrom, 2003), the *Communication of Risk* does not abide by the same normative rules (Renn, 2008). It appeared evident that the developer had made attempts to undermine the *Risk Communication* process so as to portray the project in a more positive manner. It was also apparent that the role of benefit within the *Communication of Risk* created significant motive to attenuate risk messages (see Diego and Sara – benefit chapter). The resulted in a level of doubt being established towards NRW's *Risk Communication*, which appeared to encourage more positive attitudes towards the lagoon. In addition, the time period during which the consultation had taken place between NRW and the developer meant that the *Risk Communication* process had remained mostly muted. Subsequently, the risk messages from NRW were attenuated within the thoughts of participants (and seemingly the public), which in turn fed into a process that seemed to help amplify the potential benefits of the lagoon. This chapter presents a case for the hazards and risks to be separated and clearly differentiated in communication about projects with publics and stakeholders.

7.2 "A Catastrophic Mistake" – Public backlash to risk messages

This process of risk attenuation was not always fully voluntary on the part of politicians. The following section looks at the case of two local politicians – Geraint Davies MP, a Labour representative first elected in the 2010 general election, and Byron Davies MP, a Conservative first elected in 2015. It outlines how in their capacity as elected representatives, they exercised what could be considered a responsibility to communicate risk as part of a balanced approach to assessing potential project development. However, the case outlines how direct and indirect public backlash to these messages resulted in either a change of stance on the issue (Geraint Davies) or else the loss of a significant actor status within the discussion-scape (Byron Davies).

As the lagoon began to receive wider news coverage, Swansea West MP Geraint Davies outlined several concerns regarding the proposals for Swansea's physical landscape and the local tourism industry. The proposals had yet to be included in the UK Government's National Infrastructure Plan (which followed in December 2014), but had seemingly crossed a threshold from the hypothetical to more serious consideration. As such, this prompted Davies to state in a House of Commons debate that –

"The £360m tourist economy of Swansea Bay is up 4% on last year and the [Swansea] council plans to boost growth through destination marketing,"

"Meanwhile, the proposed Swansea Lagoon could generate electricity for 121,000 homes for up to 14 hours a day.

"The idea of blighting our iconic view and future tourist economy with a power station feeding the grid with only part of the energy needs for just 121,000 homes, part of the day, is astounding.

"It would be a catastrophic mistake setting aside legitimate concerns over contamination of Swansea Bay and the depopulation of the Gower of its sands."

"Swansea should not be left with an ugly scar on its signature view that will undermine our vision of developing a high quality high value cultural and tourist destination, riding on a global brand name from our football success.

"Let's make sure we safeguard that future for Swansea Bay and don't blight our most valuable natural asset."

Geraint Davies MP, Swansea West (BBC News, 16th May 2014)

Davies' intervention in the public discussion on the lagoon was the first by a notable local figure which was largely negative on the project. The somewhat emotive language used by Davies, and in particular the labelling of the project as a "catastrophic mistake", gave a clear signal of an opposition standpoint. Upon hearing of Davies' statements, the local business club expressed 'dismay' and highlighted that the project maintained popular local business support with the lagoon being seen as key to local regeneration efforts. This intervention was the most vocal of a wider public backlash towards Davies' position on the lagoon.

With a general election scheduled for the following year, and with Davies having only held his seat in the previous election by 1.5% of total votes, it appeared that his opposition to the lagoon was not something he was willing to go against public opinion on. In the coming months Davies' stance on the lagoon changed from an initial "softening" (18th January 2015, geraintdavies.org.uk), after the developer proposed to install a visitor centre to attract tourists (and even mooted the potential for cruise liner berthing), into a stance of outright support with the MP telling news cameras outside of the House of Commons that the lagoon was "vital for a greener future" (BBC News, 26.11.2015). In the interim, Davies was returned as MP for Swansea West in May of 2015 on an increased vote share of 42.6%.

After changing stance on the lagoon, Davies continually proved to be a highly vocal supporter of the project. The project also received considerable support from other MP's in the region, with one of the most prominent backers being Byron Davies MP. Davies secured the Gower seat for the Conservatives (which it never won before) by just 27 votes after having fallen short by 6.5% of total votes at the 2010 election. Davies continued to offer a supporting voice for the project, and introduced Charles Hendry (commissioned with the independent review of tidal lagoons) before his speech on the lagoon review in late 2016. However, as the project continued to remain in limbo (after the Hendry review findings in early 2017) and with a snap UK general election having been called for June, Davies' stance came under renewed scrutiny from the new Labour candidate for the seat. Tonia Antoniazzi criticised Davies' apparent lip service towards supporting the lagoon (as well as support for a rail electrification project) by insinuating that Davies' support for the project was superficial. Davies responded that Antoniazzi's account was "full of inaccuracies and downright untruths" (Wales Online, 20th May 2017) before siding with the government on the protracted negotiation on strike price. Davies eventually lost his seat to Antoniazzi in the June 2017 general election.

"Yes, the UK government has been considering the case for the tidal lagoon. The issue causing the most concern is the 'strike price' – the deal between the developers and the government about what the nation will have to pay for the electricity produced."

"Labour would have us rush in and accept the price offered by the developers. That's not the way to go. Remember, householders throughout Wales will be paying that price through their energy bills for the next 90 years. This scheme requires a long-term commitment and I am sure consumers would want to get the very best deal possible. Just announcing you would give it the go-ahead regardless is reckless."

Byron Davies MP, Gower (Wales Online, 20th May, 2017)

While the lagoon was only a part of a wider discussion on the social, economic and political future of Swansea during the election, it was nonetheless used as a political football by the various election candidates. For opposition (Labour) candidates, the lagoon was a useful symbol of neglect and false promises made by the Conservative government since coming to power. Ruling party candidates were seemingly stuck between a rock and a hard place, as while candidates had been highly supportive of the lagoon project, there was the difficulty of publically acknowledging the lack of progression. Byron Davies' comments prior to the election demonstrated a concern for the public and consumer "value-for-money" whilst also maintaining a supportive stance. The eventual outcome of the election meant that three Labour candidates were returned as MP's across Swansea Bay, with all three being highly vocal proponents of the lagoon project – including Geraint Davies (who was now perhaps the most notable political proponent of the project within Swansea) enjoying a 17.2% increase of overall votes to a commanding 28.5% majority.

The change in stance of Geraint Davies MP and the subsequent loss of the Gower seat by Byron Davies ensured that the discussion-scape surrounding the lagoon remained largely devoid of significant and notable critical actors in the political sphere. This ensured that the framing of the lagoon in the media also remained in a positive light, and enabled the repetition of positive statements on the project to go largely unchallenged. The returning of three opposition MPs also meant that the Conservatives had lost a key toehold in the Swansea Bay area, and within the local discussion-scape. As such, the discourse of neglect from Westminster towards Swansea that had been propagated by both Labour MP's since late 2015 was able to continue on a larger scale. The lagoon then served as a symbolic example of a lack of investment in infrastructure and the local economy by the Conservative government.

Swimming Against the Tide - Communicating risk in a hostile discussion-scape

Apparent within *at risk* participants' accounts was a frustration with how they seemed to be isolated within the lagoon discussion-scape. They saw public discussion on the lagoon as overly one sided, with those that dared to communicate risk facing a public backlash. Much of this frustration was directed at the media and political actors (see risk chapter), who they felt held a responsibility to be a part of a more focused *Risk Communication* process. While it was the job of regulatory bodies to assess hazards and other technical issues and effectively communicate them, these participants felt that the media and political actors held a moral duty to provide a balanced argument. They believed that their risk concerns were not given legitimacy, an example of voice "dying shortly after leaving the body" (Watts, 2012; 16), which also caused further frustration. This process was not only frustrating, but also highly demoralising. This in turn led to a reduced desire to publically discuss risk issues, instead opting to focus time and resources on communicating with regulatory bodies and political actors.

Some participants displayed a careful consideration for how they chose to communicate risk. This tailoring of communication was often intended to seek unity with what they saw as the "community stance" and the associated environmental politics (Scott, 2010). For example, Sara (see Benefit chapter) perceived some potential risks arising from the lagoon in relation to a degrading of the quality of Swansea's beach. However, she also felt an expectation of herself to be a "good" community member, and seemed to reason with herself that her individual risk concerns were inconsequential in the face of "greater" community need. The "entangled" relationships (Andersen and Chen, 2002) in which individuals reasoned and rationalised their concerns demonstrate how the Swansea discussion-scape was a lived-in place. Within these discussion-scapes, participants had to live with the consequences of their communicative actions, and so communicating risk perceptions also harboured potential identity risk issues (see Gwyn – risk chapter). Valued professional

relationships, individual and organisational reputation all appeared to be threatened by swimming against the apparent tide of public opinion. Participants such as Diego (see benefit chapter) viewed the supposed benefits of the project as so evidently needed by the community that he viewed anyone unsupportive of the project as “stupid”. This was somewhat indicative of wider attitudes on the issue, particularly within online discussion.

The threat of stigmatisation, particularly within a working or local community context, was viewed as a risk by some participants. Previous literature within renewables siting contestations has largely discussed stigmatisation in the context of lay publics opposing projects on the grounds of proximity to a valued place (Van Der Horst, 2007) or for perceived “unfairness” (Hall et al, 2013) – most often resulting in the mis-characterisation of “NIMBY-ism” (Richman and Boerner, 2006). However, as evidenced in the case of Geraint Davies MP, there appeared to be a phenomenon whereby individuals attempting to communicate technical and hazardous risk were also liable to be portrayed as against the public good. Goffman (1963) posits stigma as a process through which an individual’s identity becomes “spoiled”. This process occurs because the individual retains a socially undesired or discredited attribute, and so the individual is classified in line with this attribute. In this instance, the socially undesired attributes are opinions/attitudes/beliefs that run contrary to the mainstream public opinion – i.e that the lagoon is a “positive”. While stigmatisation is a subjective experience that is not necessarily “felt” by all individuals who are seemingly subjected to it (Parkhill et al, 2014), there remains the intent for individuals to cause it. In the case of Nimby-ism, the process of stigmatisation classified individuals as hypocritical and selfish and therefore viewed as an obstacle to overcome (Dear, 1992). The process of stigmatisation appeared to discredit the risk communicator in an attempt to attenuate risk, or else distort signal. As such, labels and comments either focused on presenting the risk communicator as unsympathetic to the socio-economic circumstance of Swansea or South Wales (see Geraint Davies MP - this chapter) or else their knowledge of the operation of the lagoon and the apparent UK “climate” regarding renewables and the energy mix.

The following section looks at how stigmatisation was conducted in an online space. In addition, it considers the previously discussed instances of risk communication and its subsequent attenuation and negative public backlash. Figure 7.6 (below) shows a condensed discussion thread taken from a post on the Facebook page of the developer. This particular post encapsulates much of the features of the wider communication of risk that took place throughout the study. In particular it demonstrates how the contextualising of the lagoon within a global society and the threat of climate change was often used as an “overarching” risk issue that superseded all others. The risk communicators were then often stigmatised as being ignorant of these issues. The original post of the thread demonstrates a frustration with the developer’s portrayal of the lagoon in a utopian setting (see Benefit chapter). In particular it communicates a frustration with the idea that the lagoon could be used as a walking route through an area of the bay where strong winds and waves were common. Below the initial comment are four primary examples of how communicating of risk by individuals via social media was attenuated by the public.

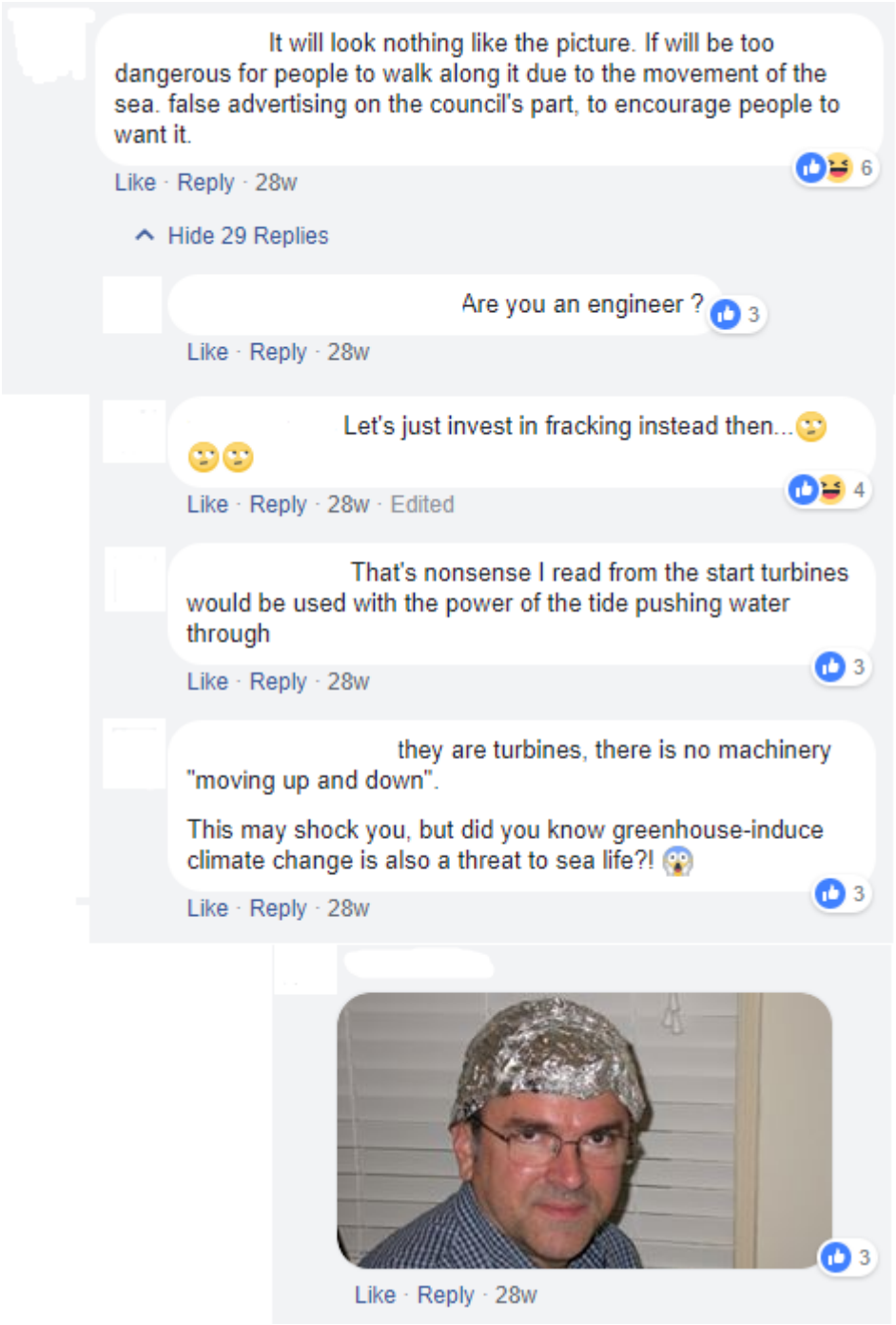


Figure 7.6 *– A comment section thread taken from a post on the Facebook page of Tidal Lagoon Swansea Bay (Source – Facebook, 2017).*

