



SEI Project Report

Growing Old in a Changing Climate

Meeting the challenges of an ageing population and climate change

Gary Haq, John Whitelegg and Mervyn Kohler

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climate change**

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THE UNIVERSITY of York



TOMORROW'S CLIMATE
Today's Challenge

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AND
HUMBER
ASSEMBLY**
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LIST OF ACRONYMS AND ABBREVIATIONS

CO ₂	Carbon dioxide
CERT	Carbon Emission Reduction Target
CSV	Community Services Volunteers
DCLG	Department for Communities & Local Government
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DH	Department of Health
FI	Finance services industry
GHG	Greenhouse gases
GLA	General London Authority
LAA	Local Area Agreement
LSP	Local Strategic Partnership
MAA	Multi Area Agreements
NICE	National Institute for Health and Clinical Excellence
ODPM	Office of the Deputy Prime Minister
ONS	Office of National Statistics
IPCC	Intergovernmental Panel on Climate Change
NHS	National Health Service
PCT	Personal Carbon Trading
POST	Parliamentary Office of Science and Technology
RSVP	Retired and Senior Volunteer Programme
UK	United Kingdom
UKCIP	UK Climate Impacts Programme
UNEP	United Nations Environment Programme
USA	United States of America

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Executive Summary

- 1.1 Climate change and an ageing population bring together **two key policy challenges** which need to be addressed to ensure a safe, secure, equitable and sustainable future.
- 1.2 Vulnerability of people in old age arises from the interactions between advantages and disadvantages accumulated during the course of one's life and the experience of threats in later life. Whether this interaction creates a better or worse outcome depends on the individual's coping resources.
- 1.3 **Climate vulnerability** in old age requires an understanding of exposure factors and their distribution over time and the way individuals manage or fail to mobilise social, material and public resources to protect themselves from bad outcomes.
- 1.4 In the UK, climate change is predicted to result in an increase in mean annual temperature of between 2.5 and 3.0 °C by the end of the century (DH, 2008a). Greater warming is more likely to occur in the south and east of the country. The British summer will be **hotter and drier** with average summer temperatures rising between 0.5 and 2.0 °C. **Extreme weather events** such as very hot summer days (e.g. similar to August 2003 and July 2006 which were 3.0 °C above average) are likely to become a common occurrence. In contrast, the number of cold winter days will decrease while winter rainfall, winter storms and windy weather is expected to become more frequent.
- 1.5 The risk and harm resulting from climate change will **not be evenly distributed**; certain groups in society will be affected more than others. By 2031 over 50s are expected to represent approximately 41 per cent of the UK population (27 million).
- 1.6 People in old age may be **physically, financially and emotionally less resilient** to dealing with the effects of a changing climate than the rest of the population. The insecurity and heightened exposure to certain threats caused by a changing climate are compounded in old age by reduced capacities for coping independently.
- 1.7 In a national survey of attitudes to climate change those aged 65-plus showed less awareness and concern about the issue. This was the most likely age group to say that climate change is the result of natural changes, and most likely to say that they would not be affected by climate change.
- 1.8 A 2008 survey of attitudes to climate change of nearly 1,000 people aged 50-plus in North Yorkshire showed they are more '**hopeful**', '**enthused**' and '**positive**' about climate change compared with two years ago. There is still a substantial (73 per cent) sense of **frustration** over action being taken to tackle climate change, though this is lower than in 2006 (81 per cent). A total of 95 per cent believe the UK government is responsible for taking action, while 91 per cent believe industry and business should act, and 84 per cent believe it is the responsibility of their local authority.
- 1.9 Three general categories of old age can be distinguished: **baby boomers**; **seniors** and **elders**. Within these three broad categories there is great variation with regard to levels of wealth and consumption. However, by examining household expenditure on goods and services at different stages of life it is possible to determine an approximate average carbon footprint by age.
- 1.10 On average baby boomers have a carbon footprint of approximately 13.5 tonnes. They emit 1.5 to 2.5 tonnes more CO₂ per year than any other age group. Seniors have the

second highest footprint compared to other age groups. They have a carbon footprint of approximately 12.1 tonnes of CO₂ per year. The elders have the highest climate impact per £ spent compared to all other age groups. This is because home heating, which is carbon intensive, represents 40 per cent of their carbon footprint.

- 1.11** Older people can be seen as potential **contributors** and **casualties** of climate change as well as **campaigners** to tackle the problem. The over 50s contribute to the problem of climate change due to carbon emissions resulting from their level of consumption but they are also more at risk from climate-related threats due to deteriorating health and burden of disease in old age. In addition, the over 50s have a role to play in tackling climate change by reducing their own personal carbon emissions, increasing awareness, lobbying and working for change at the local and national level.

- 1.12** **Vulnerability of older people** to the effects of climate change arises from a combination of personal characteristics and interactions between exposure, sensitivity and coping capacity when faced with a specific climate-related threat. Exposure level, likelihood and magnitude of the threat and the different coping capacities will all determine the severity of the outcome.

- 1.13** **Exposure** is the state of being exposed to something harmful. It is linked to the sensitivity and risk of an individual being exposed to certain threats (e.g. heatwave, flooding and storm events). These are shocks or crises that can force people towards bad outcomes, unless they have the resources to mitigate the effect.

- 1.14** An individual's **sensitivity** to the effects of climate change will be determined by genetic disposition, pre-existing burden of disease or ill health, income, geographic location, family support systems, quality of public health infrastructure and access to relevant local information.

1.15 Threats can disrupt an individual's way of life and routine and force them to mobilise coping resources to avoid a decline in their well-being. Some threats are linked to life stage such as decline in health and physical strength, disability, loss of income, loss of a spouse or members of a social network.

1.16 Other threats such as natural and **human-induced environmental hazards** from climate change (e.g. high temperatures, storm damage, poor access to public services due to extreme weather events) may pose a danger to older people.

1.17 An individual's **resilience** to adapt to climate change is determined by both availability of assets (e.g. amount and quality of knowledge, physical and financial capital, and social relations and networks) and access to services (e.g. transport, communication, social support, emergency relief and recovery).

1.18 Coping capacity is how adaptable an individual is to dealing with the impact of climate change. This is linked to climate sensitivity. Improving the coping capacity of older people reduces direct and indirect impact of climate change. This includes how quickly an individual can recover following a particular event. Older people's ability to cope with the effects of climate change will be dependent on a combination of individual capacities (e.g. wealth, education, skills and health), social networks (e.g. family, friends, neighbours, community institutions such as religious, voluntary groups and charities) and social protection policies (e.g. formal welfare provision such as pensions, health and social services). This will determine whether or not they suffer a bad outcome such as damage or loss, becoming physically weaker, economically impoverished, socially dependent, and humiliated or psychologically harmed.

1.19 Coping capacity will be shaped and further **exacerbated by inequalities**, social injustice, disempowerment and access to key essential services. Therefore, healthy lifestyles, acquisition of coping skills, strong family and social ties, active interests and, of course, savings and assets, will all assist in ensuring that people's reserves are and remain strong in later life.

1.20 This report has attempted to bring together what we know about an ageing population and the effects of climate change. It is clear **not everyone will be equally affected** by changes in the climate. A national workshop entitled "*Growing Old in a Changing Climate: Meeting the Challenge of Climate Change*" was held on 26 March 2008. Three wide-ranging themes emerged from the workshop:

- Individuals are **willing to make changes** and contribute to tackling climate change but think government should do more (e.g. deal with packaging through legislation and improve public transport). There is an urgent need to improve the quality of housing stock and energy efficiency.

- Older people should be more **involved with policy making** and problem solving because they have huge amounts of experience to draw upon.

- **A new and vigorous national policy framework**, which combines sectoral and cross-sectoral approaches and temporal sequencing, is needed to link climate change interventions and policies in order to improve the quality of life of older people.

1.21 Currently there is **no coherent policy response** addressing the interface between climate change and older people. There is a need for policies to be sharpened, focused and co-

ordinated to deal with the range of impacts a changing climate will have on the lives of an ageing population.

1.22 Policy initiatives to **reduce climate vulnerability of older people** can focus on each part of the dynamic process that creates vulnerability, namely ensuring people reach later life with reserve, reducing the challenges they face in later life, and providing adequate health and social care.

Recommendation 1

Risk assess all future policies

The scope and magnitude of the threats associated with global climate change for all sectors of the population and national infrastructure demand that central government departments **risk assesses all future policies** to ensure that, directly or indirectly, implementation does not undermine government targets to reduce UK greenhouse gas emissions.

Recommendation 2

Climate change proof the homes of older people

There should be **continued investment** to ensure the highest standards of **energy efficiency** to reduce fuel bills and CO₂ emissions. In order to reduce CO₂ emissions from the housing sector and tackle fuel poverty, it is essential that the **homes of older people are climate change proofed** as quickly as possible and that this is done for existing homes as well as new build. A major programme of investment funded by national government is necessary so that **every dwelling in England is retrofitted** to the highest possible standard of energy efficiency. The programme should start with all those of retirement age. There should be investment in the third sector (i.e. voluntary and community organisations, charities, social enterprises, cooperatives and mutuals) to work at the grass roots of communities to identify properties and older people who could benefit from such a scheme.

Recommendation 3

Enrich local accessibility

Every local authority should use the opportunity of Local Area Agreements and Multi Area Agreements to re-focus its activities and budgets specifically towards delivering safer, stronger and healthier communities for older people. A **major programme of local accessibility enrichment** and modal shift taking into account best practice on walking, cycling, public transport and land use planning in Germany, Switzerland, Denmark and the Netherlands. Strategic Health Authorities and local authorities have a key role to play in developing integrated and preventative measures to ensure older people enjoy healthy and active ageing.

Recommendation 4

Better transport for older people

Older people have suffered from the trend toward out-of-town shopping centres that are accessible only by car, and from the withdrawal of so many bus services across the country. By 2015, standards of modal share and **public transport efficiency, reliability**, interchange potential, safety and security should be equal to best practice in the European Union. Community transport will be vital for those older people who are unable to use public transport.

Recommendation 5

Leadership on older people and climate change

Leadership is required to address the challenge of growing old in a changing climate and to ensure a safe, secure, equitable and sustainable future for older people. This leadership should be driven by central government who should establish an **Older People and Climate Change Group** that brings together older people's organisations, key stakeholders, the voluntary sector, government agencies and academia. This group should initially be charged with developing a **national policy framework** that sets out cross sectoral interventions and policies to improve the quality of life of older people. This collaborative effort would improve, **focus and co-ordinate action** to deal with the range of issues and impacts a changing climate will have on the lives of an ageing population.



