Future Identities: Changing identities in the UK – the next 10 years

DR6: How will environmental and place based change affect notions of identity in the UK over the next 10 years

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Contents

1. Introduction

Understanding the place related aspects of identity is a key explanatory lens through which to examine change. There is sufficient research to show that people have strong attachments to places (local, regional and national) which become part of who they are, and where they feel they can be themselves (I am at home here) and to some degree part of how they present and express themselves (e.g. I am a local person). The mobility and globalised nature of modern life makes this lens no less important (Adger, 2011; Easthope, 2009), but rather can provide people with multiple and diverse attachments (Lewicka, 2011) which support and maintain a range of identities.

Further, threats or disruptions to place have implications for well-being: a key motivating factor for identity behaviours.

In addition, mitigation and adaptation to climate change requires behaviour change which may or may not be congruent with key social identities.

It should be noted that the question posed by this review frames the relationship between environmental impacts and identities as linear and unidirectional: from the change through to the change in identity. However, as highlighted by the Foresight definition of identity, we start with the assumption that the relationship between environmental and place based change, and identity is dynamic and ongoing with each impacting the other over time.

The review is guided by the following five questions:

- How might environmental and climate change adaptation or mitigation affect personal or collective identity?

- How might people's wellbeing be affected if the risk status of their home and/or work locations changed (positively or negatively) and what then might it mean for place identity?

- How might other changes rooted in place (e.g. urbanisation, new infrastructure developments, etc) affect identity?

- How might behaviour (identity performance) be affected by environmentally-driven changes to identity (e.g. through increasing/decreasing/changing activism and the role of social movements)?

- Conversely (looking across a range of drivers), how might identity changes, arising from identified drivers, impact upon place identity

In order to examine these questions the review firstly examines some key theoretical concepts and then goes on to consider relevant empirical work around environmental and place-based change. With respect to environmental and place-based change the review will focus on the following issues:

 The direct impacts of climate change focussing on those events that are predicted to increase, e.g. floods, heat waves, and droughts.

The impacts of climate change mitigation e.g. energy efficiency and conservation; the role of identities in facilitating behaviour change

"Built" environment issues e.g. renewable energy developments

Crucially, effects on, and of identity and behaviours in relation to these changes will be mediated by attitudes towards and representations of those changes as well as direct experience of those changes.

1.1 Issues for further exploration

There were a number of questions raised in during the writing of this paper which were not able to be explored but are considered worth highlighting here as potential topics for future exploration.

1. To what extent do places and images of places play a role in national identities? Mischi (2009) discusses the construct of Englishness as an identity and its links to images of rural places. Does this become a salient identity when those areas are marked for change, such that people are moved to act to defend those rural areas?

What is the impact of changing uses of landscapes on national identities e.g. from an industrial country to one dominated by leisure and tourism?

How will increasing urbanisation impact on our ability to find restorative places?

As our engagement with social media increases, how is place constructed and imagined?

In what ways might having multiple attachments to place buffer against environmental and place-related change?

2. Key theoretical concepts and issues

2.1 Place

There is a tendency to oversimplify the relevance of place to our modern, predominantly urban, globalised world which can be partly traced to the sociological distinction between communities of interest and communities of place. That argument suggests that with urbanisation and globalisation the groups that are salient to us and from which we develop our identities are increasingly detached from places: we meet with people who have the same interests not the people who live in our local areas and our ties to specific places are less important than in past decades. Easthope, (2009) brings this up to post-modern times drawing on Giddens (1991) and Bauman (1997; 2001) where the emphasis is on the freedom from social categories, where identity becomes a person's life project "*This shift in the nature of identity can also be understood as a shift from relatively stable identities rooted in place to hybrid identities characterised by mobility and flux*" p. 65. This has its current manifestation through the medium of social media, where we become Twitter followers, and join groups on Facebook all of which have "no place", and it leads back to the question of how relevant is place to current identities? However, we would argue that this is an oversimplification of both the concept of place and our relationships with place. We argue after Relph, (1976; 2007); Tuan, (1980) that place is a dynamic concept consisting of physical space, our activities within that space and the meanings or social constructions we have of that space and activity "*There is a physical setting or landscape of buildings, streets, hills, rivers and other features. Secondly, there are the activities that occur within this physical setting, such as shopping, working in offices, manufacturing, gardening, jogging and the daily routines of commuting. Thirdly, places are territories of meanings, meanings that arise from the experiences of living, working or visiting somewhere, appreciating its architecture, being familiar with its routines, knowing its people and having responsibilities towards it.*" (Relph, 2007, p 2).

We have multiple (emotional, functional, social), diverse, positive and negative relationships with those places. We can define ourselves as having no place but even in doing this place is invoked and becomes a lens through which we can view identity and change. Research from a wide range of disciplines (psychology, geography, sociology, anthropology, architecture, urban design and town planning) suggests that places are inextricably linked with who we are, our identities. They are where we enact our identities and will be more or less salient for different identities. In addition, we have emotional bonds with specific places at different scales (Feldman, 1990; Cuba and Hummon, 1993) giving us a range of specific place identities e.g. Londoner, local person, city person. Further, certain social identities are bound to place e.g. national and regional identities. The places to which we are bound take on symbolic importance to us personally e.g. our homes (Moore, 2000), and collectively e.g. the English countryside (Mischi, 2009). With increased globalisation places can be vicariously experienced by many via the media e.g. Antarctica and identification with places can be maintained via the internet (Skop and Adams, 2009).

"*Places, understood as nodes in networks of relations, are not stable in the sense of being static. Rather, they are constantly re-negotiated and understood in new ways by different people, or by the same people at different times*". Easthope, 2009 p 77

2.2 Identity and place

Discussions of the relationship between self and the material world can be traced back to James (1890) and Mead (1934). Both acknowledged and theorized the relationship between the self, identity and the physical environment. In James' concept of the "known" self (the "me") he suggested that there are three interrelated components: the social, material and spiritual me. Of significance here is the material me which includes the home. Mead provided a development of this suggesting that whilst the self is developed predominantly through interactions with others he does suggest that objects in the material world that are responded to socially become part of "a self or personality". For example, in the social construction of home, both material, and psychological, identity processes and their functioning will be revealed. Research on the meaning of home emphasises its role in terms of providing both physical and ontological security, a sense of refuge and a safe place to go (Moore, 2000; Dupuis and Thorns 1998; Saunders 1984). In this way our encounters with the material world are said to be socially constructed, mediated by perceptions and values at both the personal and collective level. What is useful here is how this description links to the work on place: spaces become places by our relationships to them e.g. attachments (positive, negative, neutral) and in turn those places become part of who we are as well as settings for the enactment of who we are: "*Place and identity are tied together in the sociospatial dialectic (Soja 1989). However, places can have many meanings and identities, which are often contradictory and competing*". Harner, 2001, p 661.