The second comment of the thread demonstrates a dismissal of the risk based on an apparent mistrust of non-technical individuals, stemming from an evident value in scientific evidence and a lesser one placed in others. The rhetorical *"Are you an engineer?"* intends to demean the account as well as establish a hierarchical value of accounts and individuals based on perceived competency stemming from educational and working background. In doing so it is intended to deprive the communicator of voice by establishing that they do not have the necessary "status" to be granted recognition (Couldry, 2010) and legitimacy. Further, it provides an initial demonstration how an absence of formal *Risk Communication* practice (Boholm, 2015) on particular issues perpetuates the idea within the public discussion-scape that no risk was present (see absent risks - risk chapter).

The third comment presents a demeaning remark that demonstrates a thought which was also present within the accounts of participants – that there was an ongoing "war" of sorts between renewable energy and fossil fuels. This dichotomous interpretation of the energy scenario within the UK was brought to life in this instance through the use of the example of fracking. This was a particularly emotive "either/or" scenario due to the Conservative government's support for contentious projects in England at the time. The comment seemingly perpetuates a "with us or against us" stance where there is little room for viewing each project by its own specific merit. Instead it re-contextualises the project as "possible" within the here and now (a thought echoed by many stakeholders) as opposed to a hypothetical project at a more rudimentary stage of development. The use of the eye rolling "emoji" (miniature symbols, pictures and facial expressions used within text messages) conveys disdain for the account and moves to entrench their perspective in a frame of ridicule.

The fourth comment seeks to attenuate the individual's risk perceptions by contextualising them as part of a wider narrative and positing the presence of an Endangering Object (Climate Change) to their Valued Object (marine life) that the account had not mentioned. As such, the interjection seeks to establish the presence of risk within a scenario that was previously perceived as risk-free, altering the Risk Relationship of the account. This would later prove to be common among the accounts of participants, with many eluding to the presence of risk via the effects of climate change as an "overarching" and more serious risk issue that superseded those at the local level. This contextualising of risk within a wider risk scenario formed the basis of a phenomenon whereby even the more informed publics and stakeholders seemingly attenuated risk issues regarding marine life due to the perceived benefits of the project.

The final comment displays a stock image of a man wearing a tin foil hat, a common practice in online discussion where images bearing words over them (memes) are used to convey or reinforce messages through a comic or graphic effect. This particular image is again aimed at demeaning the account of the individual and dismissing the risk outright by implying that the individual is a conspiracy theorist (tin foil hats are often associated in a comical sense with extra-terrestrial conspiracy theorists) and therefore their concerns are not worthy of attention due to a lack of validity. This particular comment is perhaps the most stigmatising, as it does not seek to engage with the content of the risk message but instead attenuate it through *noise distortion* by emotionally "upsetting" the receiver so that they are unable to pay attention to the signal (Boholm, 2015; 156) – in this case through denigrating and demeaning humour at the expense of the concerned individual (Parkhill et al, 2011).

This particular comment thread demonstrates some key differences between *Risk Communication* and the *Communication of Risk* as a phenomenon. Firstly, as the *Communication of Risk* incorporates a wider diversity of values and preferences (Petts, 2001; Renn, 2004), it is often liable to suffer from various forms of noise distortion (Boholm, 2015) via specific and targeted emotional "signal tampering". In opening the discussion to incorporate a far wider range of information, where competing accounts and narratives re-contextualise concerns and desires, the phenomenon does not follow the same normative "rules" (Renn, 2008) that *Risk Communication* abides by. As such, there is sufficient motive on the behalf of individuals to aim to deliberately effect risk message signals to suit their desired values, aims and objectives. A critique of the Social Amplification of Risk Framework (Pidgeon et al, 2003) posited that the framework portrayed the individual as a mere passive "node", instead of a rational actor with agency and cause to deliberately amplify or attenuate risk messages (Horlick-Jones et al, 2003). This critique demonstrates some of the reasons why individuals would attenuate or amplify risk messages. In *Figure 7.6* we have a demonstration of

this critique in action, with commentators seeking to convince other commentators as to the validity and also greater importance of their thinking.

7.3 Media Portrayals of the Lagoon

The Swansea lagoon discussion-scape could thus far be characterised by a perception of widespread public support and a notable absence of some anticipated key risk communicators. The apparent result of this absence of prominent risk communicators was that media stations were deprived of messages and opinions about risk which would ordinarily serve to inform stories. This seemed to further perpetuate the image of a "pro-lagoon" public that were indifferent (and in some cases even hostile) to risk messages and their communicators. As previously discussed, there was frustration among opposition stakeholders due to a perceived one-sided public discussion and the public's superficial understanding of the project and associated issues. Much of this frustration was targeted at media at the local level, which had become particularly active in covering the project – averaging around three stories a month between 2015 and 2018. Among local media, Wales Online and its associated tabloid newspaper The South Wales Evening Post were the most prominent outlets.

"*I would say that we've run a campaign, starting off perhaps three or four months ago, urging the prime minister to make a decision – a positive decision – because of what it could do for the area that we cover, and I've alluded to the benefits earlier. However, as far as I know there's no vested interest in making the lagoon happen. I just think it's that prospect of jobs – it's a prize worth fighting for.*

- ***Paul, Stakeholder (Local Media).***

As previously discussed (see Dale and Darren – benefit chapter), stakeholders were not removed from the discussion-scape and its rich context, but instead active participants within it. As discussed in this chapter (see Swimming against the tide), discussion-scapes are lived in places where individuals are attentive to social contours and relationships. The media, and those individuals working within it, were also attentive to this rich web of connectivity and entanglement. The above account is taken from Paul, a stakeholder in local media partly responsible for reporting on the lagoon project amongst other local issues. Like other stakeholders, Paul was seemingly not immune from the anxieties over the economy and employment that were prominent in Swansea. Instead he showed a keen awareness and evident concern for these issues, presenting caring notions for his community (see Sara – benefit chapter). Much the same as other participants, Paul viewed the concept of inward investment and "high-quality" employment an overarching benefit that was simply too good to pass up on. Local media had largely been strongly supportive of the lagoon, often portraying the project as a vehicle towards economic and social improvements. It was no surprise then that Paul was similarly optimistic in his views on the project. Of key importance here is how Paul terms his organisations coverage of the lagoon – a "campaign" on behalf of the local Swansea population urging for the government to greenlight the project.

Similarly, headlines and stories surrounding the lagoon were primarily focused on the benefits of the project. As Charles Hendry remarked at the launch of his report findings - the lagoon was such a 'good news' story – particularly at a time characterised by uncertainty and negativity surrounding renewables and the economic future of Swansea, South Wales and the UK as a whole post-Brexit. For example, the first story (top left, Figure 7.7) involves a headline alluding to the TATA steel crisis which saw the company's UK operations suffering from steep international competition, an estimated daily loss of £1 million and the subsequent threat of job losses. As previously discussed (see Case Study chapter) the Swansea Bay area, like much of South Wales, seemed to display a

lasting sense of anxiety surrounding employment, with memories of the effects of the post-2008 financial crisis particularly fresh in the mind of some participants. The positioning of lagoons as a way of providing a 'long-term' future for the steelworks was a concept that resonated positively among participants and the wider local community. Similarly, as the second image (top right) displays, viewing Wales as a 'world leader' in tidal lagoon technology struck a positive note with a majority of participants - with the fragility of Wales' private sector and a lack of manufacturing jobs cited as a significant risk for the country going forward. Therefore, the local media portrayal of the lagoon not only reinforced positive participant views of a future Swansea and their place in it, but also hope of the lagoon alleviating a number of prevailing socio-economic worries that were long standing and seemingly entrenched within the local discussion-scape.

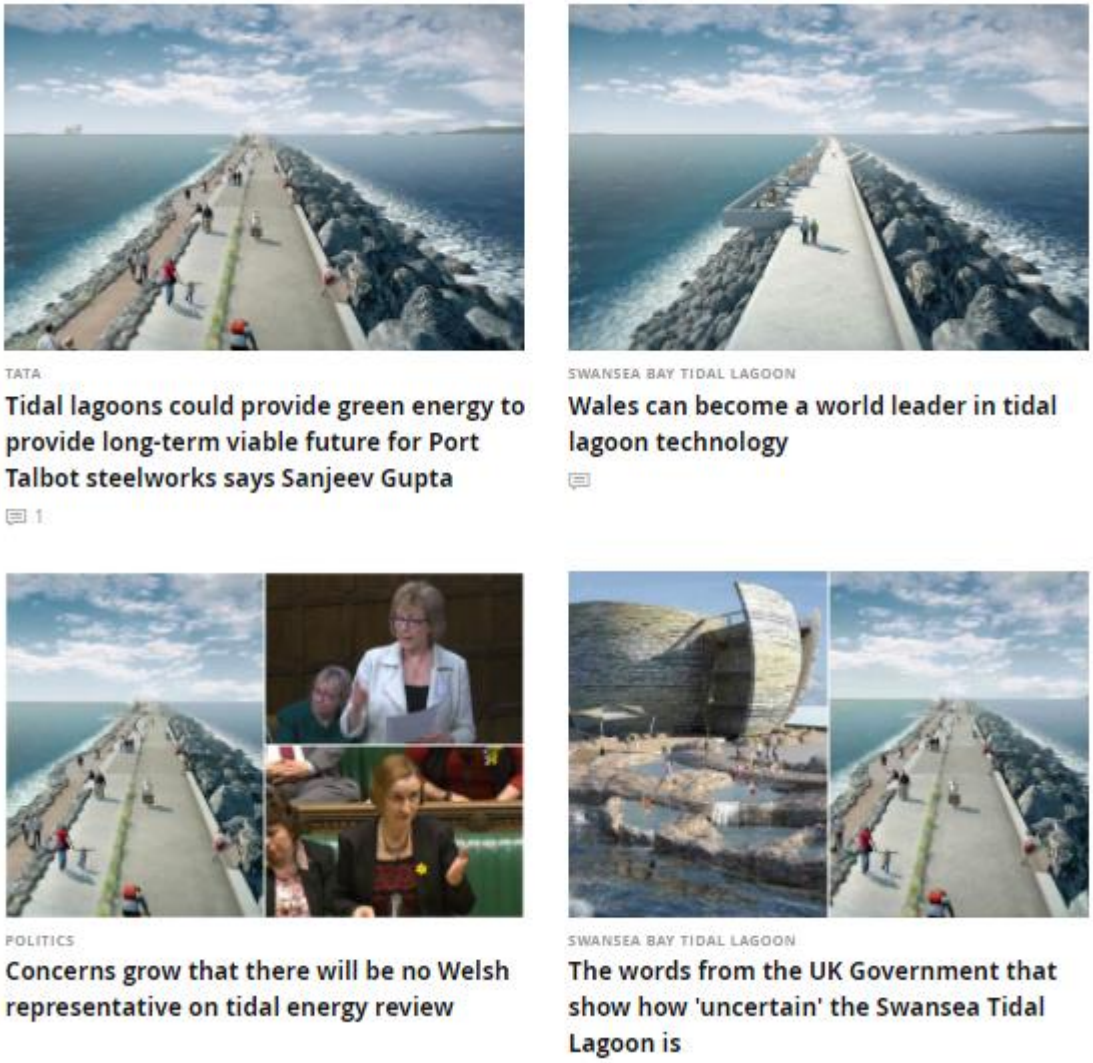


Figure 7.7 *– Examples of headlines and images utilised in stories on the lagoon (Source – Wales Online, 2018.Top left -6.4.16, Top right - 22.3.16, Bottom left – 15.3.16, Bottom right – 9.3.16)*

Common throughout media representations were a series of images presenting artist impressions of the lagoon created on behalf of the developer, primarily consisting of three images that were routinely reproduced. The clear skies, scenic walking route and futuristic design of the proposed visitors centre thus came to be symbolic images associated with the lagoon for many participants. As

such, the consistent positive visual framing of the lagoon served to further reinforce positive associations with the project. The political power dynamic, particularly between Swansea (as a marginalised city within a marginalised country) and the UK government, was also a prominent feature within local media portrayal. Common among participants was the idea that Swansea was overlooked both in the context of Wales and the UK wide, a particular frustration for local publics especially. The ongoing issues of the denial of rail electrification between London and Swansea, as well as its proposed "City Deal", were cited as further examples a city being left behind by UK Government. As such, this dynamic was frequently characterised in a Swansea (and Wales) vs Westminster light, regarding the lack of progress on the project. As the third story demonstrates (bottom left, Figure 7.7), matters such as Welsh representation within decision making were seized upon by politicians – particularly Labour MP's portraying the Conservative government's perceived lack of 'commitment' to Wales.