1 Introduction

Climate change and an ageing population bring together two key policy challenges which need to be addressed to ensure a safe, secure, equitable and sustainable future. Growing old in the twenty-first century will bring with it the unique challenge of changing weather and climate and the impact this will have on all aspects of life. In order to effectively manage the effects of climate change it will be necessary to confront and integrate social dimensions in climate adaptation planning. Social dynamics will determine the vulnerability to climate-related threats and the level of resilience of different social and demographic groups.

An understanding of the social factors which contribute to older people's vulnerability and resilience to climate change can strengthen the capacity of government and agencies to prevent and minimise the impact of climate change on this demographic group. **There is a need to focus on reducing the vulnerability of older people to climate change by improving their adaptive capacity and resilience.** Strategies are needed to examine the social processes which force older people into vulnerable conditions, and the structural inequalities that are the root cause of social-environmental vulnerability. It is important that efforts are focussed on determining who will be most vulnerable to which events, what exacerbates vulnerability and what policies best strengthen people's capacity to adapt.

Two inevitabilities of the twenty-first century are the ageing of our society and climate change. Our social and economic policies need to be shaped by a shared understanding of these two predictable trends. We can adapt to each of these separately, but that risks seeking solutions in one area that might impact adversely on the other. For example, we might drive up the cost of fuel in order to restrain usage but impose in consequence, on our older population, an inability to keep adequately warm and pricing them out of the car using public when that might be their

only option to get out and about. Likewise, we might develop more technologies to sustain older people living independently at home today, but fail to appreciate the hazards of hotter summers, storms and high winds, and flash floods and power failures which could negate the value of those technologies. The Government recognised these themes as part of its introduction to the Comprehensive Spending Review published in 2005. By the time the Review was completed and announced in 2007 (HM Treasury, 2007), more pressing requirements had taken priority, and these big-picture items had been relegated to a back seat. But that, sadly, is short term expediency; there is no escape from the two trends with which this report is concerned.

Older people's needs, in terms of social care and their place in society, are high profile, and they are not alone in needing to respond to climate change. This report explores the vulnerability of an ageing population to the direct and indirect effects resulting from a changing climate. It discusses the key factors which might determine an individual's ability to cope with a threat posed by climate change. It highlights the key areas which might affect the health and well-being of people in old age. The report sets out the known facts about the sociology of older people plus the implications of climate change for this demographic group. It builds upon research conducted by the Stockholm Environment Institute on attitudes of older people to climate change as part of a DEFRA funded Climate Change Communication project as well as a national workshop it convened to generate ideas and thoughts from the grass-roots. Although the attitudes and views of older people are wide ranging, they confirm that older people feel strongly that they need to be included in the discussions and formulation of policies and approaches to address the challenge of climate change.

2 A Changing Climate

As a nation we have great conversational interest in the day to day variability of the UK climate. The climate is a valuable natural resource as well as a serious source of natural hazards. These two aspects are reflected within the UK climate system which, in turn, is a sub-component of the global climate system. The effects of global climate change are becoming ever more evident. Most of the warming over the last century has occurred in recent decades (IPCC, 2007). The majority of the world's scientists now agree that it is at least 90 per cent certain that human emissions of greenhouse gases (GHGs) rather than natural variations are warming the planet's surface (IPCC, 2007). Carbon dioxide (CO_2), methane, nitrous oxide, and three groups of fluorinated gases (sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons) are the major GHGs and the subject of the Kyoto Protocol, which entered into force in 2005.

The Intergovernmental Panel on Climate Change (IPCC) (2007) predict an increase of 1.8–4.0 °C (3.2–7.2 °F) by the end of the century. In the UK, climate change is predicted to result in an increase in mean annual temperature of between 2.5 and 3.0 °C by the end of the century (DH, 2008a). Greater warming is more likely to occur

in the south and east of the country. The British summer will be hotter and drier with average summer temperatures rising between 0.5 and 2.0 °C. Extreme weather events such as very hot summer days (e.g. similar to August 2003 and July 2006 which were 3.0 °C above average) are likely to become a common occurrence. In contrast, the number of cold winter days will decrease while winter rainfall, winter storms and windy weather is expected to become more frequent. Depending on the region, the sea level around the UK coast is predicted to rise by 80 cm. Extreme sea levels and storm surge events may become more frequent in some coastal locations (UKCIP, 2002; 2007).

A distinction can be made between current and future climate change. Policies are therefore needed to reduce and adapt to risk on both timescales. The mitigation of future changes in climate is a long-term task, both inter-generational and international in its nature. Future generations will receive the benefits of successful global mitigation efforts whilst only a few short-term benefits will accrue for the current older generation. The greatest short-term benefits will come from addressing current and future climate change in an integrated approach.



3 Older People and Climate Change

Climate change is expected to have adverse effects on natural and human systems. The risk and harm resulting from climate change will not be evenly distributed; certain groups in society will be affected more than others. The over 50s are making up an increasing proportion of the UK population. In 2003 there were 20 million people aged 50-plus compared to approximately 14 million in 1951 (ONS, 2005a). By 2031 over 50s are expected to represent approximately 41 per cent of the UK population (27 million) (ONS, 2005b). Older People may be physically, financially and emotionally less able to deal with the effects of a changing climate compared with the rest of the population. The insecurity and heightened exposure to certain threats caused by a changing climate are compounded in old age by reduced capacities for coping independently.

Older people can be seen as potential contributors to, and casualties of, climate change as well as potential campaigners to tackle the problem (see Figure 1). The over 50s contribute to the problem of climate change due to carbon emissions resulting from their level of consumption but they may also be more at risk from climate-related threats due to an increased likelihood of deteriorating health that comes with age. Factors such as income, education, social support

network and access to social services will determine how well an individual will cope with a climate-related threat. In addition, the over 50s have a role to play in tackling climate change by reducing their own personal carbon emissions, increasing awareness, lobbying and working for change at the local and national level. In 2008 27 per cent of over 65s participated in voluntary and community activities (Audit Commission, 2008). The life experience and knowledge of the over 50s mean that they are uniquely placed to comment on government responses to political and economic crises. There is significant untapped potential in this area.

3.1 ATTITUDES TO CLIMATE CHANGE

In a national survey of attitudes to climate change those aged 65-plus showed less awareness and concern about the issue. This was the age group most likely to say that climate change is the result of natural changes, and most likely to say that they would not be affected by climate change (DEFRA, 2007a). Those aged 65-plus were more likely than other age groups to say they felt hopeful and positive about climate change, although at the same time being most likely to say neither they personally, nor industry, business and the UK Government,

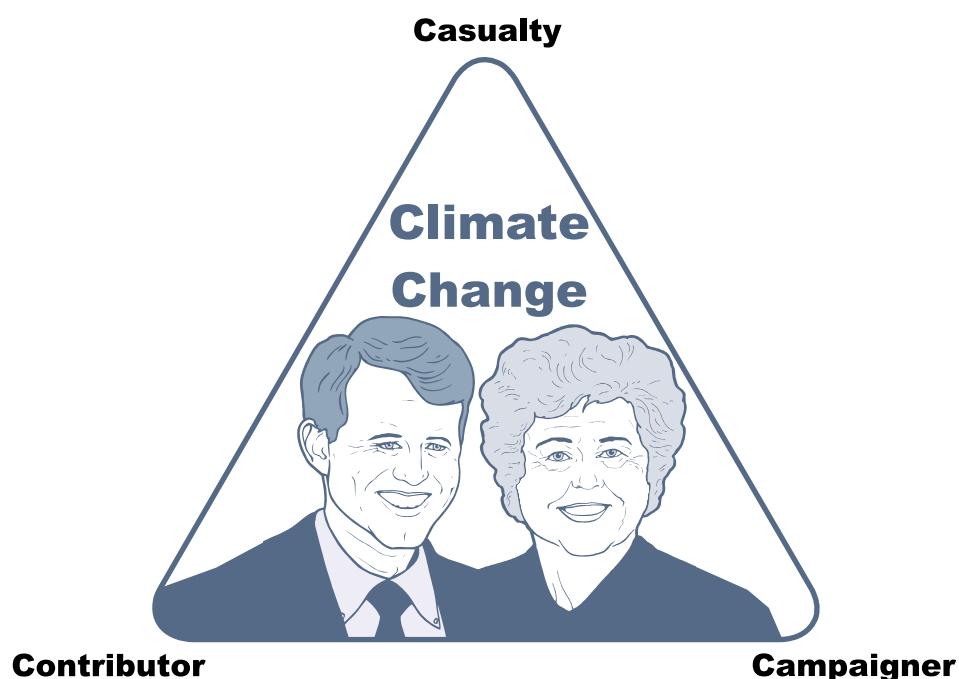


Figure 1: Climate change and older people

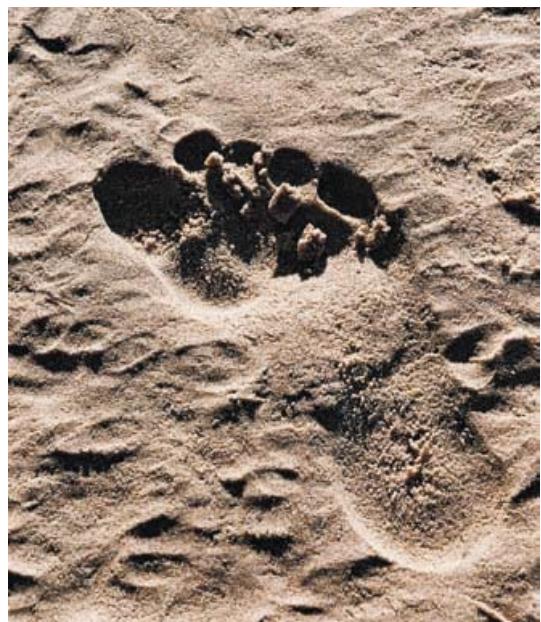
could have any influence on preventing climate change. There were some similarities between the oldest and youngest age groups (18-24s). The youngest age group also showed less concern than 25-64s about climate change, being less likely to strongly agree that the world's climate is changing, and to think that they are already affected by climate change.

A 2008 survey of attitudes to climate change of nearly 1,000 people aged 50-plus in North Yorkshire showed that 75 per cent feel that their region is already being affected by climate change - an increase of 8 per cent compared with a survey conducted in 2006. Eight out of ten people (83 per cent) believe their grandchildren will face worse problems than they do, due to climate change. Nearly 60 per cent of over 50s surveyed were 'hopeful' when it comes to tackling climate change while 85 per cent feel 'motivated' and 76 per cent 'positive'. Almost eight out of ten people (78 per cent) feel it is partly up to them to take action to tackle climate change emissions. Women (83 per cent) are more willing to take personal action to reduce their carbon footprint than men (75 per cent). Those over 50s who believe climate change will happen sooner are more likely to take action to reduce their carbon footprint. However, those who perceived difficulty in taking action to reduce personal carbon emissions were less likely to take action.