This has a number of implications for identity:

1. That who we are and how we see ourselves has a material, physical aspect to it, most identities are played out within a material environment. Therefore, changes to that environment or perceptions of that environment are likely to impact on how identities are enacted or performed. The salience of the materiality of any one identity will vary, and indeed for some there may seem very little in terms of materiality (e.g. identities constructed on social media). However, with all identities there will be a set of practices (behaviours) that are part of that identity which are enacted in place.

That there are physical locations (e.g. the childhood home, the landscape of Scotland) which people are emotionally attached to, they can be said to be part of their identity. Change that impacts on those valued locations will have implications for those identities and behaviours. The concept of place attachment becomes relevant here and is discussed further below. Identity is tied to place through these special places which may be at the local scale (e.g. home) through to the national level (country).

A step further than attachment to place are social identities which foreground place, e.g. "a Londoner" or describing yourself as a "local person". These identifications put people into a group which has certain values, attitudes, beliefs, behaviours and are located in the physical world.

In terms of identity more generally, it is also vital to consider conferred identities e.g. gender, ethnicity, and age. Identity is not infinitely malleable, but shaped by the social categories people find themselves in e.g. gender, race, and age. With respect to environmental and place based change this has three aspects:

1. The relationship between places and specific groups. There is evidence of links between some coastal communities at risk of flooding and deprivation (Zsamboky *et al*, 2011).

With respect to flooding in the UK there are key environmental justice issues to be considered (Walker and Burningham, 2011; Walker *et al*, 2006)

There is evidence to suggest that specific social categories e.g. gender, age, are related to increased vulnerability to climate change events e.g. flooding, and heat waves.

Further, people may be ascribed an identity that they do not accept e.g. elderly, vulnerable and this can have implications in terms of whether resilient behaviours are carried out or not.

It is important to be mindful of both the identities that people can construct for themselves, potential limits on those identities due to given identities, together with identities which are ascribed to people which they may or may not accept. This is relevant to place in relation particularly to vulnerability to the impacts of climate change and is discussed later on in this paper.

2.3 Place Identity and place attachment

2.3.1 Place identity

Place identity can be used as an overarching term for describing the relationships people have with places such that those places have meaning for our "model of the world and our place in it" (from the Foresight Future of Identity working definition of identity). Place identity has its origins with Proshansky (1978; 1983) and further back to Erikson (1946) who used the term "spatial identity". It was brought into the literature in relation to disruptions to place by Fried (1963) in his seminal work focussed on a forced relocation in Boston. Building on this, Proshansky (1978) defined place identity as: "*By place-identity we mean those dimensions of self that define the individual's personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, beliefs, preferences, feelings values goals and behavioural tendencies and skills relevant to this environment*" p. 155 and "*since there is no physical setting, built or otherwise that is not also a psychological., social and cultural environment place-identity is a theoretical construct quite necessary for understanding the development and expressions of subidentities*" p 156.

Since Proshansky there has been work on place identity in many contexts and the literature ranges across a number of disciplines. Fresque-Baxter and Armitage (2012) provide a useful overview of the approaches to place identity in relation to climate change, detailing a number of sub-dimensions of place identity based on current research. They take emotional attachment to place as the overarching construct of place identity and suggest that "*All other constructs influence the degree of emotional attachmen*t" p 23.

Table 1 draws out what are considered the key aspects relevant here (for more detail see Fresque-Baxter and Armitage, 2012, p. 22-23):

Table 1: Key aspects of Place identity

Aspect of place identity	Definition
Emotional attachment/place attachment	A positive or negative attachment to specific places, places as repositories for emotions

Aspect of place identity	Definition
Self esteem	Certain environments support self-esteem, reflect a person's opinion of their own self-worth
Self-efficacy	An environment that meets the needs of an individual: using that environment can contribute to positive feelings of self-efficacy
Continuity	The desire to preserve the continuity of the self concept through keeping the same place/objects that provide references to past selves or choosing places that are congruent with identities
Distinctiveness	Being from a certain place creates a distinct identity used to distinguish self from others
Security	Feeling able to be yourself and able to carry out everyday activities without risk, feeling safe and secure.
Sense of belonging	Feeling that you belong to a place
Rootedness	An unself-conscious state of being at home in a place
Commitment to place	Wanting to stay in a particular place
Experiential value	Places valued for specific aesthetic components

In addition, place identity is considered to be:

1. Dynamic, given both change in identities and places (Hugh-Jones and Madill, 2009)

 Multiple, recognising both stability and change (Hugh-Jones and Madill, 2009; Easthope, 2009; Skop and Adams, 2009) "People can and do talk in terms of the impact of both mobility and place attachment on their identities simultaneously; the two modes of understanding identity construction are not exclusive." Easthope, 2009, p 75.

 Varied in scale: Mobility appears to shift the scale of place with which people identify to settlements e.g. city, town or country person (Feldman, 1990; 1996; Cuba and Hummon, 1993; Hummon, 1992; Twigger-Ross, Breakwell and Bonaiuto, 2003; Gustafson, 2009; Lewicka, 2011)

In this paper, place identity is conceptualised as an overarching concept that expresses the interrelationships between a person's identity, values and behaviours, and their constructions

of the physical world. The research in this area provides ample evidence of the importance of place for people's identity, making it important to understand the impacts of environmental and place-based changes over the next ten years

A useful theoretical framework that has been used in the context of threats to identity and place (Twigger-Ross and Uzzell, 1996; Bonaiuto, Breakwell and Cano, 1996; Twigger-Ross, Breakwell and Bonaiuto, 2003; Speller, 2000, Speller *et al*, 2002; Speller and Twigger-Ross, 2009; Hugh-Jones and Madill, 2009) is that of Breakwell (1986) which echoes a number of the features of place identity highlighted above but provides a theoretical framework.   Breakwell (1986) suggests that changes in the social world are assimilated and accommodated and evaluated in relation to four key principles. Firstly distinctiveness: the desire to maintain personal distinctiveness or uniqueness. Speller (2000; Speller *et al* 2002) found that in the new village a mining community had been relocated to, people showed their distinctiveness through the different decoration of the outsides of their houses. Secondly, self-efficacy, which is the individual's belief that he/she has the abilities to meet the demands of the situation and which is a measure of personal agency. In terms of the environment, feelings of self efficacy are maintained if the environment facilitates, or at least does not hinder, a person's everyday life. Thirdly, continuity, which is the desire to maintain continuity between past and present self concepts. A home and its contents can act as a referent to past selves and actions and the maintenance of that place can provide a sense of continuity (see also Seamon 1979). Relocation may be used to break a link with an old self concept, but forced relocation may threaten continuity. In addition, place-congruent continuity where people may move to new places but they represent their values and identity, therefore maintaining continuity of self. Finally, self esteem, which refers to a positive evaluation of self or the group with which you identify or, in terms of home, the sense of pride in that home or of living in a nice area. Wester-Herber (2004) discusses these principles directly in relation to understanding concerns in relation to changes in the landscape by the industrial developments. The issues around threat and disruption to place and its impact on identities is a thread that runs through this paper.