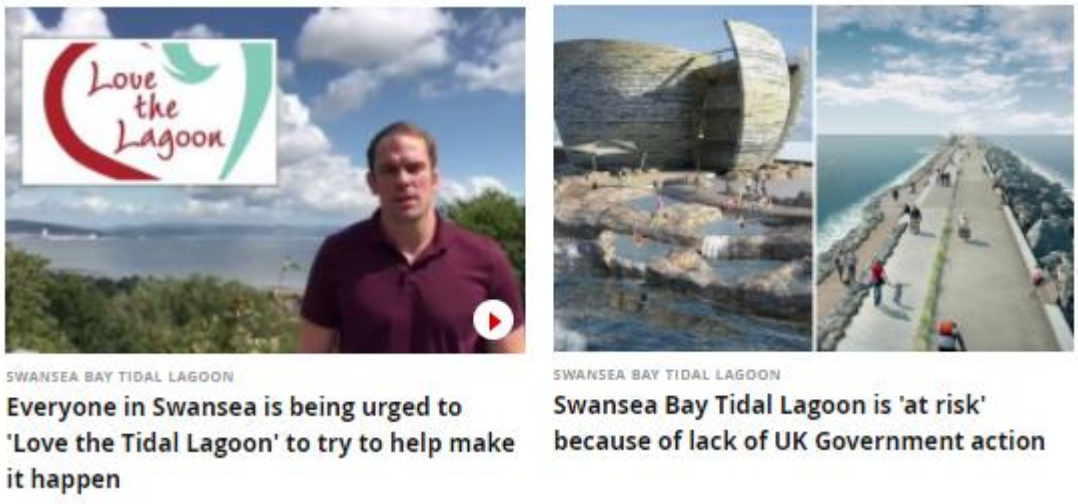
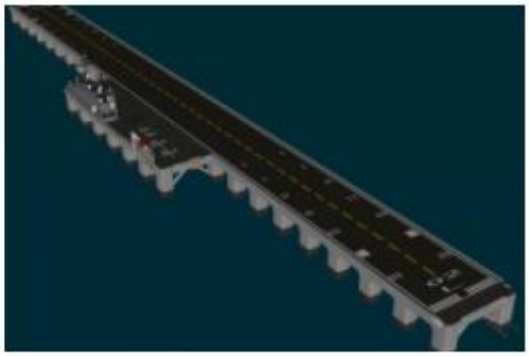


Figure 7.8 *– Further Examples of media headlines, stories and images. Note local rugby star Alun Wyn Jones in left image. (Source – Wales Online, 2018. Right – 4.9.17, Left – 6.9.17).*

A number of stories featured "pro-lagoon" risk messages that framed risk as affecting the lagoon instead of emerging from it. As Figure 7.8 demonstrates, the risks and concerns portrayed by the local media became increasingly entrenched within a supportive framing of the project. Entities such as the UK Government and even migratory fish were presented as the Endangering Objects to a lagoon as a Valued Object. This portrayal was particularly significant in the case of the marine ecological issue, with the switching of marine life from the Valued Object to the Endangering Object serving a dual purpose of attenuating the original risk message while simultaneously restructuring the perceived value structure of the Swansea public to one of predominantly anthropocentric and socio-economic concerns.

BUSINESS NEWS

Salmon and sea trout could scupper the Swansea Bay Tidal Lagoon



SWANSEA BAY TIDAL LAGOON

An engineer wants to build a floating airport in Swansea Bay tidal lagoon

Figure 7.9 *– Further examples of media headlines, stories and images. (Source – Wales Online, 2018. Left – 11.12.16, Right – 9.12.16).*

Within national media, while there was less focus on the potential benefits of the project (the long running uncertainty of the project became a main feature) there remained a significant emphasis on supposed economic and job impacts. However, risks emerging from the lagoon were far more prominent at a national level than they were at the local. Traditionally conservative media outlets were at the forefront of both "pro-lagoon" risk and anti-lagoon risk, while more economically liberal outlets highlighted investment risk. Initial reporting on the potential benefits of the project started in late 2012, with the lagoon still largely at a design stage it was claimed that the project could power up to 10,000 homes (BBC News, 24.10.12) – all while barrage technology in the Channel/Estuary region was increasingly being viewed as unlikely across government and within industry. The earlier stages of the discussion on benefit (pre-2016) remained predominantly focused on the energy creating capacity of the project, with its potential to be the "world's largest" (Guardian, 31.5.15) tidal power infrastructure. This was of particular significance given the UK energy landscape was characterised by increasing difficulty in project siting. However, a major shift occurred in the wake of the 2016 EU membership referendum; with increasing uncertainty over the economic future of the UK the focus of benefit discussion increasingly began to concentrate on the economic and job creating capacity of the project.

While the focus on employment opportunities arising from the lagoon was a key focus for local media from the early stages (and remained so throughout), the attention in national media was more concerned with the larger potential of the Swansea lagoon to act as a catalyst for future developments. Even outlets which had been largely critical of the project in the earlier stages, such as The Daily Telegraph, discussed the potential for the lagoon to "spawn" an industry (29.10.16). Headlines involving terms like "revolution" (Guardian, 8.10.16), "kickstart regeneration" (BBC News, 27.7.17) and the "answer" (BBC News, 12.1.18) to new jobs in the energy sector were symbolically powerful. These concepts were especially powerful considering the UK economy was seen as in need of change, in order to face the issues of leaving the EU single market and create new export opportunity.

With the backdrop of Brexit and the climate of economic uncertainty surrounding it establishing an 'underlying' presence of an Endangering Object, the lagoon (and the employment it was perceived to bring with it) became a Valued Object. A lack of progress on the agreement of government subsidy was largely laid at the feet of the Conservative administration ('Shameful Delays' – BBC News, 6.2.16), before the impact of the referendum vote was seen as creating "political woes" which

"heightened doubts" over the project (Financial Times, 10.7.16). By mid-2017 the presentation of the risk had become more severe, with reports of the project potentially "stalling" (Financial Times, 8.7.17) or else "not happening" (BBC News, 19.7.17) putting up to "1000 jobs at risk" (The Times, 27.12.17). As such, the positing, and subsequent amplification, of the benefits emerging from the lagoon had inadvertently created the potential for risk towards those who the benefits were intended (or at least saw themselves as benefitting) – even though the employment did not yet exist. The developer's appropriating of voice (see Figure 7.4) on behalf of Swansea and the environment presented more 'ventriloquism' directed at establishing the lagoon's image as firmly within the public's 'best interest'.

However, in spite of much of the positive public discussion on the lagoon in national media, there was also significant discussion on the apparent risk of the project, particularly financial. Much of this discussion took place within the early stages of the project's long quest for regulatory and financial approval from different stages of government, with the large majority taking place prior to the EU referendum. Particularly active was the traditionally conservative national daily broadsheet The Daily Telegraph – which was one of the few outlets to run headlines on the Citizens Advice Bureau's statement of the lagoon as "appalling value for money" (21.2.15). It later followed with pieces denouncing the project as "unable to pay its way" (13.6.15) as well as "insane" and "crazy" (6.6.15), with an opinion piece in the Daily Mail (15.4.15) describing it as Britain's "pottiest green scheme ever". However, while pieces such as this and The Sun's (5.4.16) reporting on the lagoon as a vehicle for the developer to get "£1 billion of YOUR cash on energy gamble", presenting the lagoon as risking a financial waste of money remained a minor theme in the media.

Reports of the ecological risks emerging from the lagoon had begun as early as 2015, with the BBC (28.5.15) reporting on the Cornwall quarry case, but remained largely muted whilst the discussions between the developers and NRW remained ongoing, with it receiving more coverage in late 2017 (BBC News, 4.9.17). While much of the discussion on the lagoon as a financial mistake had subsided in the wake of the EU referendum vote, a late arriving risk communicating actor emerged in Dale Vince – the owner of renewable energy company Ecotricity – who cited the lack of a competitive tender as a risk to taxpayers (BBC News, 13.9.17), with Ecotricity a primary competitor to the developer in the future lagoon industry.

The media coverage of the lagoon could be characterised in accordance with the changes in the socio-economic and political context. While the local coverage remained predominantly focused on the benefits of the project, largely emanating from Swansea's sustained concern with the economy and employment, the national coverage shifted from that of concern with the UK's energy mix (grounded in a perceived 'hostile' climate to renewables) to that of a potential manufacturing and export industry (in the wake of the EU referendum) – which in turn seemingly attenuated the risk messages surrounding the cost to the taxpayer from the project.

7.4 Social Amplification of Benefit

As Kasperson and Kasperson (2012; 128) highlight, hazards interact with societal elements in ways that are often unanticipated by technical conceptions of risk – creating amplified hazards. However, this thesis posits that this occurs not only for hazard and risk, but also for benefit. As we have seen, the resulting discussion-scape surrounding the Swansea lagoon was largely positive and hosted few dissenting and critical voices. The process by which this emerged was a result of a number of factors including a social amplification of benefit with a simultaneous attenuating of risk messages. The following section breaks down this process into five components drawn from the Social

Amplification of Risk Framework (Kasperson et al, 1988) – Absent Critical Voices, Filtering, Repetition of Statements, Mobilisation of Latent Risk and Symbolic Factors – before exploring some key differences between the amplification of risk and benefit.

Absent Critical Voices - In their analysis of risk communication surrounding the Moirans-en-Montagne fires of winter 1995-6, Poumadère and Mays (2003) outline how a socially and geographically unique context generated hypothesis deeply embedded within place. Beginning in November 1995 and lasting till February 1996, a number of seemingly spontaneous fires perplexed the small village and lead to the local public holding the belief that a series of buried high voltage lines were to blame (it subsequently turned out to be the work of a pyromaniac). The Gendarmerie had largely remained muted on any criminal hypotheses as they shadowed a small number of suspects, resulting in a tightly contained discussion-scape where the amplification of certain risk messages established a firmly held local hypothesis. The following of police procedure had not intended to leave the discussion-scape devoid of a crucial adjudicating actor, but its absence had nonetheless produced a notable affect.

In the Swansea Lagoon case the absence of NRW communication on the risk/hazard potential to local ecology had been as a result of procedure – an open dialogue period between NRW and developer had been followed. Only after the developer had stated it had completed submitting evidence could NRW produce their findings. In this period of somewhat limited risk communication, a hypotheses localised within the Swansea context had been born. The lagoon was constructed as an environmentally benign saviour to the environment (through renewable energy), Swansea's image (as a forward thinking iconic landmark) and to the continued sustainability of the local community (through high quality employment and secondary economic impacts). At the time a highly critical lens from which one would expect new projects to be analysed had made way for a somewhat rose tinted one. The lagoon project had successfully appealed to local individuals' identities in their connectivity to place (image), community (economy) and the wider world (energy) and created significant motivation for risk messages to be attenuated whilst messages of benefit were seemingly amplified.

The Filtering Process - As evidenced throughout this chapter, risk messages in relation to the lagoon came to produce public responses (or backlash). This either degraded sets of vitally important relationships (an MP and his constituents) of significant meaning or public image (through online ridicule and stigma) and the associated connection with one's social standing and self-worth. In both instances, communicating risk in relation to the lagoon became a risk to differing aspects of identity through the endangering object of a critical actor (in these cases lagoon supporters) amid a *risk relationship* of public opinion (or at least collective imaginations of it) that was firmly in support of the lagoon. Subsequently then, there was firm motivation for study participants (and potentially highly influential discussion-scape actors) to not engage publically in risk communication. This lead to the virtual absence of risk in communication, and a discussion-scape that largely took on the appearance of a pro-lagoon echo chamber.

Repetition of Statements - As Kasperson et al. (1988; 180) highlight, factual statements that are often repeated, especially when done so by differing sources, generate increased belief in their accuracy. The absence (at least publically) of noteworthy or else influential critical actors within the Swansea discussion-scape contributed towards a process where the often repeated "potentials" of the lagoon project (particularly surrounding employment, economic spin-off and energy generation) seemingly became the default expected outcomes. The repetition of benefit messages seeped into the surrounding underlying socio-cultural conditions of Swansea – notably in relation to a long

standing employment anxiety – and so the lagoon came to seemingly hold an unchallenged status as "for" the public good.