The survey showed a change in attitudes to climate change in this age group compared with a similar survey in 2006. The over 50s are more 'hopeful', 'enthused' and 'positive' about climate change compared with two years ago. There is still a substantial (73 per cent) sense of frustration over action being taken to tackle climate change, though this is lower than in 2006 (81 per cent). A total of 95 per cent believe the UK government is responsible for taking action, while 91 per cent believe industry and business should act, and 84 per cent believe it is the responsibility of their local authority (Haq et al., 2007).

3.2 CARBON FOOTPRINT

The over 50s are a diverse group. Many are fit, active and wealthy while others are poor, frail and require care due to poor health. This demographic group not only contributes to the causes of climate change with regard to CO₂ emissions from their lifestyle choices but are



likely to be more vulnerable to the direct and indirect impacts from climate-related events. The diversity of this group is reflected by their life stage and carbon footprint. The carbon footprint is the total amount of CO₂ emissions which result directly and indirectly from the individual consumption of goods and services. The carbon footprint covers both an individual's direct emissions (e.g. domestic heating and car use) as well as indirect emissions arising from the supply chain at home and abroad during the production of the final goods and services that they consume (e.g. food, clothing or consumables). The carbon footprint of an average UK citizen is approximately 12 tonnes CO₂ per person per year.

Three general categories of old age can be distinguished: baby boomers; seniors and elders. Within these three broad categories there is great variation with regard to levels of wealth and consumption. However, by examining household expenditure on goods and services at different stages of life it is possible to determine an approximate average carbon footprint by age (see Figures 2 and 3).

Baby boomers are the post-war generation born in the period 1946 to 1964. Here we use the term baby boomer to reflect those individuals aged 50-64 years. Baby boomers are seen as having a particular impact on society not just because of their sheer numbers but also with respect to the different values and attitudes they hold. They are bringing higher levels of consumption to middle and later life. They are re-inventing old age basing it on new consumption and

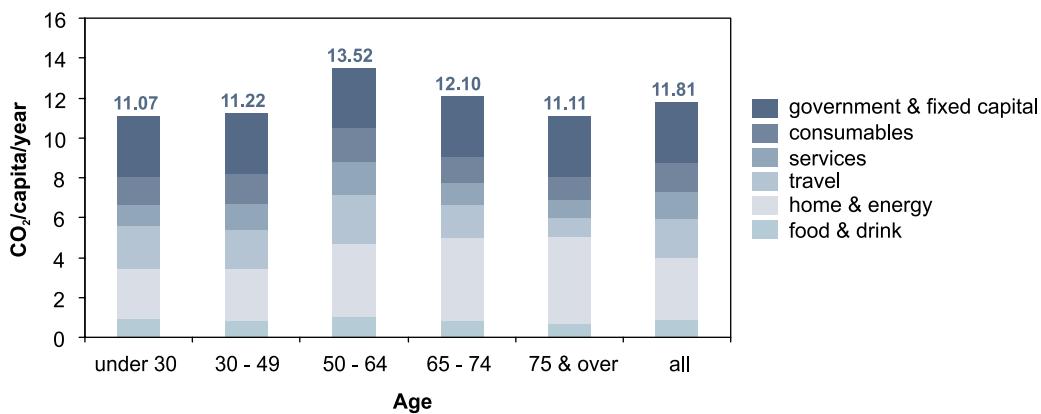


Figure 2: Age-related carbon footprint

Source: Haq et al. (2007)

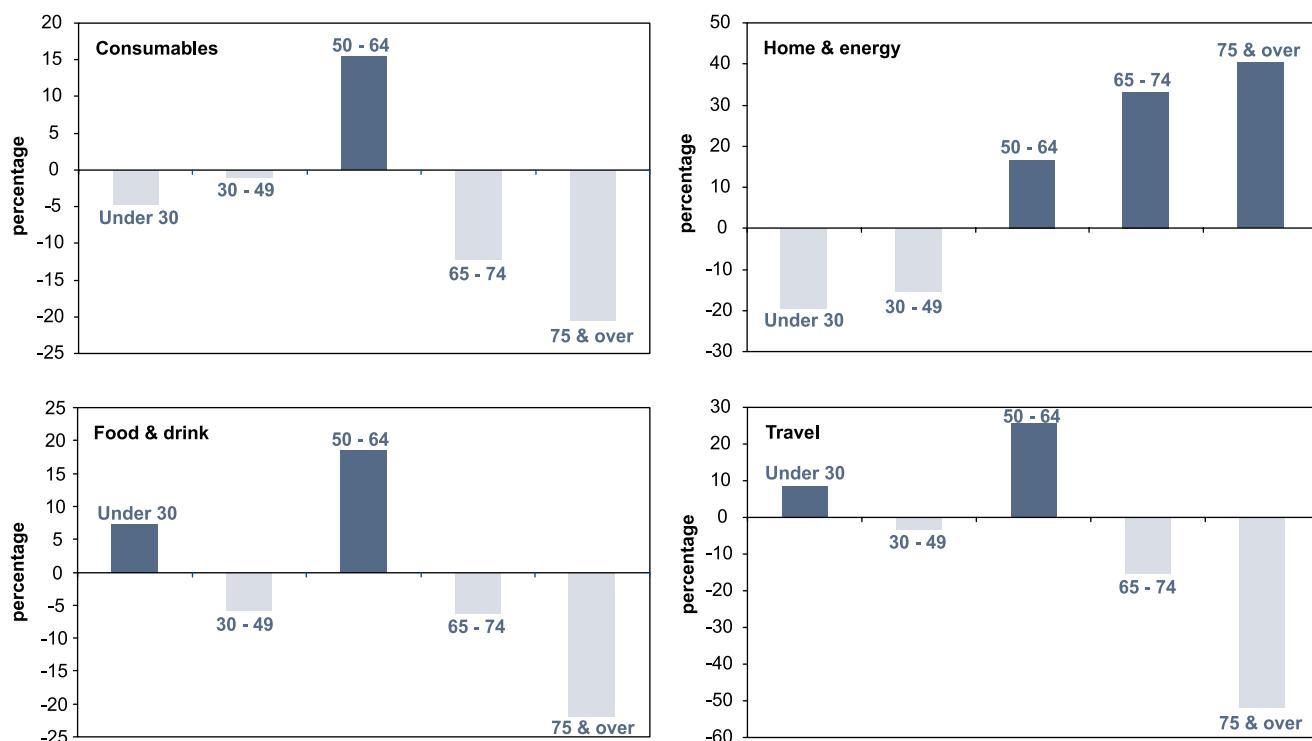


Figure 3: Percentage difference in carbon dioxide emissions by age and category compared to the average UK carbon footprint

Source: Haq et al. (2007)

leisure orientated lifestyles, where travel and cosmopolitanism are key features (Leach et al., 2007). They are highly car dependent with car use representing 71 per cent of all trips made by the 50-59 year olds. On average baby boomers have a carbon footprint of approximately 13.5 tonnes. They emit 1.5 to 2.5 tonnes more CO₂ per year than any other age group (Haq et al., 2007).

Seniors (aged 65-74) have lived through the Second World War and grew up in years of austerity. Many seniors have a low income

and tend to be prompt bill payers, debt averse and dislike waste. This group has experienced major lifestyle and life stage changes such as retirement and bereavement. Car trips represent 68 per cent of all trips for those aged 60-69 years of age (DfT, 2005). Like the baby boomers, they enjoy travelling. Seniors have the second highest footprint compared to other age groups. They have a carbon footprint of approximately 12.1 tonnes of CO₂ per year.

Elders (aged 75 plus) share many of the characteristics of the seniors. They have lived

through great hardships during the twentieth century. They are aware of their own mortality and the concept of death. They are coping with increasing care needs and declining health. Their CO₂ emissions from energy use in the home are 40 per cent higher than the national average. This is partly due to smaller household occupancy and the fact that older people tend to remain at home with a high demand for warmth. As people get older they reduce their CO₂ emissions from transport. This reflects a reduction in their physical mobility and increasing dependence on public transport. Those aged 70-plus undertake 10 per cent of trips by bus and 60 per cent by car compared to 4 per cent and 71 per cent respectively for those aged 50-59 (DfT, 2005). The elders are less car dependent. The elders have the highest climate impact per £ spent compared to all other age groups. This is because home heating, which is carbon intensive, represents 40 per cent of their carbon footprint.

3.3 HOME ENERGY USE

A key factor which influences levels of CO₂ emissions in later life is the energy efficiency of homes. Over 27 per cent of the UK's CO₂ emissions come from the residential sector (DEFRA, 2007b). The over 50s people spend an increasing proportion of their income on fuel as they get older and spend more time indoors. Every winter approximately 20,000 to 50,000 older people die from cold-related illnesses (ONS, 2001). In 2005/6 there were an estimated 25,000 'excess' winter deaths among people aged over 65 (Help the Aged, 2007). In most cases the causes of death are respiratory (breathing-related) or thrombotic (heart-related) conditions which happen as a result of the cold, or are aggravated by the cold. Individuals can become ill as a result of living in cold and damp homes, or as a result of not taking adequate care to keep warm when outside in the cold, or both (Help the Aged, 2007). In northern European countries such as Sweden and Germany the rates of winter deaths are lower than in the UK despite often colder climates (Healy, 2003).

The age of the home, room temperature and energy efficiency are important factors in determining winter deaths in older people (Wilkinson et al., 2001). In 2005 there were approximately 1.5 million homes containing someone over the age of 65 which did not

provide adequate insulation and heating. The older the householder the more likely it was that the property failed to provide these. A total of 22 per cent of households containing someone aged 75-plus had no central heating at all. Those living in homes which were not energy efficient were much more likely to live in fuel poverty (Help the Aged, 2006). Low income groups are particular affected by rises in UK energy prices which have been increasing and are currently approximately 50 per cent above 2003 levels in real terms (Fuel Poverty Action Group, 2007). Fuel poverty has resulted in poor people being unable to afford to heat their homes. The main cause of fuel poverty in the UK is a combination of poor energy efficiency in homes, low incomes and high energy prices. Fuel poverty occurs when someone spends more than 10 per cent of their income on keeping themselves warm. In 2003, 1.2 million people in England were in fuel poverty, the lowest number reached.

In 2007 it is estimated that approximately 2.9 million people were in fuel poverty with current fuel price increases expected to take this number over 3 million (Fuel Poverty Action Group, 2008). Poor energy efficiency of housing and lack of preparedness for winter are two factors which explain why winter death figures are so high in the UK. Energy efficiency is important not only in reducing the cost of household energy bills but also in reducing household CO₂ emissions.