2.3.2 Place attachment

Given the prominence of place attachment as a concept within place identity theory some more detail on it is provided here. Place attachment is considered as an emotional bond with a place expressed as belonging and place identifications,. and is both a product and a process (Devine-Wright, 2009). It is also considered to develop before place identity (Hernandez *et al*, 2007). The places to which people are emotionally attached have significance for the self. Giuliani (2003; 1991) locates place attachment firmly as an emotion and considers how it links with Bowlby's (1988) attachment theory "*The feeling we experience towards certain places and to the communities that those places help to define and that are themselves defined by the places - home (family, relations, friends), workplace (colleagues), church (fellow worshippers), neighbourhood (neighbours), city, country, continent – certainly has a strong positive effect in defining our identity, in filling our life with meaning, in enriching it with values goals and significance*" Giuliani, 2003, pp 137-138.

Speller (2000); Speller *et al* (2002; 2009) has further unpacked and examined what is meant by place attachment in her longitudinal study of a relocated mining village in Derbyshire. She suggests that it functions to provide people with five key aspects:

- Sense of security, perceived freedom from risk or danger

- Autonomy, perceived freedom of self-determination

- Appropriation, making something part of oneself

- Stimulation, to feel animated or motivated; and

- Congruence, the belief that the place reflects one's identity.

She found further support for these five aspects in a recent study examining the impact of a scheme to revitalise the physical and social aspects of an estate in Greenwich (Speller, 2012).

More recent development of the concept of place attachment has focussed on understanding different types of place attachment. Lewicka (2011) developing qualitative work by Hummon (1992) in a large study in Poland draws two types of place attachment: traditional attachment and active attachment. Traditionally attached people had high levels of place attachment and local identity and an unconscious rootedness to where they lived. Actively attached people again had high levels of place attachment and local identity but their attachment was much more conscious and actively developed through continuous discovery and re-discovery of their local place. She also identified three types of place attachment characterised by lack of attachment: alienation; place relativity and placelessness. The alienated group showed no attachments to place and were described as the opposite of the actively attached group. The final two groups had low levels of place attachment and identified more with non-territorial groups e.g. family, gender etc than territorial groups. The place relativity group expressed positive attitudes around mobility and ability to move places together with a great sense of European identity than those in the placeless group. This study has helped to unpack the concept of place attachment and to help understand conflicting findings from studies looking at attachment and behaviours.

2.4 Well-being

Well-being is a concept that has come to prominence over the past decade in the UK (e.g. nef, 2010, 2011; Foresight, 2011), with it becoming a key concept within UK government crossing health, welfare (old age and children), sustainable development and local government (see nef, 2010 p6 – 7 for overview). Well-being is defined as "*a positive physical, social and mental state; it is not just the absence of pain, discomfort and incapacity. It requires that basic needs are met, that individuals have a sense of purpose, that they feel able to achieve important personal goals and participate in society. It is enhanced by conditions that include supportive personal relationships, strong and inclusive communities, good health, financial and personal security, rewarding employment, and a healthy and attractive environment.*" nef p. 9 2010

Well-being is considered something to be strived for within the population and therefore there has been a focus on measuring well-being with a view to monitoring it over time and in this way it is a goal to work for. Identity theories which focus on the processes of identity – that is, understanding what might be called the motivations for identity behaviour – highlight similar aspects to that of well-being e.g. self-esteem, self efficacy, autonomy etc. Haslam *et al* (2009) looking explicitly at social identity, health and well being suggesting that "*Groups that provide us with a sense of place, purpose, and belonging tend to be good for us psychologically.*" Haslam *et al*, 2009 p 2.

2.5 Types of place

There is ample evidence for the importance of specific types of place and their impacts on well-being and identities. Two are useful to highlight here – restorative environments and environments of risk.

2.5.1 Restorative environments

The concept of restorative environments focuses on understanding whether there are types of places that may provide a reduction in stress and an increased sense of well-being. Ward Thompson *et al* (2012) examined the effectiveness of using salivary cortisol as a 'biomarker' for stress and showed significant results for the relationship between the amounts of green space residential environments and positive mental wellbeing, for a highly deprived urban population. Research carried out by Forest Research (e.g. O'Brien *et al*, 2012) examines the value of forests in terms of health and well-being. As well as certain types of place being considered good for wellbeing, work on place attachment suggests that having secure attachments to place are good for mental wellbeing and psychological health (Fullilove, 1996). Lewicka (2011) in her work examining place attachment did find that those people with active place attachments expressed higher life satisfaction than those with low place attachment (placeless).

2.5.2 Environments of risk

There has been work looking at how places are perceived and related to if they become labelled as "unsafe" or "risky" because of technological or natural hazards. Key work from Edelstein (groundwater contamination 1987; 1988; Edelstein and Makofske (radon 1998), flooding (Sims *et al*, 2009) and drought (Albrecht *et al*, 2007) highlights the complex relationships of place and identity that are brought out when valued home environments become unsafe. Edelstein (1987; 1988) shows how the effect of groundwater contamination upon a community resulted in the "inversion of home" as what was considered a refuge and safe place became associated with danger and defilement. Many of the families would have left but could not because of the effect of the pollution on house prices and water pollution made daily living tasks such as cooking, difficult. In terms of flooding there is evidence of anxiety associated with rain for those people who have been severely flooded as well as evidence for a refusal to accept that a home may need to be protected from flooding (Harries, 2008). Evidence for the extent of these experiences in the UK amongst those people who have been flooded is quite widespread and frequently found within flood research. Much less is known about how long these effects last for and what impacts they have on longer term risk management behaviours.