Mobilisation of Latent Risk - In obtaining its status of 'in' the public good, the lagoon was largely viewed as beneficial due to its perceived potential to address potential economic downturns and subsequent drops in employment. The lagoon discussion-scape unfolded in a period of both political and economic insecurity arising from the backdrop of the fallout of the EU membership referendum and the ongoing financial troubles of TATA Steel. Participants then were seemingly overloaded with an array of information pertaining to emerging potential risk issues. As Kasperson et al (1988; 184) highlight, large volumes of information have a tendency to mobilise latent risk fears and enhance memories of previous accidents. As previously outlined (see Benefit chapter), the notion of "caring" for the surrounding community was a valued aspect of participant identities and at times seemed to dictate participant responses in that they felt duty bound to do right by others. These "entanglements" (Andersen and Chen, 2002) then could be viewed as what Boholm (2015) considers to be a type of noise distortion where the receiver is in a state of emotional upset and so incapable of properly receiving risk messages. The "mobilising" of these latent worries and concerns had a stark effect on how participants came to see benefit and risk in relation to the lagoon.

Symbolic Factors – As evidenced in the latter part of this chapter, the lagoon project was embedded in a social context where Swansea's relationship with the rest of the world (and participants understanding of it) was of key importance. Swansea was largely viewed as peripheral in both Welsh and UK contexts, and so seemingly ignored by both Welsh and UK governments. The lagoon project was viewed by participants as an opportunity for Swansea to obtain what they were overdue – investment, 'regeneration' and a flagship project through which the city could identify. National media coverage in the early days of the lagoon highlighted it as an opportunity for 'revolution' and to 'kickstart regeneration'. The lagoon also received significant positive local media attention, including coverage of the "love the lagoon" campaign that drew on local sporting stars (including Wales and British and Irish Lions rugby icons) to convey positive messages. Delays in the project also created an opportunity to cast the UK government as uncaring and unsympathetic to Swansea's needs.

Differentiating Risk and Benefit Amplification - In the aftermath of risk events, those directly involved in projects (particularly those responsible for maintenance and safety) have a tendency to be involved in how the risk event is communicated and to mitigate the potential for secondary "ripple effects" (Kasperson et al. 1988; 182) which may produce lasting negative perceptions. The precautionary principle indicates that one needs to take action when an activity generates threats to environment and people (Lofstedt, 2009; 175). In Poumadère and May's (2003) case study, the actions of the local energy provider, in sending experts to investigate, had significant impact upon the local discussion-scape by indulging the local hypothesis of buried high voltage power lines being responsible for the fires. As later emerged at the trial of the suspected arsonist, fire experts suggested that the energy provider had "misled" the local public and created a large issue where there had need not be one (Poumadère and May, 2003; 217). In this instance the energy provider was seeking to be pro-active in its response to the emergent risk issue, and in the absence of an influential critical public actor (in this case the Gendarmerie) a social amplification of risk occurred.

As the Moirans fire case highlights, the absence of an individual or body to provide a critical counter-argument can lead to a growing repetition of risk messages resulting in amplification. The Swansea lagoon case was largely absent of these counter-arguments due to the apparent identity risk issues to potential influential actors. Also, adherence to procedure meant that NRW could only communicate so much on the ecological hazards whilst the marine license application remained

ongoing. Those actors who had already sought to engage in risk communication found themselves changing track as they swam against the strong tide of public opinion, as did local media outlets seeking to align themselves with their audience by producing benefit messages. As Kasperson et al. (2003) highlight, social risk perception is a product of diverse interactive processes – as this case has outlined.

The difference then between amplification of risk and benefit then is that the developer has significant motivation to amplify the supposed benefit (to get the local public "on board"), while a developer amplifying risk within their own project would be an oddity. In the Swansea lagoon discussion-scape the developer was able to cast themselves as the primary experts in relation to the project, and the resulting enthusiasm with which the project was seized upon meant that other experts and scientists were side-lined within the hostile discussion-scape. The developer's castigating of NRW and their hazard assessment on the lagoon's operations provided the necessary 'contradictory evidence' by which supporters of the lagoon called those scientific results into question (O'Brien, 2000) and so further attenuated risk messages. As previous chapters (see Benefit chapter) have attested to, the lagoon was largely received by participants as potentially beneficial – and largely in relation to benefit messages that the developer had generated or propagated.

No component alone may be enough to ensure amplification of risk (Kasperson et al, 2003) - or in this case benefit. Instead a number of components all coming together within a temporally specific socio-cultural and geographic context were what established a socially amplified benefit that seemingly cast the lagoon project as the apparent answer to Swansea's economic and cultural woes. While this thesis agrees that there is no single "true" baseline of risk (or benefit) in relation to a certain event (Pidgeon, 1999; 149), it also acknowledges that the amplification of supposed benefit was strong and tangible enough in order to convince others to attenuate their own risk perceptions (see Sara – Benefit chapter), belittle or castigate others (see this chapter) or convince experts to not engage publically within the Lagoon's unfolding discussion-scape.

7.5 Discussion

This chapter explores how risk and benefit were communicated in relation to the Swansea lagoon. The resulting discussion-scape was largely absent of prominent risk communicators and risk messages – instigating a key line of theoretical enquiry. This occurred for two primary reasons. First, in this sample many participants came to view the lagoon as a significant tangible benefit to themselves, improving the ways in which they understood their meaningful connectivity to the world (see benefit chapter). Second, it was mostly not seen to degrade existing meaningful connectivity, and so did not constitute a risk as Valued Objects were not seen as threatened (see Absent Risks – risk chapter). However, it became apparent that many participants did not seem to critically examine or consider the assertions made on the lagoon, most of which originated from the developer and attested to supposed benefit. In addition some participants expressed the view that risks and hazards resulting from the lagoon were ultimately worth bearing in order to obtain these benefits (see Diego – benefit chapter). Not only did this create identity risk for some participants (see Jack and Gwyn – risk chapter), but it also resulted in some participants attenuating their own risk concerns (see Sara – benefit chapter). Subsequently, the analysis here focuses upon how risk and benefit had been communicated in relation to the project as a means to understand the background to participants' accounts.

The chapter began by underlining a need to separate *Risk Communication* and the *Communication of Risk*. The process of *Risk Communication* in this case was an exercise undertaken by NRW to assess and communicate potential hazards resulting from the construction and operation of the lagoon. The *Communication of Risk* was the broader phenomenon of the discussion on lagoon related risk, forming a part of the localised Swansea discussion-scape. While the *Communication of Risk* ultimately became heavily influenced by the discussion of potential benefits arising from the project, the *Risk Communication* was a process with a strict remit. As discussed, the developer engaged in attenuating this *Risk Communication* and with the objective of undermining NRW. This phenomenon, which also included the input of political actors, sought to re-contextualise hazard and risk into the "larger picture" of global threats from climate change. There have been notable calls for risk communication to attain a more democratic approach, where all kinds of actors should be included in the characterisation process (USNRC, 1996). However, there are difficult questions to answer surrounding what "weighting" scientific knowledge and expertise should be granted against that of stakeholders and other locally affected people (Lofstedt, 2009). In this case NRW had engaged in patient dialogue with the lagoon developer, and had largely withheld from communicating their findings while waiting for the developer to finish submitting evidence. Once NRW were forced to publically communicate the resulting ecological hazards, the response was largely attenuating of risk messages by the developer and some political elements that cast the marine licensing process as a box ticking exercise.

This remains problematic. Regulatory bodies (i.e NRW) hold a duty to perform their roles in-keeping with relevant legal frameworks, and hold a responsibility to effectively communicate potential hazards. This process of *Risk Communication* abides by normative rules (Renn, 2008) which aim to foster trust on behalf of the public towards such regulatory bodies as well as appropriately inform potential stakeholders. However, the previous chapter and this chapter has evidenced how the broader *Communication of Risk* did not abide by these rules. Within this *Communication of Risk*, the developer engaged in purposefully attenuating risk messages as a means to promote public support for the project, as well as attempt to undermine the relevant regulatory body. As Lofstedt (2009; 177) points out "one clearly needs to take into account the consequences of downplaying scientific results in the setting of regulations" as "ignoring science can be perilous".

It has been highlighted (Lofstedt, 2009) that not focusing on the scientific information at hand may result in risk amplification, however in this instance it seemingly resulted in the attenuating of risk messages. This thesis presents a case that is problematic for developers to downplay the scientific findings of regulatory bodies, particularly when potential benefits of projects have already been widely promoted. While the public, stakeholders and "local knowledge" should be engaged, and a dialogue process is highly preferable to one way systems of risk communication, this must not be confused with validating the side-lining of scientific findings. As previously discussed (see Jack - risk chapter), some participants saw an attenuation of potential risk from the technical issues of the project in order to attain supposed benefits. So while marine renewables may hold significant identity benefits, such as building place distinctiveness (Devine-Wright, 2011), and offering economic benefit in marginalised places (Johnson et al, 2013) there also remains a potential for exploitation through a Social Amplification of Benefit.

It is problematic for bodies responsible for providing relevant risk/hazard assessments to be undermined in the public domain. The communication of risk and benefit by the developer to "alternative audiences" (Peeples and Depoe, 2014) raised important questions for theoretical enquiry. For instance, how was risk and benefit communicated so that it lead to participants holding relatively strong positive perceptions towards the lagoon? Many participants saw the lagoon as an

economic catalyst for Swansea and so the potential employment appeared to help alleviate pre-existing risk concerns. As a more democratic process, the *Communication of Risk* acknowledges risk perception and meaning making as a subjective experience, and so is more attuned to the "social context" (Johnson, 1987; 103). In the same way that hazard and risk interact with social contours to amplify (Kasperson and Kasperson, 2012; 128), so to too does benefit. In this instance it appeared that the developer attempted to utilise these social contours for their own advantage, projecting the lagoon as addressing deep rooted anxieties such as unemployment and the economic downturn. The attenuation of *Risk Communication* messages by the developer aimed to utilise these alternative audiences (ie the Swansea public) as a tool through which to exert political power (see Suzy Davies AM – this chapter) over the *Risk Communication* process.

The absence of critical or dissenting voices in the discussion-scape was in part due to the experiences of early risk communicators. Participants highlighted how communicating lagoon risk was a balancing act where the consequences of messages needed to be considered. In these instances risks to identity were present through what participants saw as a likely degrading of existing relationships (see Gwyn – risk chapter) as a result of conveying risk messages. The absence of critical actors to publically question emergent hypotheses has been highlighted as a contributing factor towards risk amplification (Poumadère and Mays, 2003). This phenomenon seemed replicated in Swansea, but instead in relation to benefit. The resulting large volume and repetition of benefit messages seemingly induced a process where the accuracy of the statements were enhanced (Kasperson et al, 1988) and so came to be seen as the default likely outcomes of the project. Many of these benefit messages were highly attentive to the "social context" – viewed as just as important (or more so) as the technical issues of the project (Johnson, 1987). These messages contained many "symbolic factors" (Kasperson et al, 1988) that played on latent risk issues present within the Swansea context. Deep-rooted worries surrounding unemployment and the potential for economic downturn, along with communal image and esteem issues and risks from climate change were all posited as issues with a "superseding value system" (Couldry, 2010). These issues were essentially seen as superseding certain lagoon risk issues, re-contextualising them within broader systems and landscapes that benefitted a more pro-lagoon stance. These superseding issues played heavily on emotional connectivity and participants' relational identities, utilising the "entanglements" (Andersen and Chen, 2002) held with community and the environment (see Sara – Benefit chapter). This could be considered a form of "noise distortion" (Boholm, 2015) where an emotionally impacted individual may not be able to properly attend to certain risk messages.

The resulting process could largely be characterised as a dynamic of risk attenuation and simultaneous benefit amplification, with each feeding the other. A number of contributing factors (including absent critical actors, repetition of messages, filtering, mobilising latent risk issues and symbolic factors) came together within a unique socio-cultural and temporal geographic context to produce a *Social Amplification of Benefit*. Identity was key throughout this process in helping guide participants through the various commitments and entanglements they held to other individuals, communities, places and practices. Subsequently the benefits to identity from the project seemingly "won out" for a majority of participants over technical and expert risk/hazard assessment as well as their own risk perceptions and thoughts. Social amplification of benefit can be acknowledged as a process whereby superseding value systems are utilised to render individual risk perceptions as unworthy or irrelevant in the face of greater need, which may (as in this case) result in individuals opting not to engage in risk communication for fear of being exposed to identity risk issues.

8. Conclusion

To facilitate a transition to a low-carbon way of living, the infrastructure that generates the energy we use will have to change. Renewable Energy Infrastructure is a key component in ensuring a low-carbon transition, however, its deployment has on occasion been problematic – with public responses to siting contestations displaying signs that projects are not always supported. The forced siting of projects with little regard for local public attitudes has been posited as unsustainable and detrimental to the long-term transition towards a low-carbon future (Wustenhagen et al, 2007). Initial theorisations on this issue presented those in objection to projects as irrational, emotional and self-motivated at the expense of a broader, more rational public (Bell et al, 2013). This thesis aims to provide better understanding and explanation of such individuals which takes into account their meaningful connectivity to the world.

The research utilises a risk to identity approach as a means of providing such understanding. By focusing on how individuals meaningfully connect with the world, and how they consider these connections and their associated values threatened, it is possible to elucidate a novel way of thinking about complex dynamics of a siting "contestation". Using relational thinking on both risk (Boholm and Corvallec, 2011) and identity (Andersen and Chen, 2002; Mason, 2004), it is possible to explaining the various moral conundrums that we may face (Henwood et al, 2016) in relation to energy futures. Subsequently the research sought to attain answers to the following questions –

1. How was the Swansea Bay Tidal Lagoon perceived as a risk to identity?

   1b. Were these risks anticipated to change? If so then how?