Many energy conservation measures such as cavity wall, loft, and hot water cylinder insulation, draught proofing, installation of efficient boilers, and fitting heating controls, enable significant reductions in CO₂ emissions as well as improving the quality of homes and reducing energy bills. There are currently a number of initiatives aimed at improving the energy efficiency of the homes of older people:

- 'Warm Front' scheme provides central heating and insulation to the value of £2,700 to older home-owners and private renters in receipt of means-tested benefits in England.
- New Home Energy Efficiency Scheme (New HEES) offers £2,700 worth of measures in Wales.
- All pensioner households in Scotland without central heating can have new heating and insulation installed,

regardless of whether they are claiming benefits or not.

Current Government policy is heavily reliant upon homeowners installing ‘cost-effective’ measures. However, levels of activity are still not high enough to significantly reduce poor housing within the UK. Current levels of grant available are not adequate to cover the works which are necessary to improve the energy efficiency of homes. This is particularly the case for homes which are hard to heat, which are where people who are fuel-poor often live (Help the Aged, 2007). Historically, the uptake of energy conservation measures has been poor. A number of issues exist with regard to the take-up and drop-out of energy schemes (NEA, 2006). These include contact issues; if people are not reached in a meaningful way they will not know about the measures on offer from a scheme. However, there are still large eligibility gaps. Linking energy efficiency schemes with benefit entitlement provision and integrating schemes can create useful improvements within the existing framework. Barriers to take-up and retention include psychological (knowledge and attitudes), organisational (how schemes are set up and operated) and some communicative issues (how schemes communicate with potential clients) (NEA, 2006).

The UK National Energy Efficiency Action Plan (NEEAP) has set a target to reduce residential housing emissions by 31 per cent by 2020 compared to 1991. The proposed Climate Change Bill contains a legally binding national target of at least 60 per cent reduction by 2050 compared to 1990. The overwhelming scientific consensus is that the Climate Change Bill’s 60 per cent target is inadequate to avert the worst of climate change. It is essential that atmospheric GHG concentrations are stabilised at a maximum of 450 parts per million (ppm) of CO₂ equivalent (some would argue that 350 ppm is required) to avoid irreversible and extremely damaging climatic changes. This would require all developed countries to cut emissions by at least 80 per cent from 1990 levels by 2050.

A significant reduction in CO₂ emissions from housing will require retrofitting the whole housing stock. If all UK homes installed energy conservation measures, household CO₂ emissions would only reduce by 22 per cent. This would fail to meet the Government’s own

2020 targets of a 31 per cent reduction (WWF/ACE, 2008). An 80 per cent reduction in CO₂ emissions from domestic housing sector is achievable if there is a rapid decarbonisation of electricity supply by extensive roll-out of micro-renewables and large-scale renewable energy projects and the application of carbon capture and storage technology. It would also require an improvement in the energy efficiency of appliances, and more carbon-conscious behaviour in the home. While this does mean considerable extra investment now, it is minimal compared to the cost of doing nothing (WWF/ACE, 2008).

3.4 CLIMATE VULNERABILITY

Vulnerability of older people to the effects of climate change arises from a combination of personal characteristics and interactions between exposure, sensitivity and coping capacity when faced with a specific climate-related threat (see Figure 4). Exposure level, likelihood and magnitude of the threat and the different coping capacities will all determine the severity of the outcome (Schroder-Butterfill and Marianti, 2006).

Living longer due to better health care has meant people are remaining active in later life. Chronological age is no longer an accurate indicator of how an individual will behave or cope in old age or their vulnerability to climate-related events. Functional age provides a more objective measure as it defines an individual in terms of their actual ability rather than being based on how long they have been alive. Functional age results from measuring performance on a range of measures or tasks which reflect various social, biological and psychological aspects (Hayslip and Panek, 1993):

- Chorological age – the length of time since birth, which forms many people’s judgments on whether they are “old” or “young”.
- Biological age – the physical age of one’s body. If healthy diet and exercise habits are maintained, bodily organs and processes may appear to be those of a younger person.
- Social age – the habits, behaviour, interests and attitudes of a person defines their social age. Older people may share

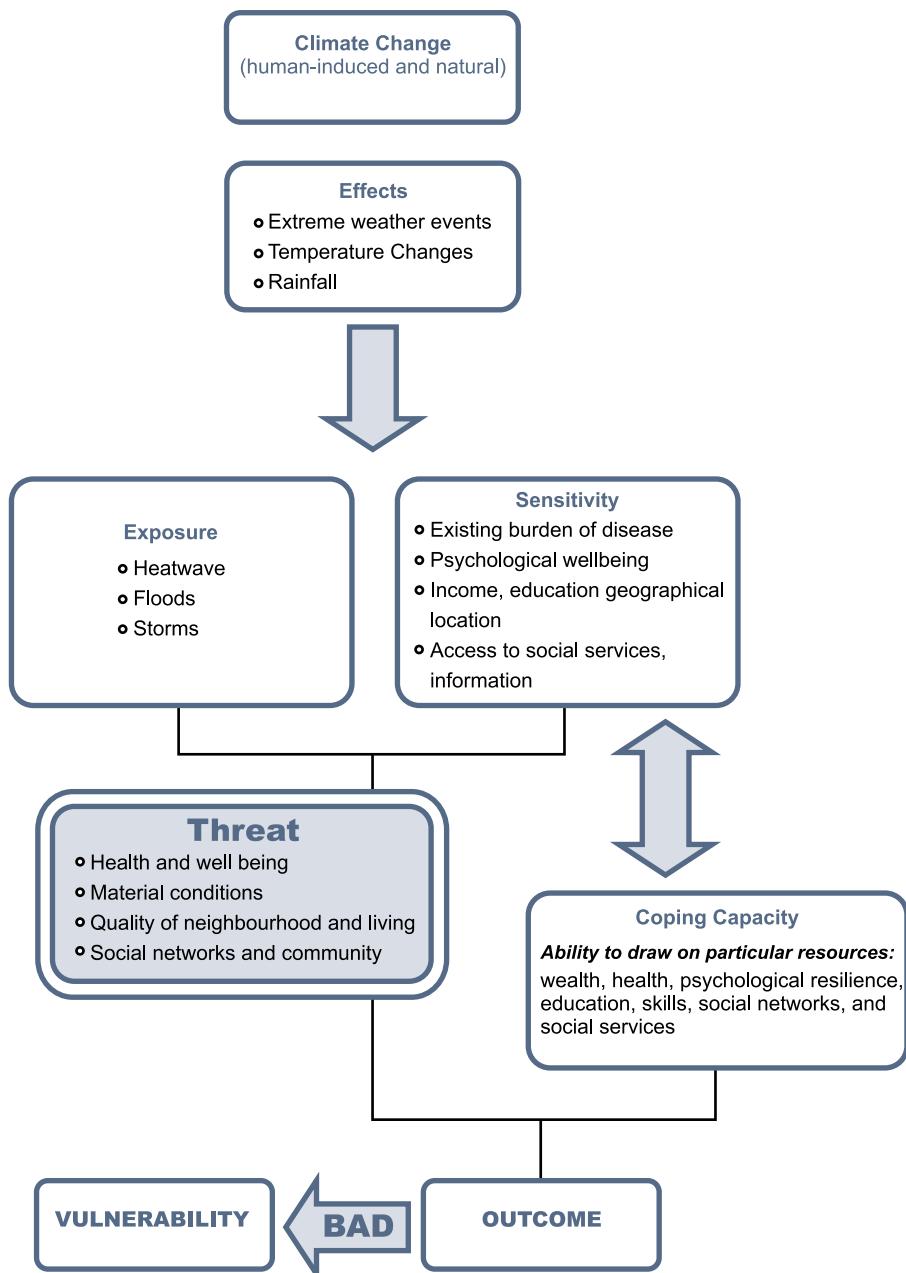


Figure 4: Climate vulnerability and older people

the same attitudes and interests of people much younger than them.

- Psychological age – the ability to adapt and cope with situations and problems which may arise in later life.

How an individual will cope with climate-related threats will be determined by their functional age and life stage. Climate-related hazards do not automatically translate into bad outcomes as this will be dependent on an individual's vulnerability and resilience. Vulnerability is the threshold between successfully adapting and coping with climate events and not being able

to do so. It determines the extent to which an individual or community will potentially suffer from effects of climate change while resilience is the ability to manage and adapt.

Vulnerability can have an external dimension consisting of the risks, shocks and stresses (e.g. sudden climatic event such as a hurricane) or trends (such as degradation over time) to which people are subject and an internal dimension encompassing the means to withstand or adjust to damaging loss. The social dimension of vulnerability to climate change considers assets, institutions and relationships people have to

deal with external threats. It addresses the ability of an individual or group to act within the social, political and environmental context in which they live. Vulnerable older people are those whose reserve capacity falls below the threshold needed to cope successfully with the challenges that they face (e.g. a level that ensures a reasonable quality of life and/or avoidance of an early or ‘bad’ death). The most vulnerable groups include the very old, those with low incomes, those with poor social ties and a history of poor social ties, and those with limited opportunities or capacities to exercise autonomy.

3.4.1 Exposure and Sensitivity to Climate Change

Exposure is the state of being exposed to something harmful. It is linked to the sensitivity and risk of an individual being exposed to certain threats (e.g. heatwave, flooding and storm events). These are shocks or crises that can force people towards bad outcomes, unless they have the resources to mitigate the effect. An individual’s **sensitivity** to the effects of climate change will be determined by genetic disposition, pre-existing burden of disease or ill health, income, geographic location, family support systems, quality of public health infrastructure and access to relevant local information (Woodward et al., 1998) (see Figure 5).

3.4.2 Climate-related Threats

Threats can disrupt an individual’s way of life and routine and force them to mobilise coping resources to avoid a decline in their well-being. Some threats are linked to life stage such as decline in health and physical strength, disability, loss of income, loss of a spouse or members of a social network (see Figure 6). An individual’s **resilience** to adapt to climate change is determined by both availability of assets (e.g. amount and quality of knowledge, physical and financial capital, and social relations and networks) and access to services (e.g. transport, communication, social support, emergency relief and recovery). Natural and **human-induced environmental hazards** from climate change (e.g. high temperatures, storm damage, poor access to public services due to extreme weather events) can also pose a danger to older people.