3. Environmental and place-based changes

3.1 Introduction

To begin with it is important to be clear about what constitutes environmental and place based changes. Changes to places can be positive or negative. With respect to environmental change, this paper focuses on climate-related physical changes directly as well as the impacts from mitigation to those changes. It does not address other types of environmental change such as loss of biodiversity and resource depletion. Place-based changes are interpreted as land use change from the development of large infrastructure e.g. energy developments. However, the focus on those changes where there is identity or identity practice (behaviours) relevant evidence.

With respect to change it is useful to bear in mind not only the impacts of the change itself but also the perceptions of change through to acting on the change. In terms of flooding, this follows the flood risk cycle from preparation, warning, incident management, recovery, planning. What is important here is the recognition that there will be psychological and social impacts before any change happens (e.g. in large infrastructure projects) and even when no change takes place (e.g. when no flood happens).

3.2 Climate change and place

"*Climate change puts at risk a wide range of phenomena that people value, ranging from ecosystem services, species, and economic sectors to landscapes, homes, and human health*" Adger *et al*, 2011 p 1

"*Climate change will redefine the relationships people have with place*" (Fresque-Baxter and Armitage, 2012)

Adger *et al* (2011) suggest that it is useful to take a place based focus to climate change as it highlights what is important to people and cultures and identities "*A focus on places highlights the local material and symbolic contexts in which people create their lives, and through which those lives derive meaning.*" Adger *et al*, 2011 p2. They suggest that in climate change decision making this focus is needed to redress the balance from a predominantly cost-benefit approach to climate change. Fresque-Baxter and Armitage (2012) consider how place identity is a useful framework for the subjective attributes of climate change adaptation and provides a complement to what they call "*objective assets or determinants, such as political support, financial capital and human resources*". By reviewing the variety of approaches to place identity they formulate three perspectives for understanding subjective aspects of adaptive capacity:

1. The cognitive-behavioural approach - this focuses on understanding how individual place identity shapes decisions made about adaption options and actions in relation to current or future impacts from climate change.

 The health and well being approach – this focuses on understanding the importance of attachment to places for health and well-being and how it influences coping with environmental change and fostering greater resilience.

The collective action approach – this focuses on understanding collective action related to environmental change and to what extent place identity might shape this.

Their framework requires testing and elaborating with further research.

Hess *et al* (2008) also advocates a place based approach to climate change which understands place as a social and psychological construct, in order to attend to the public health aspects of climate change:

"*Climate change will disrupt ecologic, cultural, and economic relationships as well as nested conceptions of place. Evaluating climate change's effects on a particular place requires anticipation of these disrupted relationships and their resulting health effects, as well as identification of strategies that may no longer be sustainable in a given place. As a corollary, it will be important to consider the health effects of new adaptive strategies as they are employed in novel environments*" p 468

One key aspect of a place based approach to climate change is that it draws out the distributional impacts of climate change. It is acknowledged that there are differential impacts of climate change across the world and a number of studies have examined this in relation to the UK (e.g. Lindley *et al*, 2011; Walker *et al*, 2006). What this means is that there are people whose places and themselves will be identified as vulnerable and in need of a range of adaptation measures from relocation through to household level flood protection. This identification of groups as vulnerable will interact with their own perceptions of vulnerability and their identities in ways which may or may not support resilience. This issue is salient for other groups that are more vulnerable than others to climate change risks e.g. older people (flooding, heat waves); women (flooding) etc.

3.3 Climate change impacts, identity and well-being

3.3.1 Climate change risks

With respect to climate change impacts that have identity related aspects, flooding, heat waves, droughts are important to consider. Climate change impacts within the UK Climate Change Risk Assessment were examined for three time periods 2020s, 2050s and 2080s (Defra, 2012). Within each time period a range of estimates of climate change are used which are based on low, medium or high emission scenarios[1]. The impacts are assessed according to consequences in terms of high, medium or low and whether the impact is positive or negative. Given that this paper is concerned with a ten year time span the focus is on the estimates given for the 2020s.

Five themes were examined bringing together twelve sectors: agriculture and forestry, business, buildings and infrastructure, health and well-being and the natural environment. All risks are assessed with no account for adaptation, this was done so as to provide a robust baseline against which to test policies and plans and:

" *with the exception of population growth where this is relevant, do not include societal change in assessing future risks, either from non-climate related change, for example economic*

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[1] For more detailed information on how the risks were assessed see Defra (2012)

*growth, or developments in new technologies; or future responses to climate risks such as future Government policies or private adaptation investment plans***".(Defra, 2012, p iii).

There are of course adaptation responses taking place both at the individual level and societal level (e.g. heat wave planning), which will of course reduce these risks to some extent.

Table 2 highlights the risks in the health and well-being theme relevant to this paper, and either of high or medium consequence for 2020s.

Table 2: Impacts of High or Medium consequence for 2020s for UKCP09 middle estimate climate change scenario (adapted from Defra, 2012)

Impact to	2010 baseline	Consequence	Confidence
Effect of floods/storms on mental health	3,500-4,500 people in England and Wales suffer a mental health effect due to flooding each year – this is 30-40% of those who are flooded each year.	The numbers of **additional** people in England and Wales affected per year according to this metric are estimated to be between 3,000-4,000 by 2020s, 4,000-7,000 by the 2050s and 5,000-8,000 by the 2080s. The high numbers estimated for 2020s is due in part to the considerable number of properties, particularly in regions around the River Humber where a small change in risk may result in a noticeable change in risk of flooding.	Medium
Summer mortality due to higher temperatures:	Current baseline approximately 1100 premature deaths in UK due to higher temperatures	Results from the CCRA indicate an increase for the medium emissions central estimate of approximately 60% in heat related mortality in the near term (2020s), with an approximate 200% increase in the medium term (2050s)	High
Summer morbidity due to higher temperatures:	Estimate of approximately 100,000 hospital admissions due to heat each year	This is likely to result in an approximate 60% increase in heat related morbidity in the near term (2020s), with an approximate 200% increase in the medium term (2050s), based on central estimates for the medium emissions scenario.	High

Impact to	2010 baseline	Consequence	Confidence
Vulnerable people at significant risk of flooding (vulnerability is assessed using the index of multiple deprivation)	Estimate approximately 70,000 of the properties in the 'most deprived' areas are currently at significant risk of flooding;	A two-fold (~1.5 to 2.8 times) increase in the number of properties at risk for the 2020 is predicted.	Medium
Number of people at significant risk of tidal or river flooding[2]	Estimated number of people at significant likelihood of flooding currently is 900,000 in the UK	It is projected to range from about 1.1 to 2 million in the 2020s rising to 1.7 to 2.6 million by the 2050s	High
Extreme weather event (flooding and storms) mortality	Approximately 18 flood related deaths per year.	The overall findings suggest an increase in fatalities of approximately 70% by the 2020s with a 120% increase by the 2050s (central estimates of the medium emissions scenario).	Medium

Flooding is a key impact giving rise to an increase in mortality due to floods and storms, increased numbers of people suffering from mental health effects, increases in the numbers of people being flooded and of the numbers of vulnerable people at risk. As well as the direct impact of flooding there are issues around relocation as highlighted in the current UK National Planning Framework: "where *climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations.*" Communities and Local Government, National Planning Framework, p 24

Impacts of increased temperatures is also a key issue, with increases in mortality and morbidity.