1. How was the Swansea Bay Tidal Lagoon perceived as a benefit to identity?

   2b. Were these benefits anticipated to change? If so then how?

2. How were these risks and benefits communicated?

8.1 How was the Swansea Bay Tidal Lagoon perceived as a risk to identity?

This question was addressed in Chapter 6, *Risk and the Lagoon*. It largely drew on the accounts of members of local opposition groups situated in both Swansea Bay and the Lizard Peninsula (Cornwall) in addition to some stakeholders within South Wales. Risks to identity are ways in which individuals perceive potential harm to different types of meaningful connectivity they share with the world around them. Changes in these relationships, when considered to be detrimental, presents risk to identity; supporting the findings of previous identity risk research (Baxter and Britton, 2001).

How the lagoon was perceived as an identity risk can be broken down into three types based on the kinds of meaningful connectivity that was threatened; social risk, more tangible risk and less tangible risk (see Figure 8.1). These risk types differed in how they were thought about by the participant, with the more tangible risks relating to firm understandings and consequences, while less tangible risks related more to abstract feelings. Situated between these were social risks, which carried both highly tangible and less tangible risk elements. Figure 8.1 represents the types of identity risk perceived in relation to the lagoon, utilising the discussion-scape model discussed earlier (see Figure 2.7) as an analytical framework. It is important to note here a change in terminology between the two figures, with 'More Tangible' in Fig 8.1 representing 'Spatial' in Fig 2.7, and 'Less Tangible' in Fig

8.1 representing 'Symbolic' in Fig 2.7. The reason for this change in terminology is that Figure 2.7 represents a broad conceptualisation of the relevant issues, while Figure 8.1 represents a contextualised fit.

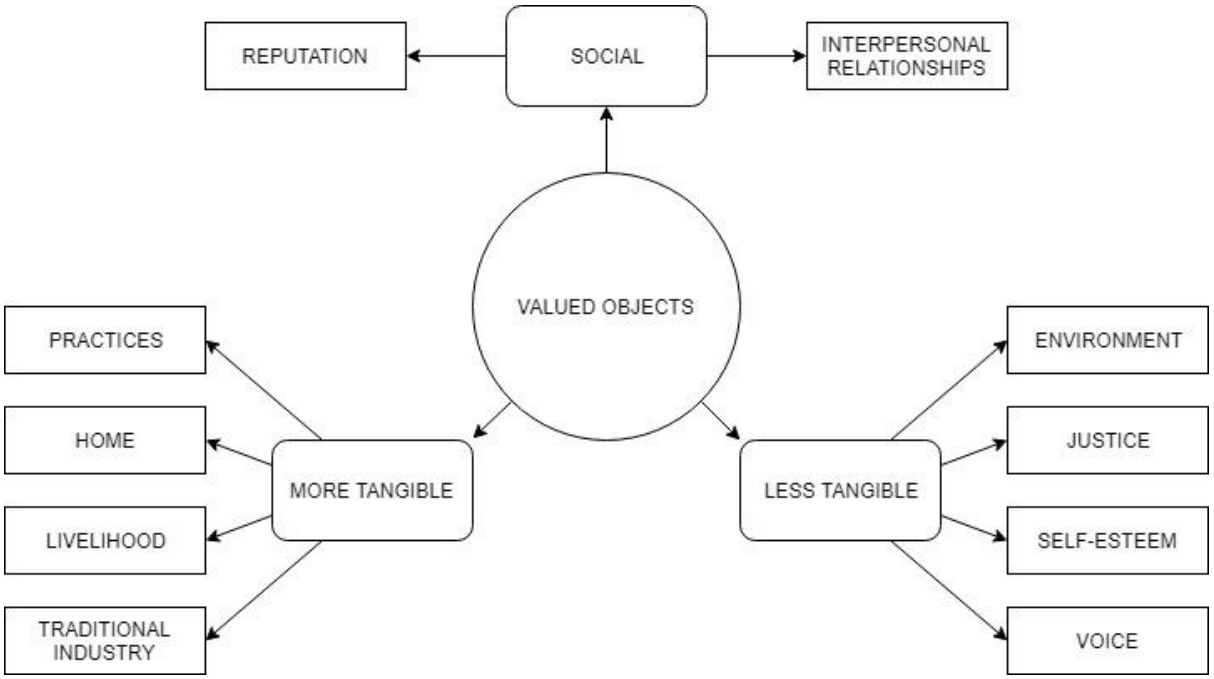


Figure 8.1 – Participant's Valued Objects that were threatened by varying Endangering Objects linked to the Lagoon.

The more tangible risks including threats to practices, home, livelihood and traditional industry. Identity is partially constructed through discursive practice between individuals and objects, people, places and culture. Some practices we share deep entanglements with (Henwood et al, 2016), and so extracting ourselves from these meaningful practices is considered a risk. Identity risks arising from the lagoon in relation to practice largely revolved around hobbies of participants, but also included social interactions with valued community members. By presenting an ecological hazard to migratory river fish, the lagoon was viewed as an Endangering Object to participants' capability to fish local rivers and connect with other members of the angling community. Even the most mundane practices help shape identity (Henwood et al, 2016) and help derive an understanding of a meaningful life. Connectivity to everyday entities such as home (physical and abstract) and livelihood were Valued Objects threatened by the lagoon's potential supply chain. The large scale quarrying activity proposed for a site a few hundred metres from a participant's home potentially meant losing the existing understanding of what home was, as well as detrimentally affecting their livelihood. Practices also help us differentiate ourselves from others (Roberts and Henwood, 2018), particularly in relation to history and tradition. The historic cultural connections of these practices are important to identity as they provide meaning, which individuals project themselves into (Hall, 1992). Some participants felt a deep connection to Cornwall's traditional fishing industry, which formed one of the few remaining cultural practices that was still a staple of everyday life. This industry was considered a Valued Object, threatened by large scale industrial activity from the quarry re-opening as participants envisioned the disruption making fishing untenable.

The less tangible risks included threats to the environment, a sense of justice, voice and self-esteem. Identity is also constructed through imagination, particularly in relation to abstract concepts such as morality, places and self-worth. The wellbeing of the environment is highly meaningful to identity, particularly within valued places (Witter and Satterfield, 2018; 6). It presents the potential for a kind of 'hidden loss' (Witter and Satterfield, 2014) as its meaning to the individual cannot be easily quantified. On a superficial basis, place is evidently a tangible entity due to its physical nature. However, place also involves abstract imaginations and understandings which serve to differentiate it from space (Tuan, 1979). The lagoon was perceived as an Endangering Object to participants' abstract connection to the environment through both its supply chain and operating. Particularly important was how participants considered their quality of life in relation to the environment, with some placing heavy emphasis on its preservation as key within their connectivity to place. Ethics and morality are intrinsically meaningful to identity (Mason, 2004; 163) and the concepts of justice and procedural fairness are also known to be critical concepts within energy siting contestations (Murphy and Smith, 2013). Some participants viewed the developer as engaging in unethical practices which were deemed to threaten their sense of justice and fairness. In Swansea, participants saw attempts to undermine the Marine licensing process, while participants in Cornwall saw an attempt to 'streamline' planning procedures in favour of the quarry re-opening (Blowers, 2010). Voice is how individuals construct meaning (Dolar, 2006) and how they make these perspectives clear (Couldry, 2010). To be listened to and heard is important to identity, as it the vehicle through which we construct it. Participants felt that the developer ignored their own and other risk concerns and engaged in the active attenuating of risks. This negatively affected participants' meaningful connectivity to abstract entities such as a sense of justice, fairness and their sense of self-worth. To be listened to meant that they, and their concerns mattered, and so the denial of voice can be considered an identity risk issue.

Social risks included threats to participants' existing interpersonal relationships as well as their reputation. Identity is embedded within sets of relationships (Mason, 2004; 177) which we draw upon to understand ourselves and relevant actions to take (Andersen and Chen, 2002). Communicating on risk in relation to the lagoon was seen as an identity risk because it was seen as harbouring the potential to undermine sets of important professional relationships. Stakeholders looking to communicate risk were wary of doing so, and withheld from doing so publically for fear of detrimentally affecting their own or their organisation's reputation.

Were these risks anticipated to change? If so then how?

This question was addressed in the third analysis chapter (*Risk and the Lagoon*) and drew largely on the same accounts of local opposition group members in Swansea Bay and the Lizard Peninsula (Cornwall) as well as stakeholders in South Wales. While the thesis did not attain particularly deep answers to this question, they did outline some basic understandings of how risk was anticipated to change. Participants in Swansea Bay who were un-supportive of the lagoon (excluding at risk participants) stated that they would "get used to" the lagoon's being there – highlighting that Swansea had undergone change and that this was an expected part of living in a city. As such, these participants anticipated that their risk concerns regarding visual aesthetics and changes to the beach would dissipate with time. At risk participants in Swansea Bay outlined that in the event of the lagoon becoming a reality, risk would continue to be present in the form of the further lagoon proposals put forward by the developer.

Participants had firm understandings of, and were more than capable of elucidating their risk perceptions. However, asking people directly about the future directly can be challenging as it often

appears abstract (Henwood and Shirani, 2012). Qualitative longitudinal research may have presented one such way to address this problem, as it utilises "past experiences and anticipated futures" (Henwood, 2019; 145) to help provide framing to such questioning. Another way of potentially dealing with this issue would be the use of prompts to bring some tangibility to this issue. Despite the use of cultural probes the research methods encountered difficulty in exploring how participants considered these risks to be changing over time or how these risks would transition in the event of them actualising. As discussed previously (see methods section), the stakeholder and opposition group rounds did not feature the use of cultural probes. These dissenting accounts thus did not feature the use of exploratory methods that were able to elucidate deliberation in other participants.

8.2 How was the Swansea Bay Tidal Lagoon perceived as a benefit to identity?

This question was addressed in the fifth chapter and largely drew on the accounts of several participants located within the Swansea Bay region. It largely drew on the accounts of stakeholders and publics within Swansea Bay, as well as some from the extended South Wales area. If we consider identity to consist of sets of relationships that constitute our meaningful connectivity to the world, then benefits to identity are the ways in which we understand these relationships to be improved by something. In terms of the relational approach, for something to be considered an identity benefit there needs to be an identity related Valued Object that is improved by an Empowering Object. Connecting these objects is the individual's understanding of this Benefit Relationship. The ways in which the lagoon was seen as a benefit to identity can be broken down into three broad types based on the kinds of meaningful connectivity that were seen as to improve – Symbolic, Social and Tangible. Figure 8.2 represents the types of identity benefit perceived in relation to the lagoon, utilising the discussion-scape model (see Figure 2.7) as an analytical framework. It is important to note here that 'spatial' in Figure 2.7 takes on a broader meaning in Figure 8.2, representing more tangible elements including physical entities in addition to space and place.

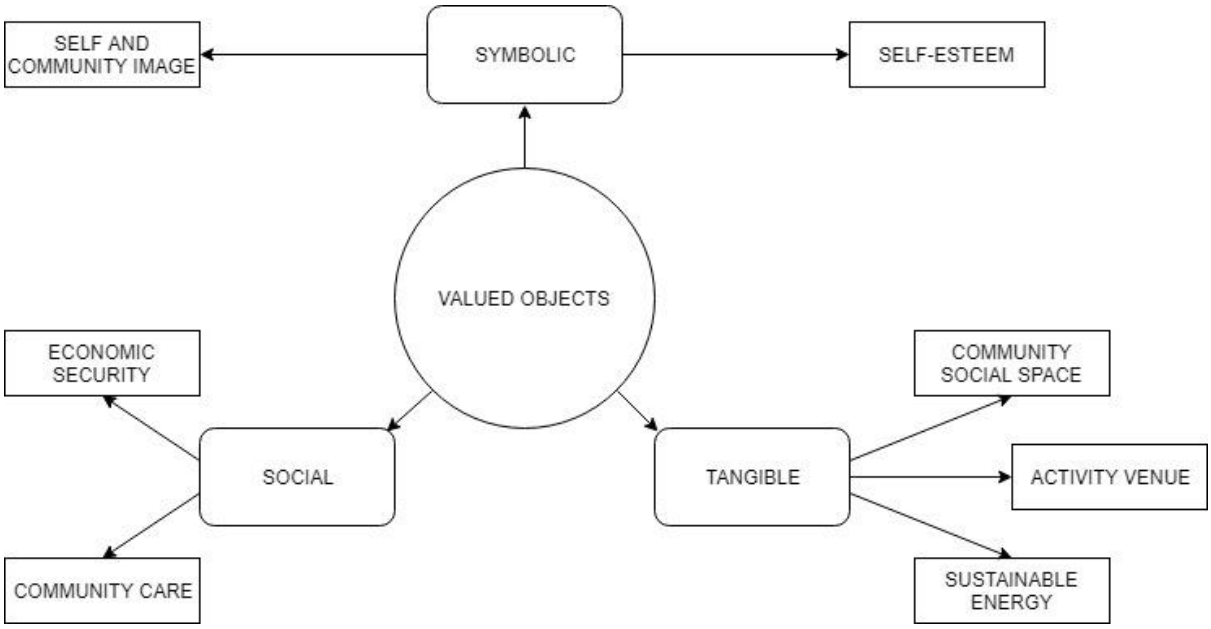


Figure 8.2 – Participants' Valued Objects that were benefitted by varying Empowering Objects stemming from the lagoon.