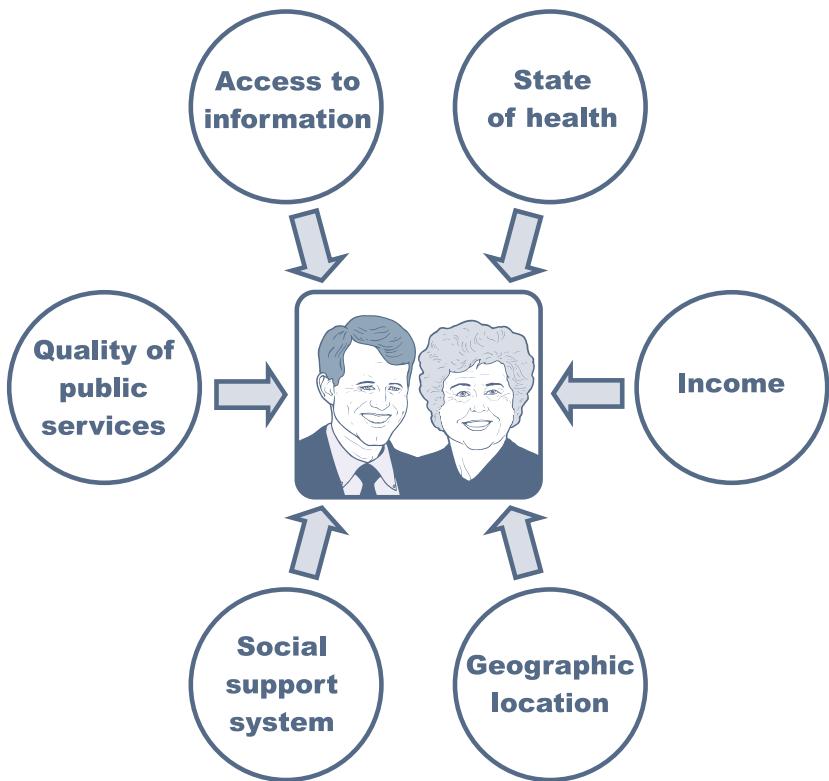


Figure 5: Determinants of sensitivity to climate change

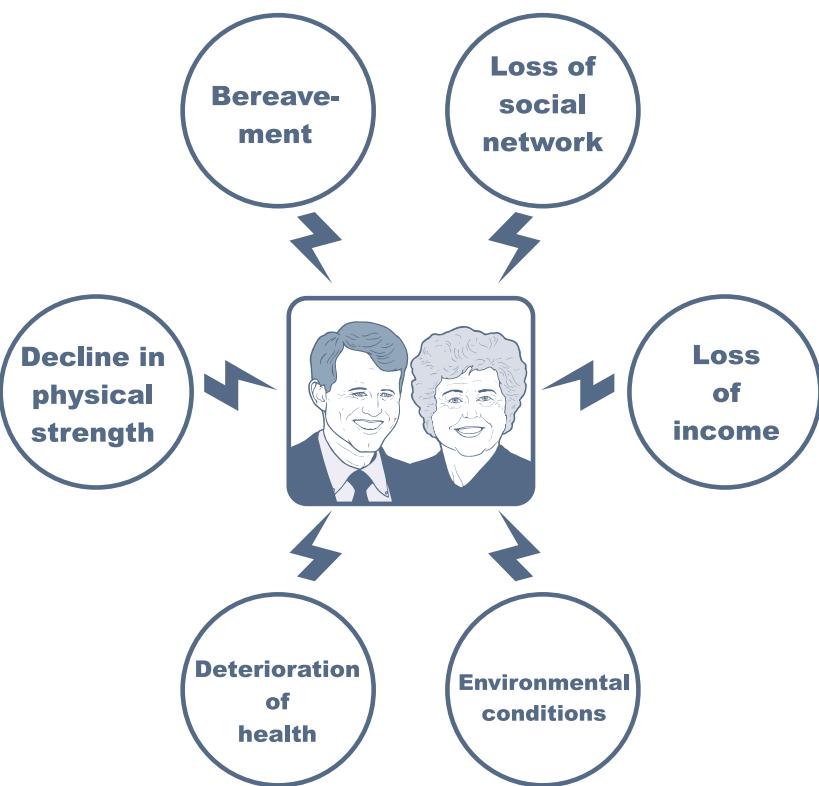


Figure 6: Threats in old age

A particular event that may result from a changing climate is likely to pose a number of threats to an older person, placing additional stress on their ability to cope. For example, flooding caused by changes in climate can result in multiple threats which include the event itself, disruption and problems of recovery, worry and anxiety of risk of reoccurrence. These threats can cause stress which together with pre-existing health conditions can have a significant impact on health and well-being of the flood victim. Due to the nature of floods being unexpected and sudden, they may occur when there is no time to have the appropriate mediating factors/care or support (Tapsell, 2002). Effective capacity to cope is dependent on strong educational, health, political and social support systems.

The Effect of Flooding on Older People

A review of the 2007 June floods illustrated how the associated impacts can affect older people with a case study of an elderly woman who was on holiday when the floods hit. She was told not to attempt to return home until the water subsided, and remained with friends for a month. When friends took her to view the damage to her property, it greatly upset her. She was not able to return there, even to look, for some time, but relied on friends to do what was necessary to organise insurance and repairs. After a month, the insurance company delivered a caravan to her drive so she could return home and be closer to the property while works were carried out. However, being small of stature, she found it impossible to reach the light switches which were on the ceiling, or comfortably use the work surfaces without standing on a stool. She simply burst into tears. Her neighbours, she said, were wonderful – caring, supportive and always on hand to help. They were staying in a caravan on the adjoining drive and theirs was more compact. A solution was found – the neighbours and the elderly lady exchanged caravans (The Pitt Review, 2008).

Determining whether the effects of climate change will have a **bad outcome** for older people will be dependent on how it affects their quality of life. In old age, people place value on a number of factors. However, the importance placed on certain values may vary with ethnic background (Bajekal et al., 2004). Factors which older people value in later life include:

- **Quality of neighbourhood:** living in a home and neighbourhood that is safe, pleasant with good access to local amenities (e.g. shops, public transport, green space);
- **Social networks and community:** having social relationships which offer good help and support;

- **Material conditions:** having enough money to meet basic needs and participate in society;
- **Health and well-being:** having good health and mobility, retaining independence and control over life, engaging in hobbies and leisure activities (solo). Having a positive psychological outlook and accepting circumstances which cannot be changed (Gabriel and Bowling, 2004; Bajekal, 2004).

The threat of climate change to well-being and quality of life in old age will be dependent on an individual's ability to cope and withstand and/or recover from difficult conditions or crises and so avoid a bad outcome. Climate change can affect all aspects of life, especially with regard to health, transport, cost of living, housing and social care.

3.4.3 Coping Capacity

Coping capacity is how adaptable an individual is to dealing with the impact of climate change. This is linked to climate sensitivity. Improving the coping capacity of older people reduces direct and indirect impacts of climate change. This includes how quickly an individual can recover following a particular event. Older people's ability to cope with the effects of climate change will be dependent on a combination of individual capacities (e.g. wealth, education, skills and health), social networks (e.g. family, friends, neighbours, community institutions such as religious, voluntary groups and charities) and social protection policies (e.g. formal welfare provision such as pensions, health and social services). This will determine whether or not they suffer a bad outcome such as damage or loss, becoming physically weaker, economically impoverished, socially dependent, and humiliated or psychologically harmed (Chambers, 1989). Coping capacity will be shaped and further exacerbated by inequalities, social injustice, disempowerment and access to key essential services (ODPM, 2006). Therefore, healthy lifestyles, acquisition of coping skills, strong family and social ties, active interests and, of course, savings and assets, all will assist in ensuring that people's reserves are, and remain, strong in later life (Grundy, 2006).

4 Effects of Climate Change on Older People

Climate change will affect key areas which have particular relevance in determining the quality of life of older people: health, social services, housing, transport and cost of living.

4.1 HEALTH

The physical and social well-being of older people will be affected directly and indirectly from a changing climate (see Table 1). This could be the physical effects from being exposed to high temperatures or the psychological effects of the stress caused by losing one's independence (e.g. due to wind damage of property, disruption to transport services). The August 2003 European heatwave clearly demonstrated the consequences of a rapid raise in temperatures which reached 40°C and resulted in the death of an estimated 14,802 mainly elderly people in France (Bhattacharya, 2003) and 2,139 (16 per cent) excess deaths in England and Wales (Johnson et al., 2005). The main causes of illness and death during a heatwave are respiratory and cardiovascular diseases.

Older people, especially women aged 75-plus, those living on their own or in a care home, are at particular high risk of being affected during a heatwave as well as those with chronic and severe illness including heart conditions, diabetes, respiratory or renal insufficiency, Parkinson's disease or severe mental illness. Individuals who have Alzheimer's, a disability or being bed bound may be affected due to their inability to adapt behaviour to keep cool. In addition, environmental factors (e.g. living in a top floor flat) and over exposure (e.g. doing work out doors) can increase the risk of being affected (NHS, 2007a; 2007b; 2007c). Regulation of the body's temperature can be impaired in the elderly and chronically ill, and those who may take certain medications. This leaves the body more vulnerable to overheating. Older women tend to be more vulnerable to the effects of heat than older men. This is thought to be due to having fewer sweat glands and being more likely to live on their own.

In the summer of 2006 in England, a linear relationship was observed between temperature and weekly mortality. There were an estimated 75 extra deaths per week for each degree of

increase in temperature (NHS, 2007a; 2007b; 2007c). High temperature is more likely to result in mortality when combined with poor air quality which makes respiratory symptoms worse. It can also put a strain on the cardiovascular system as large quantities of extra blood are circulated to the skin. The excessive strain on the heart can result in a cardiac event in the elderly and those with chronic health problems. An assessment of the potential impacts of climate change on human health in the UK in 2050 estimates an increase of 2,800 cases of excess deaths per year as well as the benefit of a reduction of approximately 20,000 winter related deaths due to milder winter weather (POST, 2004).

4.2 SOCIAL SERVICES

Climate-related events will place additional strain on the UK emergency and social services. The severe floods of June 2007 forced thousands of people to leave their homes across England and Wales. Although the summer 2007 floods cannot be attributed directly to climate change, they do, however, provide a clear indication of the scale and nature of the severe weather events we may experience as a result. The three months from May to July 2007 were the wettest since records began and the events that followed have been linked to the deaths of 13 people. They also resulted in damage to approximately 48,000 homes and 7,000 businesses and the loss of power and water supplies. The flooding triggered a series of emergencies which stretched local resources to the limit (The Pitt Review, 2008).

There is a need to ensure that social services can cope with the predicted increase in extreme events. However, it is also widely acknowledged that the health impacts of climate change can be minimised by building climate change considerations into the UK's health and social care infrastructure. For instance, improved health care provision generally reduces the vulnerability of the population and the health system with regard to health impacts of climate change. It is therefore important to target improvements in health and social services on those who are most at risk – for example by improving social services for older people living on their own, or the appropriate design of

residential care homes in order to help to reduce the potential health impacts of climate change. Such initiatives could form part of a more holistic risk management approach to climate change (POST, 2004).