What is also important to bear in mind is that perceptions of risk from these climate change impacts appear to be fairly low. Upham *et al* (2009) in their review of public attitudes to environmental change summarise by saying "*Overall, few consider themselves at risk from flooding. Heat related impacts from climate change appear to be considered more benign (or even pleasant) than flooding and awareness of heat stress is very low amongst vulnerable groups*" p. 7.

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[2] Note that this does not include surface water flooding. The CCRA indicated that there is an urgent need to develop projections of future risks of surface water flooding as similar numbers of people are exposed to the risks of surface water flooding and river/coastal flooding, with some people being exposed to both types of flooding.

There is evidence from these different areas of their impacts on and interactions with identities and well-being, and some of the key issues are highlighted in the sections below.

3.3.2 Flooding

From current research into flooding there is evidence of how disruption to valued places and homes in particular can lead to significant social impacts. Research has examined both health and social impacts seeking to describe, and in places quantify the impacts on people's lives of flooding, e.g. Tapsell *et al*, (1999); Tapsell *et al* (2002); Hajat *et al.* (2005); RPA/FHRC (2004); Tapsell and Tunstall, (2008); Whittle *et al*, (2010); Walker *et al.* (2006) provide a summary of the range of impacts that have been considered in research:

- *Economic impacts*, including damages to the property and its contents*.*

- *Non-economic losses*, including the loss of personal or sentimental items. The most important losses for victims are often personal possessions such as photographs.

- *Impacts on physical health and psychological health,* Direct loss of life and injuries (drowning; electrocution; carbon monoxide poisoning and hypothermia) together with exacerbation of chronic ill-health conditions. Psychological stress and anxiety associated with flooding and its aftermath, and related loss of life, injury, displacement, fear and bereavement. Post-traumatic stress disorder. Anxiety over possible future floods (Hajat *et al.*, 2005).

- *Impacts associated with evacuation*, temporary accommodation and relocation.

- *Household disruption*, which may include: the stress and inconvenience of living away from the home if evacuation is necessary, cleaning and repairing, and dealing with builders and insurers.

- *Community and neighbourhood changes*, e.g. changes in population due to evacuation which may be short or long term.

Not only are there direct impacts from the flood itself (e.g. physical injury; destruction of property), there are also impacts from dealing with the flood (e.g. stress from dealing with builders;), as well as longer term impacts associated with the "recovery" phase (e.g. losing a sense of home; anxiety associated with rain Whittle *et al*, 2010). Research has examined not only what factors are associated with increased negative social impacts of flooding but also social factors associated with the uptake of warnings (e.g. Burningham *et al.*, 2005; 2008) and taking action (see Fernandez-Bilbao and Twigger-Ross, 2009 for overview) and recovery (e.g. Whittle *et al.* 2010). This is because it is known that taking specific actions, being aware of flood risk and receiving flood warnings all reduce negative social and health impacts of flooding. Tapsell and Tunstall, (2008) in their longitudinal study of the health effects of flooding sum it up like this:

"*Some respondents felt that living in their local area would never be the same again and that their relationship with their locality and home had been transformed, a significant minority felt that they would never recover from the experience and that their quality of life had been permanently reduced. Those living in flooded places may take a long time to recover their security in their homes and confidence in the locality as a place to live*." Tapsell and Tunstall, 2008.

These findings are echoed through all the UK studies on flooding (e.g. Sims *et al*, 2009; Whittle *et al*, 2010; Carroll, *et al*, 2009; McCarthy, 2004; Deeming, 2008; Coates,2010) and highlighted in the Pitt review of the 2007 floods (Pitt, 2008). In addition, Harries (2008) has shown that there are a complex set of emotional reasons why householders would not put in flood protection measures instead he suggests "*preferring to think of their homes as places that are innately safe, they reject the idea of defending them*" (Harries, 2008, abstract). In accepting that a home needs to be protected from flooding one accepts that there is a real threat from flooding and that may not be something a person is able to accept and cope with

It is clear that a key aspect of flooding is the impact on well-being in general and specifically the impacts on mental health, the UKCCRA has identified mental health impacts of flooding as a key climate change risk. "*An increase in the number of people suffering mental health effects due to flooding indicates that there would need to be an increase in health support for flood victims and better consideration of the knock-on effects of flooding on wellbeing*"(Defra, 2012, p 172). It is important to consider how this might be achieved within the current economic climate of reductions in welfare support services and the individualisation of responsibility.

With respect to disruptions to home and the effect on identity four issues are important to draw out:

1. Disruptions to the home have negative effects on identities by disrupting the place in which key roles are enacted e.g. the role of carer is explored in Sims *et al* (2009) showing the impact on homes of flooding made the role of caring much more difficult

 Home provides a refuge, a safe place to be oneself but flooding inverts that, making people feel it is an unsafe place (Whittle *et al*, 2010)

 Places can provide continuity of self through references to past selves (Korpela, 1989; Twigger-Ross and Uzzell, 1996; Hugh-Madill and Jones, 2009). Disruptions to homes because of floods are likely to cause disruptions to continuity of self.

 If relocation is considered as a possible alternative for areas of considerable risk then care is needed to ensure that aspects of identity and identity behaviours are considered. There is considerable evidence for the negative social and psychological effects of forced relocations (e.g. Fried, 1963; Speller, 2000).

Understanding how to support people and communities to be resilient so as to minimise negative impacts of flooding should be a key focus of thinking and action. Recent work on community resilience indicates the importance of social networks, and links to wider support structures.

3.3.3 Heat waves
A second key environmental change is that of heat waves which are set to increase in the next ten years. There are some interesting issues around identity in general rather than place identity. Specifically, in the UK protecting ourselves against heat has been counter to the collective perception of the UK as a cold climate. Interesting work on care homes (Brown and Walker, 2008; and the culture of "keeping warm" suggests conscious efforts are needed to change perceptions of what risks we may face from heat. In turn, there is some research to suggest that identity beliefs of resilience and coping in older people could lead to the denial of heat as a risk issue (Abrahamson, 2008).