Symbolic benefits related to participants' relationship with Swansea as a city and community (see missing piece – benefit chapter). Identity is embedded in sets of relationships (Mason, 2004; 177), and it is through these relationships that we reflexively understand ourselves and others. Reflexive understandings of these relationships also provide pride and self-esteem (Tajfel and Turner, 1979). The reflexive sense of self that an individual constructs in relation to place (Chu, 2004) and imagined communities (Anderson, 1983) is also important within this. The lagoon was seen as providing Swansea with a positive symbolic image through which participants could derive an improved self and community image, and through that self-esteem. The lagoon was an Empowering Object as it was viewed as improving participants imagined and reflexive relationships with 'outsiders' (e.g - not from Swansea), with this relationship forming a Valued Object. Through attributing positive concepts to Swansea, such as innovation and being environmentally friendly, the lagoon was seen as reflecting positively upon both the city and its people. These findings support those that highlight how novel renewables infrastructure can enable more positive place identity and place attachment (Devine-Wright, 2011).

Social identity benefits related to participants' interpersonal relationships, both well-known and imagined (see Diego and Sara – benefit chapter). Identity consists of many emotional bonds with other individuals which constitute 'entanglements' (Andersen and Chen, 2002) that we either cannot remove ourselves from or do not want to. Notions of care towards others in particular are strong motivating concepts within decision making (Henwood et al, 2016), and as this case study has outlined, some participants cared deeply about their community. Participants saw a number of latent risk issues (Kasperson et al, 1988) present within Swansea, mainly involving economic insecurity and related socio-economic issues. The underlying presence of these latent risk issues meant that the lagoon was viewed as an Empowering Object towards participants' Valued Object of community care and economic security. The Benefit Relationship between these was that the lagoon was seen as providing economic stimulus to the area, which in turn would provide a sense of security as well as help to address socio-economic issues such as homelessness and substance abuse. The lagoon was viewed as benefitting participants' meaningful connectivity to their community by potentially mitigating pre-existing latent risk issues.

Tangible identity benefits related to relationships of *doing*, and so relate to highly tangible concepts that were seen as potentially affecting participants' everyday lives. Consumption practices and behaviours hold significant meaning to individuals (Groves et al, 2017) and are not easy to change or abandon. Even the most mundane practices help shape identity and so there are dilemmas between deriving meaning from life in the present and moral commitments to future generations (Henwood et al, 2016). The lagoon was seen as providing renewable energy, while lagoon technology was seen as potentially providing large quantities of a stable and reliable energy supply. Participants viewed this as an Empowering Object in relation to their current consumption practices (Valued Object) as it enabled the maintaining of these practices while also addressing the latent risk issue of climate change. The lagoon was also constructed as an Empowering Object towards participants' Valued Objects of community and personal hobbies. The lagoon was viewed as an asset that the local community could use, and many participants envisioned using it for a variety of different social and recreational activities. The lagoon then was considered an identity benefit by providing both an activity venue for participants, as well as community social space. Important within this was the concept of the local community as beneficiary, and so these findings support those asserting project support is high when the community as a whole is seen to benefit (Wustenhagen, 2007).

Were these benefits anticipated to change? If so then how?

This question was addressed within the second analysis chapter (*the renewable energy project that wasn't – understanding benefit and identity*). However, analysis of the data did not yield sufficient answers to this question. While participants were sufficiently capable of imagining the lagoon within their own futures, this trajectory was primarily seen as stable. While participants drew upon the example of Cardiff and its conventional barrage as a potential pathway for Swansea, no participant articulated further on how Swansea would benefit beyond abstract concepts of economic development. Probing these abstract concepts proved successful when participants possessed good contextualised knowledges of events, places or objects that they drew upon for comparison. For example, the use of mapping was successful in engaging participants to compare places to further explore and articulate their thoughts on what made Swansea Bay appropriate or inappropriate for lagoon development. However, this was reliant on participants' contextual understandings of locations they were considering. As participants did not possess more readily available ways of thinking about how the lagoon benefits may have changed over time, asking about this issue proved difficult. The use of more temporal methods, such as qualitative longitudinal research, may have proven useful in addressing the methodological issues encountered in answering this question.

8.3 How were these risks and benefits communicated?

This question was addressed in the final analysis chapter (*Risk Communication in the Swansea Discussion-scape*) and drew from the accounts of participants in South Wales. It also drew upon relevant secondary data including online and print media, social media posts, House of Commons debate minutes and relevant developer produced materials. The chapter explored how the resulting localised discussion-scape emerging from the lagoon proposal portrayed the lagoon in a positive light. This was viewed as emerging from a simultaneous process of risk attenuation (Pidgeon et al, 2003) and benefit amplification. The conceptual ideas draw upon those outlined in SARF (Pidgeon et al, 2003), Mathematical Communications theory (Shannon and Weaver, 1949) and in the light of Boholm's (2015) relational risk theory.

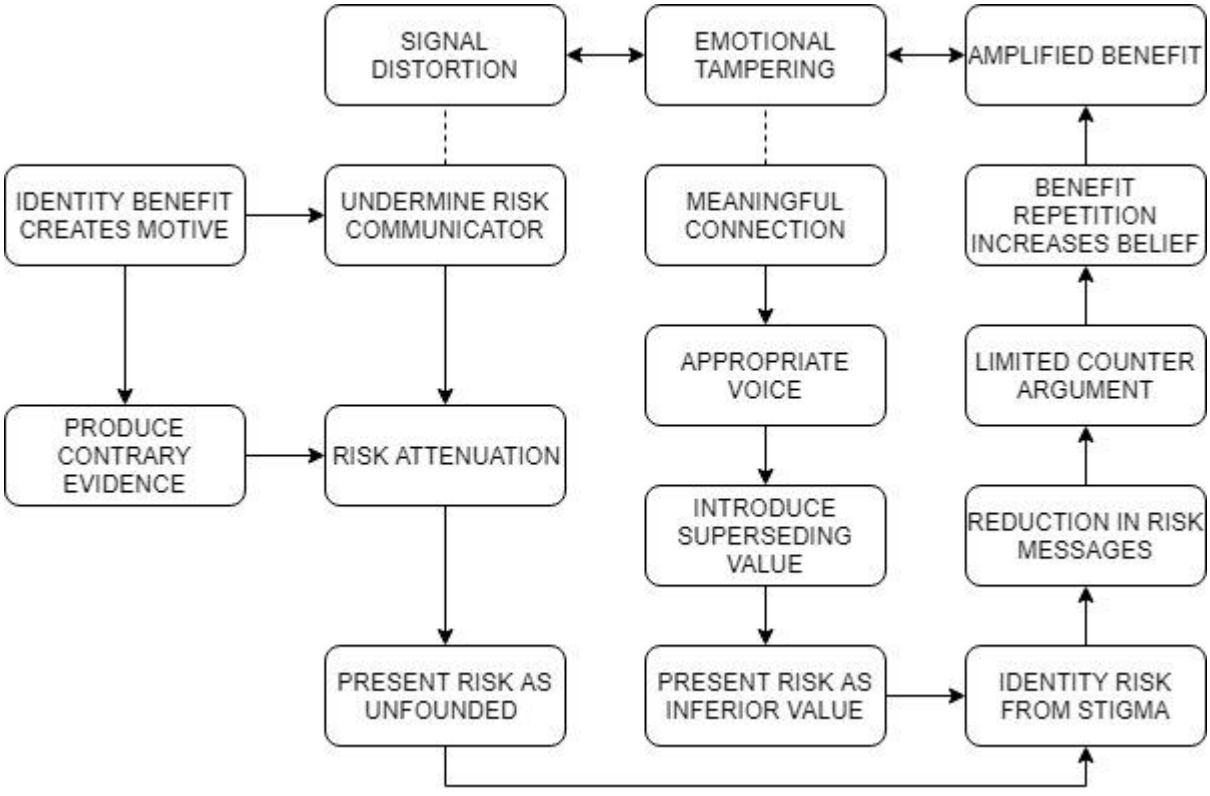


Figure 8.3 – The process of risk attenuation and benefit amplification in relation to Swansea Lagoon.

Figure 8.3 outlines the processes by which risks (in relation to the lagoon) came to be attenuated and benefits amplified. The model outlines three simultaneous and recurring processes – signal distortion (risk attenuation), emotional tampering (attenuation and amplification) and benefit amplification. The model is not intended to be read in a mechanical manner, rather the outline of these constituent processes is merely intended to represent the format in which they were observed during the analysis. The model represents the localised and contextualised processes by which risks were attenuated and benefits were amplified in relation to the lagoon. The model on this figure is intended to represent a modified example of the "Amplification and Attenuation" stage of the original Social Amplification of Risk Framework outlined in Figure 8.4 (Kasperson et al, 2003). However, the amplification and attenuation phase of the 2003 SARF model presents a broad catch all, presenting a difficulty in effectively capturing all the relevant information in one single figure. It focuses on providing an understanding of the social nodes through which information has passed, in addition to the individual 'stations' and social behaviours that are relevant to the amplification and attenuation process. By contrast, Figure 8.3 focuses on highlighting just the relevant empirical observations that have led to the later ripple effects and impacts. This does not mean to present a criticism of SARF, but rather an acknowledgement that the broad nature of the integrative model needs to be applied appropriately in relevant settings. Indeed, SARF is intended to capture the 'dynamic social processes underlying risk perception and response' (Kasperson et al, 2003; 13), which is inclusive of the events in occurrence after the risk event and not just its contextual background.

An identity risk lens provided the means to understanding reasons as to why participants refrained from publically communicating risk regarding the lagoon ("Identity Risk from Stigma" – see Figure 8.3). However, prior to this a simultaneous process of signal distortion and emotional tampering (Boholm, 2015) had taken place, stemming from reasons relating to identity benefit. Identity benefit from the lagoon provided motivation for participants to attenuate risk, acknowledging individuals as active handlers of risk information (Horlick-Jones et al, 2003). Through distorting risk 'signals' (messages), the developer (as well as some individuals) undermined the authority of risk communicators. The use of contradictory evidence was utilised to create doubt (O'Brien, 2000) in the risk messages, further undermining both risk communicators and attenuating risk.

The developer also sought to engage "alternative audiences" (Peeples and Depoe, 2014) outside of the Risk Communication process (the public) to establish the perception of popular support. To do this the developer drew on a number of 'latent risk issues' (Kasperson et al, 1988), such as concerns about climate change and the local economy, that were related to individual's meaningful connectivity (see Figure 8.3). The developer appropriated the voice of entities related to these meaningful connections (e.g - the environment or the local community) to present the lagoon as an identity benefit by improving these relationships. This introduced a superseding value (Couldry, 2010) which aimed to present risk concerns as inferior when compared with the potential project benefits. Subsequently, the introduction of these symbolic tangles (Horlick-Jones et al, 2003) meant that the lagoon was no longer viewed as simply a renewable energy infrastructure. Instead it was viewed as a potential way of mitigating a number of identity risk issues, which produced strong motivation to stigmatise potential risk communicators (see Diego – benefit chapter) and even caused some participants to attenuate their own concerns (see Sara – benefit chapter).

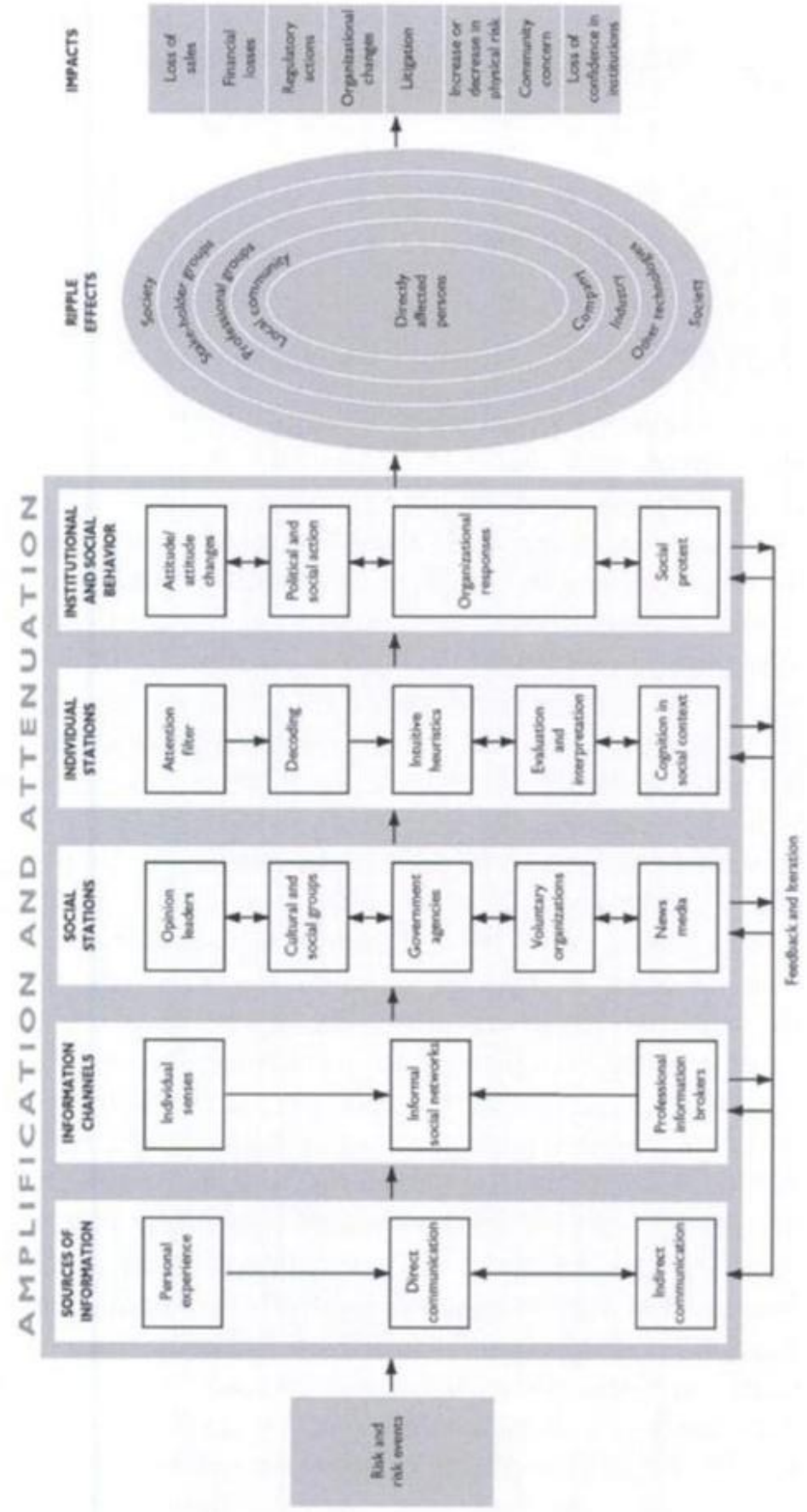


Figure 8.4 – The Social Amplification of Risk Framework (Kasperson et al, 2003).