4.3 HOUSING

A combination of more intense storms, flooding and higher sea levels will not only threaten housing directly, it will also make homes more expensive to insure, to maintain, and to keep cool. The costs of adapting to climate change for householders will include greater expenditure on insurance, and measures such as insulation and air conditioning. Older people may not be able to easily meet these costs. There will be a variation in ability to pay for climate proofing of homes. Wealthier households will be in a better position to protect themselves from the effects of warming and extreme weather events. Poorer households will tend to invest in less effective measures or simply suffer the consequences.

Urban heat islands are phenomena which occur when dark surfaces such as roads and concrete absorb (rather than reflect) large amounts of heat leading to localised high temperatures in cities. Progressive temperature increases in summer heat island intensity and frequency caused by climate change will have detrimental effects on air quality, summer electricity demand, comfort in urban dwellings and transport network (GLA, 2002). This could increase the costs of cooling for urban housing, particularly in the evening. Increased temperatures could also reduce comfort of occupants in domestic, commercial and public buildings and lead to business disruption. Old building stock will have to cope with an increase in the frequency of very hot summer days. The increasing intensity and frequency of extreme weather events will pose a major threat to the housing stock.

By 2026, older people will account for 48 per cent of the increase in the total number of households, resulting in 2.4 million more older households than there are today (DCLG, 2008). The Government's Housing strategy outlines plans for making sure that there is enough appropriate housing available in future to relieve the forecasted unsustainable pressures on homes, health and social care services. These are important priorities for policy because of the speed and implications of social and economic

change. There will be an increase in older, single people: many living alone by choice. However, new ways to share living space such as 'co-housing' or communal housing may be considered. From 2013, there will be new standards for all new homes to ensure they are built to age-friendly designs. The 'Lifetime Homes' standard will mean that wider doors, improved design of bathrooms and staircases big enough to take stair lifts will be a feature of every new home. These will go some way to reducing the need for costly adaptations. From 2011, all new social housing will be built to the Lifetime Homes' standards.

4.4 TRANSPORT

Transport is an important issue for people in old age. It provides an essential link to friends, family and the wider community. It is also provides a lifeline to maintaining independence. A lack of mobility can prevent older people from participating in social activities and lead to low morale, depression and loneliness. It can also impact on access to essential services such as carers, social services and health agencies (DfT, 2001). Declining driving ability and financial constraints in old age mean that many motorists will have to adjust their driving practices and may ultimately have to give up their car. A high proportion of the older population will become increasingly dependent on public transport.

High winds, floods, landslips and coastal storms and erosion will increasingly disrupt vulnerable road and rail routes, including strategic links to ports and docks. Increased flooding during winter could affect all modes of transport. The June 2007 floods resulted in railway lines, eight motorways and many other roads being closed and large parts of five counties and four cities were brought to a standstill (The Pitt Review, 2008). The risks are greater in flood plains and where urban drains are overloaded. In particular, coastal stretches may be at risk of inundation by the sea during periods of particularly high winds when this is coupled with the highest tides. This will be of particular concern for coastal railways (e.g. in Wales and parts of South West England) (DfT, 2004). More extreme heat during summer could lead to heat exhaustion for vulnerable passengers (e.g. London Underground) particularly when subject to delays. Difficult driving conditions due to snow and ice would decrease but the number of days when driving is

Table 1: Health effects associated with climate change

Heatwaves	Heatwaves are projected to become more frequent. The very old, chronically ill and poor are most susceptible to heat-related illness. The additional deaths in summer will be offset by a decline of approximately 20,000 cold-related deaths each year due to warmer winters. In the period 1971–2003 mean annual heat-related deaths did not rise as summers warmed. This implies an increase in the population's tolerance to heat. In the same period annual cold-related mortality fell by more than 33 per cent (DH, 2008a). Improved tolerance to heat in the future will reduce the impact of hotter summers, but increased frequency and intensity of heatwaves are still a major concern to human health. By 2012, there will be a 1 in 40 chance that the South East of England will experience a serious heatwave (averaging 27°C in South-East England) causing over 3,000 immediate heat-related deaths and 6,350 further heat-related deaths soon afterwards (DH, 2008a).
Air pollution	The air pollution of the UK will continue to change. While concentrations of a number of important pollutants are likely to decline over the next half-century, the concentration of ground-level ozone is likely to increase due to the projected increases in dry, sunny weather in summer which favour ozone production. This will increase attributable deaths and hospital admissions. The increases are likely to be significant with as many as 1,500 additional deaths and hospital admissions each year.
Cold-related illness and deaths	Cold-related illness, falls and deaths are likely to decline due to warmer, wetter winters.
River, Coastal Flooding and Flash Floods:	Floods are associated with few direct deaths, but the full effect on health, in terms of indirect mortality and morbidity due to infectious disease, mental health, and injuries, is not known (DH, 2008a) The risk of major flooding disasters caused by severe winter gales, heavy rainfall and coastal erosion is likely to increase contamination of drinking water, increase waterborne infections and exposure to toxic pollutants, accompanied by psychological consequences, disruption, injuries and deaths. Later effects of flooding include stress and mental health problems (Tapsell, 2002). River floods or storm surges, which can be forecast several days in advance, have fewer casualties compared to flash floods where there is no prior warning.
Infectious diseases	Cases of food poisoning (Salmonellosis) and water borne disease (Cryptosporidiosis) linked to warm weather are likely to increase. A 1°C increase in temperature might result in about a 4.5 per cent increase in food poisoning. The effect of warmer summers on food borne disease incidence will depend on future food hygiene behaviour and the relative contribution of different pathogens, as well as changes in temperature (DH, 2008a).
Vector-borne diseases	Outbreaks of malaria in the UK are likely to remain rare, though health authorities need to remain alert to the possibility of outbreaks of malaria in other European countries and to the possibility that more effective vectors (different species of mosquito) may arrive in the UK. Rapid response to outbreaks of malaria will reduce the chances of the disease becoming endemic in the UK. Tick-borne diseases (e.g. lyme disease) are likely to become more common in the UK, but this is more likely to be due to changes in land use and leisure activities than to climate change. The likelihood that tick-borne encephalitis will become established in the UK is very low.
Sunburn, skin cancer and cataract	Changes in climate such as increases in sunshine, reductions in precipitation and higher temperatures would be likely to favour patterns of behaviour involving more outdoor activity, lighter clothing and greater exposure to the sun. This is likely to result in sunburn, skin cancer and cataracts (DH, 2008a). It has been suggested that cases of skin cancer could increase as up to 5,000 cases per year and cataracts up 2,000 cases per year (DH, 2002).
Water and Food shortages	Drought may increase the risk of infectious diseases due to reduced public and personal hygiene and increased risk of water contamination. There may be an increase in cases of dehydration due to inadequate water intake. There is the chance of increased mental health problems due to anxiety caused by loss of water supply and introduction of emergency measures. Sea level rises may saline coastal areas leading to impaired crop yields.
Possible ancillary health benefits	Increase in physical activity due to extended warm weather, but outcomes could be worse during extreme heat events. Possibly healthy eating if sustainable farming and food policy are adopted.
Extreme weather events	The direct health effects due to changes in windstorm intensity or frequency are likely to be small relative to other health effects of climate change in the UK. However, the increase in the occurrence of severe winter gales is still a cause for concern. Deaths during severe gales are commonplace, as are severe injuries. These reflect people being simply blown over, being struck by flying debris or being crushed by falling trees or collapsing buildings. The likely loss of electrical power supplies during severe storms adds to these problems.

difficult due to rain and storms would increase (DfT, 2004).

Cost is a significant factor determining people's ability to travel as often as they wish. Household transport costs may rise as private cars are a significant source of GHG emissions. Preventing climate change will require individuals to drive less often, and for shorter distances. Even without policies to reduce car use, rising oil and energy prices will make driving more expensive. Fuel and car insurance prices can impact on the travel patterns of older people using cars. The current high cost of rail fares, compounded by the inaccessibility of many railway stations is a major deterrent to using a train. Taxis are an important mode of travel for those who do not have a car available to them and are unable to use public transport because of mobility or timetable constraints. However, there is evidence that high fares and uncertainties about how much the trip will cost are deterring potential users (DfT, 2001).

Improvements in accessibility will go some way towards increasing the availability of public transport by better meeting the needs of older and disabled users with 'mainstream' transport. Unless there is investment in an integrated transport system, those who already have few transport choices will face the greatest hardship.

4.5 COST OF LIVING

The condition of the natural environment affects all aspects of our economy and daily lives. The Stern Report on the economics

of climate change concluded that the cost of extreme weather (e.g. as storms, floods, droughts, and heatwaves) could reach 0.5 – 1 per cent of world gross domestic product by the middle of the century, and will keep rising as the planet warms (HM Treasury, 2006).

Climate change is likely to influence economic output via the availability of commodities essential for economic growth, such as water, food and energy. The climate will become an increasingly important determinant of the cost of goods and services. This may result in inflation due to the higher prices of fuel, food and raw materials. Inflation is of particular concern to people in retirement, even in a relatively mild form. It reduces purchasing power when living on a fixed income.

The combined effect of increasingly severe climatic events and underlying socio-economic trends have the potential to undermine the value of business assets, diminish investment viability and stress insurers, re-insurers, and banks to the point of impaired profitability and even insolvency (UNEP-FI, 2002). An increase in the frequency or severity of extreme weather events could mean that insurers have to increase premiums to stay viable (ABI, 2008). Premiums are likely to rise and some damage, such as that caused by coastal erosion, may be excluded from cover. It will also affect long-term investment returns in the pensions and life insurance. The risks to property from temperature changes and extreme weather are already evident in the UK. The cost of storm repair and damage can also put a financial stress on those with limited resources.



5 Reducing Older People's Vulnerability to Climate Change

Policy initiatives to reduce climate vulnerability of older people can focus on each part of the dynamic process that creates vulnerability. This includes ensuring people reach later life with sufficient reserves (e.g. coping skills, strong family and social ties and savings and assets), reducing the challenges they face in later life, and providing adequate health and social care. Help the Aged (2008) identified ten basic requirements to make communities better for older people. These requirements include adapting new and existing accommodation to suit people of all ages; transport options that meet the needs of all older people; keeping pavements in good repair; provision of public toilets; public seating; good street lighting and clean streets with a police presence; access to shops and services; places to socialise; information and advice and ensuring older people's voices are heard on issues from social care to volunteering opportunities.

Currently there is no coherent policy response which addresses the interface between climate change and older people. There is a need for policies to be sharpened, focused and co-ordinated to deal with the range of impacts a changing climate will have on the lives of an ageing population. The promotion of interventions throughout the course of a person's life could, for example, include improvements to future-proof and climate-proof homes and provide information on how to cope with extreme weather events such as heatwaves and flooding. In addition, effective health and social care can help people cope with the challenges

posed by a changing climate in later life. Social support can assist in preventing a reduction in reserves or assist in rebuilding reserves. Such interventions include access to good acute care and rehabilitation when needed, substitute professional social and psychological help in a crisis (if desired), the provision of long-term help, and income support

National, regional and local agencies have a role to play in reducing the sensitivity of communities to extreme weather events through good planning of infrastructure and maintenance of services it provides, but also through partnership working with parishes, district and unitary authorities, the regional assemblies, strategic health authorities, Government organisations and charities.