Within the UK, as well as heat being associated with leisure and affluence, social and discourse analysis of historic material (Brown, 2011) shows that "being cold" is constructed as a medical issue within care homes, such that many practices focus on maintaining and increasing residents' warmth in order for them to keep well. Framed as a "health" problem, being cold is to be avoided and many practices are associated with that avoidance and prevention. In contrast, "heat" has not been problematised in the same way or to the same degree. Whilst the cold is a well established problem amongst both the staff and residents, heat is viewed almost as an inconvenience and an issue of comfort rather than a real threat to health within care homes. For example, care homes, as with all working environments in the UK, are required to be maintained above a minimum temperature and inspectors verify that this is done; there is no equivalent maximum temperature. Benzie *et al.* (2011) point out how heat waves are not seen as posing a significant threat in the South West of England from their descriptions on the Community Risk Registers.

Abrahamson *et al.* (2008) in their qualitative study of older people's perceptions of heat, not carried out in a heat wave, found that many older people and those with a chronic condition did not consider themselves as risk despite their age or medical condition. Their finding that older people do not readily identify with the label "old" is crucially important to recognise if campaigns for adaptation are intended to target people of a specific age. Abrahamson *et al* (2008) cite the literature that has considered risk perception and its impact on capacity and action which supports their findings*.*

There is also some interesting research around social networks and heat waves, indicating the role of community identities in building resilience to climate change impacts*.* Specifically, in the analysis of the 1995 heat wave in Chicago, carried out by Semenza *et al.* (1996), 339 relatives, neighbours or friends of those who died and 339 controls matched to the case subjects in terms of neighbourhood and age were interviewed. They found that having social contacts such as group activities or friends in the area was a protective factor in relation to heat-related deaths. Further, living alone was associated with increased risk*.*

Klinenberg (2002a, 2002b) in his work on the Chicago 1995 heat wave, describes the more nuanced picture that emerges when this is further investigated. From the individual analysis it would be expected that more women than men would have died in the heat wave given the larger numbers of elderly women living alone. However, this was not the case and Klinenberg (2002b) suggests that this was partly because women keep up social networks in older age whereas men are less likely to. He also highlights differences between ethnic groups, showing that proportionately more African-Americans died than white elderly people (a ratio of 3:2), yet proportionately fewer members of the Latino population died than might be expect. This in part was attributed to the strong family ties evident in the Latino area of town, but Klinenberg (2002b) points out that there was a spatial element: "*Chicago's Latinos tend to live in neighborhoods with high population density, busy commercial life in the streets, and vibrant public spaces. Most of the African American neighborhoods with high heat wave death rates had been abandoned—by employers, stores, and residents—in recent decades. The social ecology of abandonment, dispersion, and decay makes systems of social support exceedingly difficult to sustain*" (Klinenberg, 2002b)*.*

What this suggests is that social networks and social isolation are important factors with respect to risks from heat waves, but that they need to be examined in relation to the socio-spatial context. Specifically, in relation to the UK, understanding if, and where those characteristics may come together will be important to supporting resilience of communities to heat waves.

3.3.4 Drought

With respect to drought, there is some evidence from Australia of the negative impacts on well-being and identity for farmers in rural areas. Specifically, Sartore *et al* (2008) in the context of a rural farming community investigated the community impacts associated with long term drought. They found that whilst there were significant negative effects on the community in terms of people leaving, businesses closing and a lack of social resources there was also a strong rural identity that was focussed on getting through and coping with the drought. They also found what they term "environmental distress", the negative emotions associated with a spoiled environment, and they conclude that "*it was clear that environmental degradation had an emotional impact on participants over and above that which might be expected from its practical implications*" p. 10. Whilst this is a long term issue in Australia, on a smaller scale over the past two years there has been a drought in the UK which has impacted agricultural communities and understanding impacts not only in terms of economics will be important. Interestingly, Albrecht *et al* (2007) have developed the concept of "solastalgia" in the context of drought and mining in Australia to describe the feelings of loss experienced when a valued place is no longer able to provide the "solace" or support that it once did, "*solastalgia refers to the pain or distress caused by the loss of, or inability to derive, solace connected to the negatively perceived state of one's home environment. Solastalgia exists when there is the lived experience of the physical desolation of home*" (Albrecht *et al*, 2007, p 96)   The specific psychological distress comes from the challenge to their sense of place and well-being together with feelings of powerlessness to change the situations. As well as evidence for negative impacts on well-being from drought, Stehlik *et al* (2000) highlight gender differences in the experiences of drought in Australia in their qualitative study of men and women living in rural New South Wales and South Queensland who experienced the severe drought in the 1990s. Particularly relevant is the theme that emerged in interviews with the women, of inside/outside places. Two interesting issues: women identified with the inside of their homes as their places, yet recognised that sacrifices had to be made to ensure the continuity of the outside i.e. crops, animals etc. In addition, by dint of the inside being their domain, women were on the receiving end of the business related phone calls from land agents and banks etc which often generated extra stress as frequently the news was bad. This is similar to findings from the flood literature that women often end up doing the frontline project management during the recovery phase which adds to their stress.

With respect to the UK, the main issues around drought are linked to the security of the public water supply. As discussed below there will be people with specific vulnerabilities who will have greater negative impacts from any water shortages.

3.3.5 Impacts on specific social groups: vulnerability to climate change

Using the CAG (2009) framework for understanding social vulnerability to climate change (Table 3) and extending it to cover droughts, Twigger-Ross and Orr (2012) concluded that these categories cover the broad range of factors that exacerbate negative social impacts of flooding, heat waves, and drought, all of which are projected to increase due to climate change as noted above.

These categories can be considered as social groupings and to a greater or lesser degree confer identities of vulnerability onto people, which they may or may not choose to accept and act upon.

Table 3: Social vulnerability categories and characteristics (after CAG, 2009)

Social vulnerability category	Social vulnerability characteristics
People living in places at risk	Location and place
People who are socially deprived	Poor mental and physical health
	Fewer financial resources
	Living and working in poor quality homes or workplaces
	Limited access to public and private transport
People who are disempowered because of lack of awareness, adaptive capacity, support services and exclusion from decision-making	Limited or lack of awareness of risks
	Lack of social networks
	Little access to systems and support services (e.g. health care)

There is also some evidence of a number of other factors which exacerbate negative aspects of floods and heat, specifically, that did not fit into these categories. These are presented in Tables 4 and 5:

Table 4: Further vulnerability characteristics exacerbating negative impacts of flooding

Floods	
Gender	Research suggests that women are often more severely affected than men by floods. Walker and Burningham (2011), provide a useful overview of evidence in this area highlighting that women tend to experience particular physical and psychological flood-related health problems themselves as well as tending to carry the physical and emotional burden of caring for sick household members, together with being more involved with the management of recovery (Whittle *et al*, 2010)

Floods	
Social class	Social class has been found to be a predictor of awareness of your home being in an area that may be at risk of flooding, with those in social classes A and B showed greater awareness of their flood risk than those in social classes D and (Burningham, Fielding and Thrush, 2008). This could be explained by lower levels of education or participation.