Some participants refrained from engaging in communicating lagoon risk issues, as they considered doing so a potential identity risk to themselves or their organisation (see Gwyn – risk chapter). The absence of risk related messages resulted in a one sided discussion-scape where many benefit messages went unchallenged. The repetition of messages, especially when from differing sources, increases belief in their accuracy (Kasperson et al, 1988; 180), and so the repetition of messages regarding lagoon benefit established *potential* benefits of the project as *de facto* truth. The resulting phenomenon was a social amplification of benefit in relation to the lagoon, with the project coming to be seen as possessing intangible, cultural and abstract benefit that extended beyond its physical elements. Social Amplification of benefit can be acknowledged as the process through which superseding values render individual risk perceptions as of lesser importance. This can potentially result in a reduction in risk messages and/or abstract concepts being provided with significantly enhanced value and meaning placed within them.

In answer to the question of how benefits and risks were communicated in relation to the lagoon – it is clear that risks resulting from ecological hazard and in relation to technical design were largely attenuated, while messages presenting the lagoon as a benefit were amplified by utilising the socio-cultural context of Swansea Bay to mobilise other (latent) risk issues. The resulting discussion-scape largely became an echo chamber for pro-lagoon messages, which served to further solidify views of the project as within Swansea's best interests.

8.4 Policy Implications

This thesis posits that meaning making is a subjective experience, and that there remains no true objective adjudicator in siting contestations (Lofstedt and Boholm, 2004) to determine unequivocally what can be considered of benefit and what value should be applied to it. However, it also argues that a manipulation of the "social context" (Johnson, 1987) is possible, and in this case was utilised by the developer in an attempt to gain the support of both publics and stakeholders. In siting contestations where no regulations or laws are breached, decisions regarding such manipulation are for local publics to adjudicate on. Systems of democracy ultimately provide potential recourse to counter the actions of manipulative actors. However, the manipulating of publics opinion to be utilised as leverage in siting contestations is problematic when regulations and laws have the potential to be breached. This does not mean to say that there cannot be healthy and rigorous debate on scientific methods and their findings, but instead that the use of popular support to 'dis-apply' regulations and laws should be considered problematic (see Risk Communication and NRW – risk chapter). Similarly, the use of public support to attenuate risk (through creating identity risk) and undermine regulatory bodies should also be considered problematic. Of more concern is the use of Social Amplification of Benefit to establish doubt on science, its methods and its findings (see risk attenuation and ecological hazard – communication chapter). As Lofstedt (2009; 177) highlights, "one clearly needs to take into account the consequences of downplaying scientific results" as it can be perilous.

8.5 Methodological Implications

Broadly, the methods utilised were viewed as successful in providing answers to the primary research questions posed. However, there was a difficulty in engaging participants in how they envisioned risks and benefits to be changing over time, an issue that a more longitudinal approach may have helped address. Asking about the future directly can be challenging (Henwood and Shirani, 2012), and so cultural probes were utilised in an attempt to try and engage participants in

meaningful discussion on the issue. Participants who were familiar with relatively similar infrastructure (mainly the Cardiff Bay Barrage and seafront walkways) drew on these for guidance. However, the absence of existing lagoons meant that participants had no similar examples to draw upon for imagining the Swansea project and its temporal aspects. The developer had produced a number of computer generated images (CGI) for use in its promotional material, which a majority of participants had seen and drew upon to articulate their opinions. However, these particular images were not used within interviews as photo-elicitation methods, as it was deemed they would establish a particular framing of the issue. To limit the developer's framing of the issue, drawing was utilised as a cultural probe in order to provide the participant with agency in the creation of images.

While the use of these drawings elicited deep and meaningful discussion, and helped make apparent any implicit assumptions, they were limited in their capability to instigate meaningful discussion on the future. Participants were often hesitant to engage in drawing pictures as they deemed they were not capable of producing images which sufficiently captured their thoughts. Instead they often chose to draw schematic maps, which while useful did not gain sufficient insight into questions of the future and changes in risk and benefit. Photo elicitation was also used to explore meanings and value within the landscape, but again proved limited in providing answers to changes in risk and benefit. Photo elicitation was also limited in its input in the study due to the small number of participants with which the method was used. This was due to the conditions placed on the qualifying criteria. Participants were asked if they possessed existing photos of Swansea Bay, and so utilised 'found' images. It was not deemed appropriate to request that participants go out and acquire new photos as it was viewed as too invasive of their time. It was also considered how this might affect participant response rate or their enthusiasm to engage with the study. Upon reflection, the conditions placed on this method were too stringent and so limited its role within this study. The use of researcher generated CGI was also considered, however it was deemed that this would also entail a number of framing issues. As the lagoon had not yet been created, its eventual aesthetics relied on imagination. It was deemed that the researcher's input into these images could result in shaping responses in a particular fashion.

The small size of the sample means that the findings of this study are limited in their extrapolation to larger subsets of the Swansea population and stakeholders. Instead these findings provide useful insight into a potentially important aspect of risk communication and responses to renewable energy siting, which presents opportunities for future research (see p155). Due to the depth of data generated it was deemed that saturation had been reached with regards to the main research questions. However, there remained some potential individuals who may have provided different views. The purpose of study was to seek out those with opinions on the lagoon, and so may have excluded individuals with limited opinions on its construction and who felt more undecided on its benefits and/or risks. The decision to sample more informed participants as the study grew was due to a need for 'thick' data that was capable of providing adequate description for answering the main research questions. As such, the findings of the study are limited in their extrapolation to wider subsets of the Swansea population, especially as the study did not seek out individuals with more ambivalent attitudes towards the project. Due to the ongoing status of the lagoon development, it was not possible to include regulatory/decision making bodies within the sample for procedural reasons. Had these bodies been included within the sample, it is likely they could have provided insight into issues that informed key aspects enquiry towards the Social Amplification of Benefit (see p139). Similarly, the inclusion of the developer may also have provided similar insight for the study.

8.6 Theoretical Implications

A risk to identity approach focuses on how individuals understand their meaningful connectivity to the world, and how they understand these connections to be threatened. It focuses on what individuals place value in and how important they deem that value to be in relation to the other kinds of relationships that constitute who they are. Utilising relational thinking in both risk (Boholm and Corvallec, 2011) and identity (Andersen and Chen, 2002; Mason, 2004) enables the elucidating of not only these relationships, but also their contextual grounding. As discussed (see benefit chapter), the social context of siting contestations is key to understanding responses to them. In the case of the Swansea lagoon, much public support was derived from the perception of the project alleviating underlying risk concerns. However, responses to the project were not straightforward or monolithic, but rather many participants perceived both risk and benefit. Of particular importance was the concept of benefit to abstract entities (e.g - community or environment), which were viewed as superseding issues. Subsequently, participants contextualised their opinions within moral judgements regarding their entanglements to others (Andersen and Chen, 2002). Responses to siting contestations are complex, with individuals considering a multitude of options instead of simple binaries (Pidgeon et al, 2008; 81). As this thesis has demonstrated, these considerations involve both risk and benefit, and so individuals should not be portrayed as 'pro' or 'anti', while false dichotomies which present simplistic 'risk-risk tradeoffs' (Pidgeon et al, 2008) should be avoided. As outlined in this study, an identity risk approach is capable of both explaining these issues in sufficient depth and demonstrating the complexities and nuances of siting contestations.

Much previous research on siting and controversy has failed to capture complex social connectivity (Agterbosch et al, 2009). Affected individuals have largely been viewed as an obstacle to overcome (Aitken, 2010), which is problematic as their experiences and opinions are then deprived of legitimacy (Demski, 2011). They oppose projects for a variety of reasoned concerns (Pidgeon and Demski, 2012) which may often entail Valued Objects which are difficult to communicate. Such 'hidden losses' (Witter and Satterfield, 2014) have an effect on thoughts and actions, despite them being difficult to articulate or quantify. In the case of the lagoon and its supply chain, threats to entities such as place (home), the environment (migratory fish) and cultural practice (traditional history) presented losses which often entailed abstract impacts as well as physical ones. The emotional bonds between the individual and these entities is captured by an identity risk approach, which is capable of elucidating these important relationships. It presents a way of conducting situational risk research (Horlick-Jones et al, 2003) and recognises that individuals are not selfish or irrational (Pidgeon et al, 2008). Risk is imbued with emotion (Lupton, 1999) and so risk concerns are inherently in part emotional. Individuals' concerns are considered in relation to deeply complex connectivity, such as to places, people, culture and ethics. A risk to identity approach is capable of capturing this phenomenon.

There is a need to understand individuals as active agents within the communication of risk and benefit (Horlick-Jones et al, 2003). A risk to identity approach considers how individuals' meaningful relationships are understood to degrade or improve as a result of risk events. Subsequently, it is capable of exploring and explaining individuals' motivation to purposefully amplify or attenuate messages of risk and/or benefit. As evidenced in this thesis, the reasons why individuals do so are many – but particularly latent risk issues prove strong motivation for doing so. Issues such as the local economy (see Paul – communications chapter, or Diego – benefit chapter), the environment (Tim – see benefit chapter) or care for the community (see Sara – benefit chapter) were key. An identity risk approach provides a means of representing these issues and their contextual grounding.

By incorporating both risk and benefit, it is possible to map out individuals' worries and hopes and how they are interwoven; and how they relate to the risk event. Through understanding these complex issues it is possible to clearly demonstrate reasons and actions towards risk communication.

This thesis posits and utilises the term *discussion-scapes* as a theoretical means of conceptualising the localised social theatre within which the study of the lagoon took place. Discussion-scapes are attentive to the "social context" (Johnson, 1987) of siting contestations, representing understandings of the interplay between spatial, social and symbolic elements in relation to a particular event. Various conceptualisations of landscapes present useful framings for understanding relationships within specified contexts. This thesis has also utilised the concept of *Discussion-scapes* as a way of understanding the 'constellation of processes' (Roberts and Henwood, 2018) that emerge in relation to a particular risk event. Discussion-scapes map out and portray the resulting localised discussion, and rely upon the imaginative production of actors, communities and places. They incorporate thinking on spatial elements, such as the topographical details of landscapes, which provide physical contours which inform the social contours and physical boundaries. Symbolic elements represent meaning and imaginations of abstract entities which inform the social, such as culture and ethics. Social elements represent the interpersonal relationships, both *imagined* and *well-known* within the local landscape; incorporating how individuals balance their communication with potential consequences. They build upon other conceptual understandings of interaction between people and place (Sauer, 1925; Ingold, 1993; Roberts and Henwood, 2018) and seek to provide a framework for understanding human interaction in relation to events as deeply embedded within context.

Finally, this thesis has utilised the concept of Social Amplification of Benefit as a means of understanding how issues relating to the lagoon became involved within 'symbolic tangles' (Horlick-Jones et al, 2003). The Social Amplification of Risk Framework (Kasperson et al, 1988; Pidgeon et al, 2003) is typically used to describe how publics' risk perceptions can differ from that of experts; and so risk was viewed as 'amplified'. Presenting expanded thinking on this framework, the idea of Social Amplification of Benefit seeks to provide an understanding of how publics' perceptions of potential benefits may also extend beyond the physical. Important is understanding how the social context of situations may be utilised and manipulated to gain popular support for a project, event or idea. Messages that contain "symbolic factors" (Kasperson et al, 1988), especially those which play on latent risk issues, present benefit values as of superseding importance (Couldry, 2010). These often involve emotional entanglements (Andersen and Chen, 2002) that individuals cannot or will not withdraw from. In the Swansea case, issues including worries surrounding unemployment and economic insecurity, communal image and esteem issues and risks from climate change were prominent.