In order to reduce older people's vulnerability to climate change, progress needs to be made in the five key areas discussed below.

5.1 HEALTHIER AND INDEPENDENT LIVES

An integrated and preventative approach to health and social care for older people will ensure that they can enjoy healthy and active ageing. Local health and social care providers need to work more closely to build on services already provided and ensure people are aware of basic entitlements to help them lead healthy, independent lives. This requires an improvement of health and social care services and easier access to use them. In May 2008, the Government announced that it is adopting

Grey Action on Climate Change

Among the many community groups taking action on climate change, two groups are specifically mobilising the over 50s.

The Community Service Volunteers Retired and Senior Volunteer Programme (CSV/RSVP) and Green Seniors. RSVP is a national charity offering voluntary opportunity to the over 50s. The life experience of volunteers is used to the full. The RSVP encourages volunteers from all community groups, including those from ethnic minorities and those with disabilities. RSVP members in the West region are taking action to help the over 50s navigate their way through the plethora of advice and information that is often complex, confusing and contradictory. RSVP has prepared a small directory and factsheets that give a background to climate change issues, advice and guidance (see: www.rsvp-west.org.uk/climatechange.html). It also has an initiative to establish a "Grey-Green Forum" that will involve other parts of the voluntary sector in developing the engagement and involvement of the over 50s in climate change issues.

Green Seniors (www.greenseniors.org) was established in 2006 in the USA and UK. It now has groups in Australia, Puerto Rico and Ethiopia. It is a web based community group promoting a global Green Seniors Movement for positive change.

a new approach to providing preventative care for older people and plans to introduce a package of measure to empower older people to live longer, healthier and more independent lives. Measures which have been taken include footcare services, reducing waiting times for hearing tests and fitting hearing aids, vascular checks and mid-life check-ups (DH, 2008b). A focus on integrated and preventative health and social care can contribute to improving the health of older people, thus enabling them to be more resilient to changes in climate.

5.3 ENERGY EFFICIENT HOMES

High quality **housing** that can deliver low energy bills and minimise risks from adverse weather events and excess heat is essential to the quality of life of older people and reducing fuel poverty. The cumulative effect of improving the energy efficiency of homes can result in a saving of between £200-300 (30-50 per cent) of a typical annual gas bill. Simple low cost measures such as draught exclusion in floors and windows could save up to £10-20 per year (EST, 2008).

Local government has responsibilities for tackling the emissions from housing in addition to council-owned housing stock (LGA, 2007). Decentralised energy generation (e.g. community, district and domestic heating) will be essential in reducing CO₂ emissions from harder to treat housing stock in the longer term. The Carbon Emissions Reduction Target (CERT) programme, 2008-2011, is a legal obligation on all domestic gas and electricity suppliers to achieve carbon savings by installing insulation and other energy efficiency measures in homes. 40 per cent of these must come from 'priority group' households in receipt of benefits and tax credits, in either the private or the social housing sectors. Suppliers aim to meet the obligation as cost-effectively as possible so as to gain an advantage over their competitors, thus driving economies of scale and innovation (LGA, 2007).

Councils can work with energy supply companies to channel funds for energy efficiency measures for social housing from the carbon emissions reduction target. They could also work with energy supply companies to provide incentives to householders to install energy efficiency measures in the owner occupier sector. Thermal energy efficiency measures (e.g. hot water tank

insulation, draught-proofing, loft insulation, double glazing) are aimed at reducing fossil fuel use without sacrificing health, safety and comfort requirements. Interventions of this kind will all reduce fuel bills, reduce greenhouse gases and be of direct assistance to those on low incomes and those who are more vulnerable to damp and cold. Since the UK has the worst record in the EU for deaths of elderly people as a direct result of cold and damp in the winter months, then measures to improve the energy efficiency of homes for the elderly should be a high priority in a combined approach to climate change and the welfare of older people. Design standards now exist for high quality homes that can deliver on carbon-neutrality, effective protection against climate change risks and low energy bills. The BedZed development in London is an example of low carbon housing.

5.4 STRONGER COMMUNITIES

Supportive neighbourhoods and a sense of community can provide additional assistance to vulnerable older people. Local authorities can contribute to building **social cohesion and community capacity** through the Local Strategic Partnership (LSP). LSPs bring together a wide range of voluntary and statutory agencies with the express purpose of strengthening local communities, contributing to social and economic development and dealing with environmental problems including climate change.

The Local Area Agreement (LAA) process and the new Multi Area Agreements (MAAs) should be used to build social cohesion. LAAs are a formal contract between local and central government to deliver key social, economic and environmental objectives and by focusing on social care, care for the elderly, pollution, traffic and climate change. LAAs are based on four themes: children and young people; safer and stronger communities; healthier communities and older people; economic development and enterprise (I&DEA, 2008). LAAs can therefore make a substantial contribution to improving the quality of life of older people.

5.5 BETTER LOCAL ACCESS

The ability to move around a local home area and to access local shops, post offices and medical facilities is central to maintaining health and social interaction. The closure of

2,500 post offices works to the disadvantage of older people and adds to the distances that must be travelled to access facilities (BBC, 2006). It reduces the number of local facilities older people can access in addition to the general decline in number of small local shops, doctor's surgeries and pharmacies.

The aim of public policy should be **to enhance local access** possibilities because of its role in sustaining health and in ensuring that community life can continue in a relatively low risk environment should transport systems and mobility be disrupted by climate change. A highly accessible local system is far better adapted to climate change than a centralized system based on assumptions of car ownership and longer distance travel.

Guidance from the National Institute for Health and Clinical Excellence (2006) has shown how transport policies can support active travel (e.g. more walking and cycling). There is a wealth of evidence pointing to the need for strong communities to be supported and encouraged by high quality local transport, walking, cycling and the absence of barriers to moving around the local community (NICE, 2006). Transport interventions have not benefited from the involvement of an organisation equivalent to Energy Saving Trust (EST). Nevertheless there are a number of committed transport policies in central government and local government that are designed to reduce the need to travel and to reduce the use of private motorised vehicles. These transport interventions are now described as working to achieve a low carbon society. A recent review of acceptability of measures in the Yorkshire and Humber region showed that land use planning, travel plans, bus rapid transit and walking and cycling were more acceptable measures to reduce carbon emissions while rationing carbon use was the least acceptable (Yorkshire and Humber Assembly, 2008).

On the 1 April 2008, a national concessionary (free) bus system came into force in England. All those over 60 are now eligible for a free bus pass. This measure was directly aimed at improving the quality of life and mobility of older people and will contribute to reducing car use.

Walking and cycling facilities are of direct benefit to older people and whilst these are nominally in the list of transport policy objectives, the walking

and cycling environment in both urban and rural areas is often poor and does not encourage these modes. There would be considerable advantages to older people in a systematic and purposeful re-engineering of urban and rural areas to produce much wider pavements, 20 mph limits, effective speed enforcement, new direct paths and routes to encourage walking and cycling.

Transport is very much the reverse side of the coin with accessibility on the other side. Here we have a major policy deficit with a government-assisted programme of reduced accessibility. Addressing the accessibility deficit with older people in mind is the major area of government policy in need of review. Creating a rich network of local facilities and routes and increasing the number and density of these destinations within a high quality urban and rural walking and cycling infrastructure would assist older people greatly, achieve transport policy objectives and reduce greenhouse gases

5.6 PERSONAL CARBON TRADING

Personal carbon trading is being considered as a measure to reduce carbon emissions and tackle climate change. Personal carbon trading requires individuals to manage their own CO₂ emissions. The concept suggests a national emissions cap would be set and carbon credits would be allocated across the population. A personal carbon allowance would be used to purchase particular goods and services (e.g. electricity, gas or transport fuel). Those who need more carbon than their allocated allowance would need to trade with those using less. Over time the overall emissions cap (and thus each individual allocation) could be reduced in line with national or international agreements (DEFRA, 2008).

Personal carbon trading will encourage a system wide behavioural shift from high carbon choices to low carbon choices through a mixture of financial incentives and disincentives. It will also allow a major redistribution of resources from carbon-rich groups to carbon-poor groups which will be of direct benefit to older people and especially older people who have a low income. A DEFRA (2008) study showed that, while personal carbon trading has potential to engage individuals in taking action to combat climate change, it is ahead of its time and expected costs for implementation are high. The government

remains interested in the concept and it may introduce personal carbon trading if the value of carbon savings and cost implications changes.

Personal carbon trading will inevitably highlight existing inequalities of income and opportunity. However, such a system could be much less burdensome for disadvantaged groups, including those suffering from fuel poverty, compared to alternative policies to reduce carbon emissions (Environment Audit Committee, 2008). Personal carbon trading is seen as being socially fairer than a flat tax on carbon which would penalise equally those causing high and low emissions. Some older people may be the exception to the rule and may have few or no relevant choices to make due to poor health, housing conditions or lack of public transport compared to those who choose to use more carbon, due to lifestyle choices, status and luxury. Personal carbon trading could be socially progressive as under such a system the rich would be paying the poor in order to sustain their carbon-intensive lifestyles. Some poor people will require further assistance to make the capital investments (e.g. home insulation) that will allow them to reduce their carbon emissions. These would include not only those on low incomes, or suffering in fuel poverty, but also those who are financially excluded and unable to budget successfully even without the additional demands of a personal carbon allowance. These groups may also be unable to access or understand the financial services that would help them make the most of their allowance (Environment Audit Committee, 2008).

Personal carbon trading has been seen as being of potential benefit to older people and

a possible measure to keep older people out of poverty (Help the Aged, 2008). Pensioners in poverty are unable to afford luxuries such as foreign holidays and new electronic goods. By consuming less, older people would potentially be left with large surpluses in their carbon accounts. It has been suggested that older people might be able to sell their extra carbon to business travellers, perhaps even enabling them to pull themselves out of poverty. Alternatively, they could choose to give their surplus carbon to their grandchildren. However, an analysis of the carbon footprint of older people shows that a high proportion of household expenditure is spent on domestic heating and that this has a higher carbon intensity per £ spent. Improvements in the energy efficiency and design of the housing stock will reduce home energy bills. However, while a warmer climate might reduce winter heating costs, high temperatures may necessitate the need to keep homes cool. Therefore the surplus carbon allowance of older people may not be as high as expected.