Table 5: Further vulnerability characteristics exacerbating negative impacts of heatwaves and drought

Heat waves and drought	
Gender	There is some evidence that women are more susceptible to heat related illnesses than men in heat waves possibly to do with physiological differences (Vassello *et al.*, 1995). Whilst there is evidence that experiences of drought are gendered i.e. men and women experience them differently, research could usefully investigate whether negative impacts of drought are felt more or less severely by women or men.
Age	Evidence that vulnerability to heat increases with age and is linked to intrinsic changes in the regulatory system or to the presence of drugs that interfere in the normal homeostasis (Vassello *et al.* 1995). Unlike other risks e.g. flooding where old age is largely a proxy for relevant hazard related health problems (e.g. reduced mobility) the body is intrinsically more sensitive to heat with age.

With respect to disasters in general, Groen and Polivka (2010) comment that "*Studies of previous disasters have found that socioeconomic status and being a member of a minority group are significant predictors of individuals suffering severe physical and psychological impacts of disasters (Bolin and Stanford 1998; Fothergill et al. 1999; Peacock and Girard 1997). Disaster research has also documented that socioeconomic status plays an important role during the recovery from a disaster—with more-advantaged groups able to recover more quickly and more completely (Bolin and Bolton 1986; Peacock, Morrow, and Gladwin 1997)—and that disasters tend to increase the concentration of poorer, more socially disadvantaged populations on less-desirable land (Girard and Peacock 1997; Pais and Elliott 2008).*"p. 821-822. Understanding how these issues play out within the UK context will be important if negative consequences of climate change are to be reduced.

3.4 Climate change mitigation

3.4.1 Personal and social identities as facilitators/barriers to climate change mitigation behaviours

A further key issue that has been raised with respect to climate change is in relation to identity and behaviour change. In order to mitigate climate change, behaviour change is needed by individuals and communities and work on the role of identity and pro-environmental behaviours provides some useful pointers for developing campaigns to encourage behaviour change as well as highlighting how identities might be barriers to behaviour change.

Work on how to encourage pro-environmental behaviours (e.g. using less household energy and water, taking alternative transport modes to the car, buying organic, local food etc) has a long tradition in psychology using models of attitudes and behaviours such as the theory of planned behaviour (Fishbein and Ajzen 1975). Whilst there has been success in predicting specific pro-environmental behaviours from attitudes and social norms there is interest in understanding the role of pro-environmental identities in prediction of a wider set of pro-environmental behaviours (e.g. Whitmarsh and O'Neill, 2010; Gatersleben, Murtagh and Abrahms, 2012) and to what extent are there "spillover" effects from one green behaviour to others due to "green identities" (Crompton and Thorgerson, 2009; Whitmarsh and O'Neill, 2010). Whitmarsh and O'Neill (2010) found that having a pro-environmental identity both specific to the behaviour (carbon offsetting) and in general, predicted behavioural intention to carbon offset when added to the Theory of Planned Behaviour variables, showing that self-identity has a role to play in understanding pro-environmental behaviours. They also found that pro-environmental self identity was a significant predictor for certain other pro-environmental behaviours, waste reduction, regular water and domestic energy conservation and eco-shopping and eating. It did not predict one off energy conservation, travel and political behaviours. They also found that pro-environmental values did not predict behaviour. This suggests that there is some value in focussing messages at a specific pro-environmental identity as it covers a number of types of behaviour, but that for other activities it will not be so useful. Gatersleben *et al* (2012) look at both values and identity in a series of studies and found that both values and identities were good predictors of pro-environmental behaviour in each study and identities explained pro-environmental behaviours over specific attitudes.

Whilst it will be useful to focus on facilitating pro-environmental identities, in reality this is only going to reach a limited number of the population. Upham *et al* (2009) in their extensive review of public attitudes to environmental change highlight that climate change is of low salience to many people "*Most people (apart from the most environmentally conscious or most financially constrained) do not think about the energy they use in the home, and neither energy consumption (including embodied energy and potential future energy savings) nor environmental impact are typically considered when buying appliances (for which initial cost is the primary motivating factor; Brook Lyndhurst, 2007) or when buying and preparing food (Giorgi et al, 2009) or travelling (King, Dyball, Webster et al 2009)*" p. 25. This is supported by Crompton and Thorgerson (2009) who cite polls of UK citizens which found that 41% of those surveyed agreed with the statement "I am worried the government in taking action on climate change, will try to restrict the things I want to do" (IPSOS-MORI, 2008). They also cite evidence as do Whitmarsh *et al*, (2010) that whilst people include some aspects of purchasing decisions (e.g. buying fair trade, organic) as part of their pro-environmental behaviours there is a sense that this does not involve significant and radical lifestyle changes. A key area in which identities are considered to be important is that of cars and car travel. The role of material possessions is recognised as an important part of self-image and recognised increasingly as central to self-identity (Anable *et al*, 2006; Dittmar, 1992;) and this is no more true than in the area of car

ownership and car use. This is another area where the mitigation of climate change may encounter barriers because of identity issues associated with cars and travel behaviour. Murtagh, Gatersleben and Uzzell (2012) provide some interesting evidence on using identity threats to encourage a reduction in car use. They suggest that some campaigns to get people to change behaviour threaten people's sense of self-efficacy: their competence, which is possibly one reason why people are more reluctant to reduce their car use. Their study did show that self-identity threat predicted resistance to change in both identities. They suggest that "*Self-identity threat, as explicated by Identity Process Theory, triggers psychological coping strategies, and of these, deflection strategies may account for resistance to change*" p. 325 Murtagh *et al*, (2012)

Whitmarsh *et al* (2010) raise the issue of conflicts between identities such as a "green identity" with that of being "well-travelled" which again may prohibit greater behavioural change that is suggested necessary in order to mitigate climate change (Crompton and Thorgersen, 2009).