This thesis argued that amplification of benefit is a form of 'noise distortion' (Boholm, 2015) which, through drawing upon meaningful connectivity, can instil a degree of emotional upset in the individual; causing problems in registering risk messages effectively. Risk and benefit then are intricately intertwined entities which each influence perceptions of the other. In the case of the lagoon, relationships between individual and Valued Objects such as community and economic security were seen as strengthened through the mitigating of latent risk. The absence of critical or dissenting messages can also enable amplification processes (Poumadère and Mays, 2003) as the repetition of messages can increase belief in their accuracy (Kasperson et al, 1988). In the case of the lagoon, the absence of risk messages largely resulted in potential benefits of the project being established as the *de facto* certainty within the minds of participants. Social Amplification of Benefit

can be thought of as the process through which superseding values render individual risk perceptions as of lesser importance. This can potentially result in a reduction in risk messages and/or abstract concepts being provided with significantly enhanced value and meaning placed within them.

8.7 Future Research

The risk to identity approach is deemed to be a potentially useful analytical framework for exploring and explaining the controversies of siting contestations. Future research might focus on the application of this analytical framework across different case studies, including both different host sites and communities as well as technologies. It may also hold potential beyond siting contestations, as a means to understand a number of issues relating to decision-making and explaining actions. Similarly, the Social Amplification of Benefit is seen as useful in helping understand how risk and benefit is communicated in relation to particular events. Future research might focus on utilising this thinking for understanding other risk events, particularly those where it appears that potential benefits are provided with value and meaning far beyond their physical impact.

The findings of this study has presented a relatively unique case, in seeming mass support for a major energy project in close proximity to a major population. However, this study has provided only an exploratory glance at the situation, with the small sample size and sampling method providing a non-representative account. As such, there remains the opportunity for a study using quantitative methods, such as surveys, and a much larger sample size to assess whether the limited assertions of this study are supported within a representative sample. While the initial aim of this particular study was to explore the perceptions of risk minorities, and sought not to render them statistically insignificant, a study seeking to clarify whether or not the lagoon project did receive popular support could prove to be important work for the field of renewable energy and siting contestations.

This study may have also benefitted from a more complete and structured content analysis of the media articles relevant to the lagoon (including audio and video) from established news media entities. The review of media that was captured within this study indicated some potential key differences in how the lagoon was portrayed and discussed, identifying some potentially interesting opportunities for future research. In summary, local media appeared to portray the lagoon primarily as an economic catalyst and community asset, with national media focusing either on its environmental credentials or its cost. Opportunities for future research include the exploring of this divide at national level and the political allegiance of the relevant news outlets, or the role of local media in reporting on nearby by proposed projects – particularly in how this reporting can impact upon local support and opposition.

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10. Appendix

Appendix A: Information sheet for participants

Understanding the Risk Impacts on Identity as a Result of the Swansea Bay Tidal Lagoon

Project description and research aims

The study is being conducted by Andrew Roberts, a PhD student based at the Cardiff School of Social Sciences at Cardiff University. The study seeks to partly explain why individuals do not accept or object to Renewable Energy Technology (RET) infrastructure, in this instance the case focuses on the proposed tidal lagoon in Swansea Bay. The siting of RET infrastructure is a contentious issue within the current UK climate. The UK government has committed to reducing its carbon emissions by 80% by 2050, as well as sourcing 30% of the UK electricity demand from renewable sources by 2030. Despite this the UK is encountering an increasingly anti-RET climate, with an increasing number of siting issues arising as well as a significant increase in the number of projects rejected at the planning approval stage. While at a national level studies generally find that there is a consensus on the need for renewable energy, it is evident that at a local level this consensus does not transcend into acceptance of RET infrastructure in their localities. Numerous studies have explored the concept of Nimbyism (Not-In-My-Back-Yard) in an attempt to explain objection or non-acceptance of RET infrastructure at a local level, findings repeatedly highlight little or no correlation between the proximity of an individual's home and their levels of acceptance to that project. Instead studies have found that the concept of Nimbyism fosters and manufactures ignorance towards the legitimate risk concerns and worries of those individuals affected by RET projects. This study seeks to examine those perceived risks, with a focus on the impacts these might have on the identities of the concerned individuals.

What will your participation involve?

Should you decide to take part in the research, your participation will involve you taking part in an interview or a focus group that is expected to last for approximately 60 minutes.

The interview will be a qualitative open interview and will take the form of a guided conversation. There are certain topics the interview will be addressing and the interviewer will deliver some broad questions to guide the conversation. The direction of the interview will be largely determined your answers and discussion. The interview will be conducted face to face in a location surrounding Swansea Bay and will utilise computer generated images. With your permission the interview will be audio recorded and you will be observed during this period. You will also be asked to provide images of Swansea Bay that find meaningful.

The focus groups will be conducted at a location in close proximity to the community in which you live, and will involve the use of photos and computer generated images.

If at any point you change your mind about taking part in the research you can withdraw at any time by contacting us on the details provided below. You may also withdraw in person during the interview or at any other time.

Who is being interviewed?

We are intending to interview project stakeholders from as many different areas as possible, including industry and policy representative, members of non-governmental organisations and concern groups. There will also be interviews carried out with members of the public later in the study.

Anonymity and confidentiality

All data will remain confidential in accordance with British Sociological Association (BSA) 'Statement of Ethical Practice for the British Sociological Association'. Actual names will therefore be viewed only by the researcher. All participants will be given an alias which will be used by the researcher in working with the data. In all related publications, participant's quotes will be made anonymous. In that context, only this pseudonym and non-identifying generic terms (*e.g.,* gender, age), or if agreed to institutional affiliation, and the alias will be used to describe participants. The interview recordings will be stored in a secure location at Cardiff University.

Who will have access to the data?

The audio recordings and transcripts will be shared among the research team, and with their permission, with other relevant researchers. Participants may ask to see the data or request that it be destroyed at any time, up until the date that the data is anonymised.

How will the data be used?

The data will be used in academic research and will be used to produce reports, presentations, conference papers, and academic publications. The data and/or subsequent publications may also be used for teaching purposes.

Who is funding the research?

This research is funded by Cardiff University's University Graduate College as part of their commitment to training new researchers. Funding has been allocated for the project for a period of 3 years beginning on 1st January 2015.

The research team

Andrew Roberts, PhD student, Cardiff University

Contact details

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Appendix B: Consent forms for participants (Project Stakeholders)

School of Social Sciences, Cardiff University
Consent Form - Anonymous Data

I understand that my participation in this project will involve taking part in an open interview that will take approximately 60 minutes of my time.

I understand that the interview will be recorded with audio equipment, and that I will be observed during this period.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason, even after the study has finished.

I understand that I am free to ask any questions at any time. I am free to withdraw or discuss my concerns with Andrew Roberts. I agree that data obtained in the interview and subsequently made anonymous may be utilised in discussion with other researchers, in any ensuing presentations, reports, publications, websites, broadcasts, and in teaching.

I understand that a fully anonymised transcript of the interview will be held indefinitely and shared among the research team, and with the permission of the research team, with other relevant researchers who are part of Andrew Roberts' wider research group.

I understand that the identifying information provided by me will be held confidentially until 2023, such that only the research team can trace this information back to me individually. I understand that I can ask for the information I provide to be deleted/destroyed at any time until that point and, in accordance with the Data Protection Act, I can have access to the information at any time. I understand that in all publications and discussion of the research all information I give will be made anonymous with only pseudonyms and generic identifying features (*e.g.*, profession) or if agreed, my institutional affiliation, utilised for identification.

I agree that my institutional affiliation may be used as a generic identifying feature if no other features (*e.g.*, gender, age) are used ☐

I would prefer that my institutional affiliation *is not used* as a generic identifying feature. ☐

I give my consent to have my contact details retained in a database until December 2023 so that I may be asked to take part in a follow up interview, or returned to on points requiring clarification. ☐

I have been provided with sufficient information on the project to give *informed* consent to the interview session.

I, **(PRINT NAME)** _____ consent to participate in the study conducted by the School of Social Sciences, Cardiff University under the supervision of Andrew Roberts.

Signed: Date:

Appendix C: Consent forms for participants (Publics)

School of Social Sciences, Cardiff University
Consent Form - Anonymous Data

I understand that my participation in this project will involve taking part in an interview or focus group that will take approximately 60 minutes of my time.

I understand that the interview will be recorded with audio equipment, and that I will be observed during this period.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason, even after the study has finished.

I understand that I am free to ask any questions at any time. I am free to withdraw or discuss my concerns with Andrew Roberts. I agree that data obtained in the interview and subsequently made anonymous may be utilised in discussion with other researchers, in any ensuing presentations, reports, publications, websites, broadcasts, and in teaching.

I understand that a fully anonymised transcript of the interview will be held indefinitely and shared among the research team, and with the permission of the research team, with other relevant researchers who are part of Andrew Roberts' wider research group.

I understand that the identifying information provided by me will be held confidentially until 2023, such that only the research team can trace this information back to me individually. I understand that I can ask for the information I provide to be deleted/destroyed at any time until that point and, in accordance with the Data Protection Act, I can have access to the information at any time. I understand that in all publications and discussion of the research all information I give will be made anonymous with only pseudonyms and generic identifying features (*e.g.*, profession) or if agreed, my institutional affiliation, utilised for identification.

I give my consent to have my contact details retained in a database until December 2023 so that I may be asked to take part in a follow up interview, or returned to on points requiring clarification. ☐

I have been provided with sufficient information on the project to give *informed* consent to the interview session.

I, **(PRINT NAME)** _____ consent to participate in the study conducted by the School of Social Sciences, Cardiff University under the supervision of Andrew Roberts.

Signed: Date:

Appendix D: Stakeholder Interview Protocol

INTRODUCTION

Could you just quickly explain your job title and what role that entails?

How did you come across the lagoon?

- What is your involvement, or interest in it?

What are your views on the lagoon?

- How important is the lagoon for yourself?
- How will the lagoon affect the renewables industry? How important is it?
- How will it affect Swansea Bay?
- Wales?
- The UK?

RISK

How does risk arise as an issue in your work?

- What about just day to day?

What risk does the tidal lagoon represent for the industry?

- What about its non-development? Does that present a risk?

And what about yourself?

- Do any of these risks transcend?
- Does the tidal lagoon create any risks for you personally?
- And what about opportunities?

TECHNICAL RISK/HAZARD

From a physical perspective, what risks does the tidal lagoon represent to Swansea Bay?

And what about other forms of risk?

SOCIOTECH IMAGANRIES

So, with regards to energy and technology – what image is the UK government propagating for our future?

- Is this reflected in policy? Are there any contradictions?

And what about Welsh Government? What are they propagating?

- Is this reflected in policy? Any contradictions?

Are there any differences between the two?

- How serious are they? Where do these differences occur?
- What risks or opportunities do these differences present?

GOVERNANCE

How do we balance our local and national interests?

- Who does this?
- Is this how they should be balanced?
- Who should be responsible?

With regards to major infrastructure projects such as the lagoon, who (or where) should make the decisions?

- Why?

TRUST

What level of trust do you put in the UK Government?

- Why?

Welsh Government?

- Why?

Difference between two? Why?

LOCAL IDENTITY

- How does the Tidal Lagoon "fit" into the local character, or identity, of South Wales?
- With regards to its history, the past?
- With regards to the future?

CLOSING

- Who are the major players with regards to the tidal lagoon?
- Who holds the power to make (or not make) it happen?
- Is there anyone you would suggest me speaking to as part of the study?
- Would it be alright for me to re-contact yourself in the future with some additional questions?

Appendix E: Publics Interview Protocol

Who are they? – How do they describe themselves?

What is important to them? – What do they enjoy doing? Where do they enjoy going?

Describe Swansea/Swansea Bay – What is it like as a place? What do they like/dislike about it?

What does risk mean to them? – What does the concept mean? What experiences of risk? What do they think of when 'deal with' risk?

What are their views on the lagoon?

What kinds of impact will the lagoon have?

What risks come from the lagoon?

What benefits come from the lagoon?

Any other issues?

Do they think lagoon should be built?

Appendix F: Group Interview Protocol

Who are they? Description of themselves and group. When was group formed, what is its purpose, how long have they been members etc.

How did they first come across the lagoon? Initial description of views on lagoon, how did they come to know of it, what initial impacts/first thoughts, what interactions with developer etc.

What are their concerns? Description of risk issues, what is the valued object, what is the endangering object, are they unified etc.

Have they been listened to? Description of interaction with developers, how did developer respond to concerns, how did local community respond to risk concerns, how did politicians respond to risk concerns, what media attention have they received, how do they think they have been portrayed etc.

How do they view benefit? Description of how project benefit relates to their concerns, how do they view benefit, how do they view the developer's promotion of project, who benefits, how do they benefit etc.

How does lagoon affect them? Description of risk relationship, how does lagoon risk affect their lives, what will happen if it is built, who do they blame, who do they trust etc.

Any other issues? What has not been considered, what is important which is missed, who is missing issues etc.

Appendix G: Walk Along Interview Protocol

Describe the place? What is this place and what is it like? What conditions?

What do they remember from last interview? Briefly discuss previous interview to enable memory. What issues were discussed by participant, what they thought of lagoon etc.

Has their opinion changed? If so then how? If not then why? Do they think it will? How do they envision their changing opinions towards the subject? Do they think there will be change?

[Looking at Swansea Bay] What will the lagoon look like in that landscape? Can they describe its appearance? What are their thoughts on this imagination?

What impact will lagoon have? Any thoughts that differ from being on site?

What does that mean to them? How they see the lagoon influencing this place? What impact will it have on their lives?

Do they want the lagoon to be built? Any change from last time? Yes/no and why?