Public acceptance of personal carbon trading will be dependent on the success of the scheme in engaging and protecting disadvantaged groups such as the elderly. These groups will require reassurance and assistance, both to help them meet the cost of their carbon allowances, and to make the capital investments or lifestyle changes that will remove them from this category (Environment Audit Committee, 2008). Further research is required to determine how older people, especially those in fuel poverty, care homes and in need of constant health care, will fare under a system of personal carbon allowances.



6 A New Policy Framework for Climate Change and Older People

This report has attempted to bring together what we know about an ageing population and the effects of climate change. It is clear not everyone will be equally affected by changes in the climate. A national workshop entitled “*Growing Old in a Changing Climate: Meeting the Challenge of Climate Change*”, organized by the Stockholm Environment Institute, Help the Aged and the Yorkshire and Humber Assembly, was held on 26 March 2008 in York. Over 60 people attended the workshop from different organisations to discuss issues related to climate change and older people. Appendix 1 presents a list of key points raised. There was a general concern by workshop participants that there is a tendency for local and central government to deal with the root causes, or mitigate the impacts, by focusing on the “big and shiny” rather than the small, very effective, but less visible, approaches. One example is the need to urgently revitalise the efforts to improve energy efficiency, which will give better, quicker returns on reducing greenhouse gas emissions than other more grandiose plans. Three wide-ranging themes emerged from the workshop:

- Individuals are willing to make changes and contribute to tackling climate change but think government should do more (e.g. deal with packaging through legislation and improve public transport)
- There is an urgent need to improve the quality of housing stock and energy efficiency
- Older people should be more involved with policy making and problem solving because they have both huge amounts of experience to draw upon and the potential to make a significant contribution to the efforts to address the challenges.

A new and vigorous national policy framework which combines sectoral and cross-sectoral approaches and temporal sequencing is needed which link climate change interventions and policies to improve the quality of life of older people.

Older people are aware of the importance of climate change. Some take the view that they

have too little life left for it to impact on them personally or for them to do much about it, but the majority, as recent attitude surveys have shown, is aware of the threats it poses for their children and grandchildren. The issue of climate change can be perceived as being so large, and the steps any single individual can take are so small, that some older people are bewildered about meaningful steps that they can take. However, many are taking positive actions (e.g. recycling, switching off lights), although, not necessarily motivated by the issue of climate change. Older people would be prepared to take positive actions to tackle climate change, not just for themselves but for succeeding generations. However, some are at a loss to know how best to do so while others are grappling with the various barriers that make a low carbon lifestyle a difficult option. Appendix 1 summarises opinions voiced in the workshop and demonstrates this sense of concern and bewilderment.

There needs to be a strong lead from Government and public authorities to help shape the actions of older people. Councils have a local area leadership role to ensure older people can live independently and actively with a good quality of life for as long as possible (Audit Commission, 2008). There is a willingness to be led, but a need for clear guidance about what is the best route to follow. Of particular importance are the older people who are hard to reach - people who through poor health or poverty do not get out and about very much, and who are living lives in social exclusion and isolation. One household in six has an older person living alone: not all will be ‘isolated’, but quite a substantial proportion will be, and their numbers in society are likely to rise.

A review by the Audit Commission (2008) of local public services highlighted that local councils are insufficiently prepared for the additional diversity of an older population. Local government needs to begin to plan for an ageing population to ensure that risks are minimised and opportunities are maximised. Local government needs to age-proof essential services and ensure that older people can actively participate in reducing their carbon footprint. This is of particular importance within

the context of ageing population and a changing climate.

The three themes outlined above feed into various bundles of public policy strategies. Each needs to be considered in the light of the two key issues discussed here - the ageing of our society and our response to climate change. Both of these issues need to be reconciled, avoiding the potentially perverse consequences of helping one to the detriment of the other. Thus we need to look at the way we develop dynamic local communities which provide the services older people need without imposing huge transport costs: to out-of-town shopping centres, remote

polyclinics, or distant social and cultural centres. We need to fix the housing stock, the immediate environment of older people, so that it works for them and for the interests of climate change. We need to provide better public information - and possibly incentives - which will enable older people to change their behaviour with regard to their own well-being, and to set a positive example to their families. Older people could be the secret weapon in the climate change debate: they will need help to play that role, but they could be crucial in promoting (and demonstrating) the direction of travel.



Key Recommendations

- The magnitude of the threats posed by global climate change to older people and the rest of the population demand that central government departments **risk assesses all future policies** to ensure that, directly or indirectly, they do not undermine government targets to reduce UK greenhouse gas emissions.
- There should be **continued investment** to ensure the highest standards of **energy efficiency** to reduce fuel bills and carbon dioxide emissions. In order to reduce carbon dioxide emissions from the housing sector, and tackle fuel poverty, it is essential that the **homes of older people are climate change proofed** as quickly as possible and that this is done for existing homes as well as new build. A major programme of investment funded by national government is necessary so that every dwelling in England is retrofitted to the highest possible standard of energy efficiency. The programme should start with all those of retirement age. There should be investment in the third sector (i.e. voluntary and community organisations, charities, social enterprises, cooperatives and mutuals) work at the grass roots of communities to identify properties and older people who could benefit from such a scheme.
- Every local authority should use the opportunity of Local Area Agreements and Multi Area Agreements to re-focus its activities and budgets specifically towards delivering safer, stronger and healthier communities for older people. A **major programme of local accessibility enrichment** and modal shift is required taking into account best practice on walking, cycling, public transport and land use planning in Germany, Switzerland, Denmark and the Netherlands. Strategic Health Authorities and local authorities have a key role to play in developing integrated and preventative measures to ensure older people enjoy healthy and active ageing.
- Older people, who have suffered from the trend toward out-of-town shopping centres that are accessible only by car, and from the withdrawal of so many bus services across the country. By 2015 standards of modal share and **public transport efficiency, reliability**, interchange potential, safety and security should be equal to best practice in the European Union. Community transport will be vital for those older people who are unable to use public transport.
- Leadership is required to address the challenge of growing old in a changing climate and to ensure a safe, secure, equitable and sustainable future for older people. This leadership should come from government which should establish an **Older People and Climate Change Group** working with older people's organisations, key stakeholders, the voluntary sector, government agencies and academia. The group should develop a vigorous national policy framework which combs cross-sectoral approaches to link climate change interventions and policies to improve the quality of life of older people. This collaborative effort should sharpen, focus and co-ordinate action to deal with the range of impacts a changing climate will have on the lives of an ageing population

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APPENDIX 1

NATIONAL WORKSHOP GROWING OLD IN A CHANGING CLIMATE: MEETING THE CHALLENGE OF CLIMATE CHANGE

**Wednesday 26 March 2008
Hilton Hotel, York**

Organised by the Stockholm Environment Institute, Help the Aged and the Yorkshire and Humber Assembly.

MAIN POINTS MADE FROM THE BREAK-OUT SESSION.

National and Local Government

- The need for mandatory legislation to achieve GHG emission reductions
- To gain greater community cohesion there is a need for sharing, local co-ownership and cooperation of resources, families and communities
- There is a need for “champions” and local ambassadors to raise awareness of climate change and to ensure the interests of older people are addressed.
- There should be more decentralizing services/utilities
- There is a need for more joined up thinking with regard to policy in addressing the needs of an ageing population in a changing climate
- The experience and knowledge of an elders council should be taken into consideration in local government planning in order not to have to reinvent the wheel
- Policies should be aimed at achieving a sustainable lifestyle and workstyle by 2020
- There should be more and better legislation for people to do the right thing when it comes to reducing carbon emission
- There should be an impact assessment of policies throughout the whole planning

process in order that they not work towards meeting target for GHG but take into consideration of specific vulnerable groups.

- There needs to be some accountability towards reaching GHG targets
- There needs to be a re-localisation of power back to local authorities
- Local and regional authorities need to publish data and forecasts on how climate change will affect their areas
- There needs to be a policy change from penalty to incentive
- Local Strategic Partnerships should be made more eco-accountable
- There should be more joining up of Government policies on growth and sustainability
- Society needs to be able to absorb and respond to shocks (e.g. extreme weather events)

Energy

- There should be free energy for the over 60s to address the issue of fuel poverty
- There needs to be a greater focus on changing energy policy from supply to demand management
- All renewable energy technologies should be VAT exempt
- We should lobby for energy efficiency grants/improved standards, especially for vulnerable people
- Central government should be lobbied to ensure they spend at least 10 per cent of their nuclear budget on energy efficiency
- There should be a more community-based approach to renewable energy
- There should be appropriate renewable energy in all housings
- Planning law needs to be changed to

allow renewable energy conversion

- There should be an Energy Efficiency Advice Centre in every town

Awareness and Information

- There is a need for greater awareness about the issue and information on what people can do to make a difference
- There is a need to change public perception through education and awareness via life-long learning
- There is a need for better understanding of the issues in order to avoid insularisation of climate change as a global issue.
- There needs to be more local events and information for older people covering health, energy efficiency etc
- Schools should be educated on climate change

Transport

- There should be an affordable integrated transport to encourage a move away from car dependency
- Travellers should pay the 'actual' prices for air fare and use the extra tax for environmental projects
- Incremental departure tax on flights so travellers pay the 'actual' price
- There should be road user charging to reduce traffic congestion and GHG emissions from transport
- There should be more car sharing and community transport
- Use legislation to aggressively pursue measures that reduce vehicle emissions

Housing

- New and old buildings should be made 'zero carbon'
- All flat roofs could be green roofs
- The architectural design of buildings should be improved to cope with a warmer climate

Waste

- Recycling should be made easier and there is a need to reduce packaging
- There should be an emphasis on what older people can do now and with the help of others
- More water should be recycled
- Waste should be avoided from the outset i.e. packaging should be replaced with biodegradable material
- There should be more use of wind turbines
- We need to reduce consumption and use of water
- Recycling and storage facilities made 'older-people-friendly'
- Mini recycling facilities attached to each block of flats

Other

- There should be a move to more greener burials
- An Older Persons Coalition could provide the opportunity for volunteering

ORGANISATIONS WHICH PARTICIPATED IN THE WORKSHOP

Age Concern Bradford District
Age Concern England
Blomley International Environmental and Associates
City of York Council
CSV/RSVP
Department for Health, Regional Public Health Group
Eaga plc (Warm Front)
Federation of Small Businesses
Judith Cork Consulting
Harrogate Borough Council
Help the Aged
Hull City Council
Natural England
The National Trust
North Yorkshire Better Governance for Older People
North Yorkshire County Council
PRIME
Regional Public Health Group
Rotherham Metropolitan Borough Council
Rotherham Primary Care Trust
Scarborough Borough Council
Sheffield City Council
Stockholm Environment Institute
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York Trade and Debt Justice
York Older People's Assembly
Yorkshire Futures
Yorkshire and Humber Assembly

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