3.4.2 The role of collective identities and social movements: transition initiatives as an example

The challenge to reduce our carbon footprint over the next ten years is very real and consideration of how to facilitate lasting behaviour change will need to consider the complexities of social identities and behaviours. What is interesting is how the issue of peak oil and the threats from climate change have been brought together by the transition initiatives movement (www.transitionnetwork.org) to be tackled at the local level by communities. This movement provides more optimism for approaches to adapting to climate change whilst taking a place based approach and encouraging the development of both community identities and identification with communities. Rob Hopkins is credited as the founder of what was known as the "transition town" movement but is now referred to as "transition initiatives" and the "transition network". At the core of the movement is the concept of resilience, and this is translated at a local level. A transition initiative is described as "*a place where there's a community-led process that helps that town/village/city/neighbourhood become stronger and happier*".[3]

Whilst it has grown from a concern around peak oil and climate change, the focus is on developing local communities so that they are resilient to uncertainty, be that climate change or economic change. The transition network has advice and support for initiatives but has resisted becoming a central controlling organisation, rather for initiatives to happen there have to be interested community members to take them forward. In terms of initiatives (both live and pending) there are currently 346 listed within the UK and 920 worldwide (www.transitionnetwork.org/initiatives/map). The types of initiatives start with awareness raising and then move through to practical projects such as community supported agriculture, shared transport, local currencies, seed swaps, tool libraries, energy saving clubs, urban orchards, and re-skilling classes. The aim then is to re-vision local areas in the light of peak oil and climate change. Hopkins (2012) suggests that the success of many of these initiatives is around the development of community identities rather than the focus on solving environmental problems:

"*Normally the environmental approach has been to look and go at these things directly. But Transition takes an oblique approach. If we run around saying we need to reduce oil, and that*

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[3] See www.transitionnetwork.org/support/what-transition-initiative. Accessed 5 December 2012

is the push, well maybe it is more skilful to be able to say that we are about building communities, bringing people together. There are people involved in Transition Streets who cut their carbon by 1.3 tons and saved £600 a year. But actually the top benefit when you ask them was getting to know their neighbours and feeling more a part of their community."
Hopkins, 2012.

Recently a network around research into transition initiatives has developed: www.transitionresearch.org which aims to:

1. Help advance understanding and practice in Transition;

2. Support Transition groups to address their research needs

3. Help transform the crisis in our universities into an opportunity for positive change in research culture, making research relevant, fulfilling, and fun.

This research network is working alongside the transition networks and developing approaches to research in this area as well as collating research that is being carried out already on transition initiatives. It will be interesting to see how these initiatives develop and mature over the next 10 years.

3.5 "Built" environment issues

3.5.1 Changes to valued places due to siting of renewable energy

With respect to climate change mitigation a key issue will be the future of energy policy within the UK. In terms of renewables the UK has a target to meet 15% of its energy needs by 2020 through renewable sources. Nuclear energy is also set to play a larger role in the production of energy with the next generation of nuclear power plants. There are a number of ways in which these are important to identity, perhaps more specifically to identity practices: behaviours, which are explored in this section.

Changes to valued places e.g. natural landscapes impact on place attachments and have been shown to lead to "place protective actions" e.g. protests etc specifically with respect to wind farms, and power lines. Stedman (2002) suggests that "*we are willing to fight for places that are more central to our identities*" p. 577. Devine-Wright (2009) in the context of re-thinking NIMBYism (Not In My Back Yard – see Burningham, Thrush and Barnett (2009) for a review) examined the role of place attachment and place identity in explaining "place protective" actions with respect to opposition to new developments, specifically local energy developments. In this review article he raises an important distinction with respect to place related change, between the development process which may take years and the outcome i.e. the development itself. He suggests links between place attachment to proposed developments and suggest that disruption to the place disrupts attachment and place identity processes. However, these relationships are not so clear and Devine-Wright and Howes (2010) discuss how the way in which a place is evaluated, or represented as a specific type of place e.g. restorative, impacts on whether people attached to that place will be positive or negative about energy developments. Looking at two towns in North Wales, both affected by a proposed offshore wind farm, using both quantitative and qualitative research methods with local residents, Devine-Wright and Howes (2010) found that for one town there was a contradiction between the place as scenic and the proposed wind farm which was regarded as industrialising the area. They suggest that this contradiction led to a threat to identity for those with strong

place attachment leading to opposition and negative attitudes towards the wind farm. However, similar results were not found in their second town where instead there were fewer negative attitudes towards the proposed wind farm and little relationship between place attachment and attitudes, beliefs and emotions towards the wind farm. Indeed previous research (Stedman, 2002; Bonaiuto *et al*, 2002) suggests that proposals for place related change do not necessarily disrupt place attachment. As Devine-Wright and Howes (2010) discuss it is how changes to place are interpreted that is key as to whether place attachment is related to acceptance of change or not.

This relates back to our point about the social construction of place, change to place is also socially constructed and grounded in representations of the place itself. It would also explain in part acceptance of nuclear power stations in areas where the already exist as they may link with representations of the place as industrial and benefits are likely to be framed largely in economic terms. In more recent work Devine-Wright, (in press) on power lines found that whilst place attachment still had a significant relationship, project related factors dominated in explaining objections to powerlines. The work in this area examining place attachment, disruptions to place, place representations and place identity is developing and in some ways quite new although it has parallels with work in the field of risk. Clearly there are complex issues around the acceptance or rejection of proposed developments which may or may not impact on identities but we suggest that this is a key area for investigation in understanding the impacts of place based changes on identities (Upham *et al*, 2009).

4. Conclusions

This review has focussed on some key areas relating to the impacts on notions of identity from environmental and place-based change. Inevitably it has been partial, and indeed a key issue that emerges from this paper is the wealth of work that is of relevance from a place and identity perspective much of which has only been touched on here.

Four key conclusions can be drawn:

1. There is ample evidence for the continuing importance of place and attachment to place with respect to identities and well-being

Given this, taking a place perspective on climate change is important in order to balance the current de-contextualised predominantly economic focussed approach taken by many policy makers.

Climate change particularly, foregrounds place mainly because it is changing many places from places of safety and certainty into places that are risky and uncertain. Previous work suggests that this will impact on people's well-being specifically in terms of sense of psychological security which is vital to the maintenance of positive identities. Whilst we may develop more resilient identities, ones that are used to coping with emergencies, that is likely to take time. Certainly research into flooding suggests that behaviours to protect against flooding don't change quickly.

Who we are is shaped both by the social categories and places that we inhabit, identities are not infinitely malleable. The location of specific vulnerable groups in specific risky places creates vulnerable identities which will need to be supported in order to develop resilient communities and to avoid increasing environmental injustices.

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