Scotland’s Climate Change Adaptation Framework

Health and Wellbeing Sector Action Plan

Introduction

This Action Plan identifies the potential impacts of the changing climate on the health sector and the health and wellbeing of the Scottish population and sets out actions being taken to adapt to those impacts. It also considers what the health sector can do to help other sectors and wider society adapt.

The changing climate will have positive and negative impacts and this Action Plan has been developed to minimise the negative consequences and maximise the opportunities.

Climate change is not an issue that governments can address in isolation. Ensuring long-term sustainability against a background of a changing climate will depend on organisations, businesses and communities across Scotland playing their part in preparing for the changing climate, working in co-operation and taking coordinated action. The actions set out in this Plan are not just for the Scottish Government and NHS Boards, but also extend to other public bodies, local authorities, and the third sector along with the private sector and individuals’ choices.

There is scientific consensus that climate change is very likely to cause significant effects on human health. Public Health and health care systems need to develop appropriate adaptation strategies including prevention strategies; preparedness strategies; human resilience; structure resilience; response strategies; and building the evidence base to address the health risks posed by climate change. For the purposes of this Action Plan, the Scottish health sector is identified as health services extending to both clinical and population health services and including relevant national and local government agencies and departments, private sector stakeholders, academic and research institutions and non-governmental organisations.

The Scottish health sector has a role to play in reducing greenhouse gas emissions across its operations and through adopting greener practices. However these measures are being taken forward under separate mitigation policies and are not included in this Action Plan, which covers adaptation only.

This Action Plan focuses on the following areas:-

- Physical Health.
- Mental Health.
- Respiratory Conditions.
- Vector Borne Disease.
- Food and Water Borne Disease.
- NHS Emergency Planning and Resilience.
- Healthcare service delivery.
- NHS Estates.
However, there are other areas which have a role in adaptation to reduce the health impacts of climate change, including:

- Social Care Services.
- Private Care Sector.
- Third Sector/ voluntary organisations.
- Local Authorities.
- Water Industry.
- Food Industry and Food Standards Agency Scotland.
- Emergency services.
- Education.
- Environmental bodies.

Some of the impacts of climate change cut across several sectors. The following issues are covered in other Sector Action Plans:

- Flooding in *Water Environment and Resource*.
- Water supply, demand and quality in *Water Environment and Resource*.
- Food security in *Agriculture*.
- Cycling Strategy in *Transport*.

There is an emerging evidence base both on a UK and Scottish basis on the key impacts set out in this plan. The Plan aims to reflect where we are currently and the work in hand to improve the evidence base in Scotland to inform our response to the key risks identified. As such, it should be viewed as work in progress which will be regularly reviewed. It is based on a recognition that near-term risks and impacts will take priority and can be assessed and managed with greater certainty than medium and longer-term risks and impacts. Identification and delivery of actions in response to longer-term risks will necessarily be subject to revision as a result of developments in the evidence base which will inform the nature and severity of those risks before they can be confirmed and acted upon. However, we recognise that some long-term risks with severe consequences but medium certainty may be more of a priority than some of the short-term risks with medium impact but high certainty and there will be a need to prioritise actions as a consequence.

**The Challenge**

The size of the adaptation task is difficult to quantify but the work being undertaken through the [UK Climate Change Risk Assessment](http://www.climatechangerisk.org.uk) will help us to assess the nature, relative risks and urgency of the challenge. Health Protection Scotland (HPS) has also made an initial assessment of the future risks from climate change in their document "The Potential Effects of Climate Change in Scotland" by Michelle Reid 2008 (further updated in 2010 but unpublished). Other relevant documents are the [Sustainable Development Strategy](http://www.nhs.nhs.uk) for NHS Scotland, published April 2009, and the [2010 Good Corporate Citizenship Assessment Model](http://www.gov.uk).
The consequences of climate related impacts for the health sector are wide ranging, but can be grouped as follows:

- Changes in physical health due to increased opportunities for outdoor physical exercise.
- Changes in mortality rates (both seasonally and as a result of extreme weather events).
- Increases in pests and diseases (vector, food or water borne, both related to low water levels/increased temperatures and flooding).
- Increases in respiratory conditions (due to changes in air pollution, especially in the summer months with a longer pollen season and predicted increased ozone; and a potential for increased mould).
- Possible increase in skin cancer, cataracts, etc due to increase in UV exposure.
- Increased burden on emergency and health care services including difficulties faced by staff to get to incidents and work through extreme conditions.
- Changes in patterns of mental health problems (both seasonally and as a result of extreme weather events such as the stress associated with displacement by floods and long term from heat stress).
- Longer term potential for population migration into Scotland with a commensurate demand for healthcare and welfare services, and potential widening of health inequalities.
- Longer term increased risk of heatwaves and a need to consider planning for such events.
- Increased risk of failure of critical health related infrastructure during extreme events.
- Increased vulnerability of the very young, the elderly and the socially disadvantaged.
- Crop yield variability globally leading to increased food prices – impacts on those on low income - or from drought in Scotland.
- Possible long term (2050s) problems with IT failure in the health service, (although this is likely to be more of a problem caused by severe weather and flooding rather than from increased heat as IT systems already operate in hotter climates).

**Key policies and Drivers for the Sector**

*The National Health Service*

The National Health Service (NHS) was established in 1948 as a free comprehensive health care service available to the entire population. At present the NHS can be divided into two sections, one dealing with strategy, policy and managerial issues; and the other dealing with all clinical aspects of care. The latter can be further divided into primary care, involving general practitioners (GPs), pharmacists and dentists etc; and secondary care, which tends to be hospital based and is accessed via GP referrals, along with tertiary care, involving highly specialised doctors dealing with particularly complex or rare conditions. Health is a devolved policy area and the NHS in Scotland is the responsibility of 14 geographically based
local NHS Boards and a number of special Health Boards which are funded by the Scottish Government.

**Food Safety**

The Food Standards Agency Scotland (FSAS) has lead responsibility for food safety issues in Scotland and food sampling surveillance and food hazard warning systems are operated by local authority Environmental Health Officers. There will be a continuing requirement to provide education about food poisoning related risks associated with warm temperatures and about food handling, storage and cooking procedures. Some studies aiming to link food borne illness with temperature have indicated that contamination often occurs at food production stages, rather than solely when the consumer purchases the food and handles it at home. Efforts should therefore be made to improve/maintain standards of food hygiene at all stages, including production, distribution, storage and preparation.

In preparation, the Food Standards Agency has recently undertaken a review of the effects of climate change on food which is within the remit of the Food Standards Agency. The specific aims of the review report are to: 1) identify the impact that climate change may have upon food nutrition; 2) identify the impact that climate change may have upon food safety; 3) understand the impact that food and food waste has as a driver for climate change; and 4) understand how responses to climate change may impact on nutrition and food safety. The report focuses on food and drink rather than water quality or abundance\(^1\).

In addition the Food Standards Agency is a partner in the Global Food Security initiative, a multi agency programme bringing together research interests. The programme has published a strategic plan\(^2\).

The programme aims to provide evidence to enable food producers and processors, retailers, consumers and government to respond to and manage the challenges facing the UK food system and related global issues, including the many challenges confronting the developing world.

The research themes for the programme are:

1. Economic resilience – securing a better understanding of how poor economic resilience leads to hunger, poverty and environmental degradation across the globe and how this might be addressed
2. Resource efficiency – including: water; energy; nutrients and other inputs; land use and soils, with particular focus on the sustainable use of resources; and improving efficiency and reducing waste
3. Sustainable food production and supply – including: farming systems; food production from crops and animals (including fish); food processing; manufacture; and transport
4. Sustainable, healthy, safe diets – including: food safety throughout the supply chain; nutrition; consumer behaviour; food choice; and accessibility.

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\(^1\) A copy of the report can be viewed at: http://www.foodbase.org.uk/results.php?f_category_id=&f_report_id=575

\(^2\) Plan can be viewed at http://www.foodsecurity.ac.uk/assets/pdfs/gfs-strategic-plan.pdf
Health Protection Scotland (HPS) undertake monitoring of gastro-intestinal diseases in Scotland and an alert system is already in place should the continuous monitoring pick up increased incidences of food poisoning at national and local level. Human disease surveillance detects the occurrence of outbreaks or epidemics so that immediate action can be taken to identify and control the source. In addition, HPS monitors long-term trends and this information is used by a number of organisations to reduce the risk of illness. The Health Protection Agency (HPA) also operates a Special Pathogens Reference Laboratory, which has a remit of detecting new pathogens that emerge. These imply that if new pathogens emerge or existing pathogens increase in numbers there are well developed structures to deal with these.

**Responding to extreme weather event**

NHS services and other public sector bodies with health related responsibilities already plan their responses to extreme weather events such as snow and ice under contingency planning and this should already be incorporated in established civil resilience and emergency preparedness. These could be extended to take account of incidents likely to be driven by climate change. A risk assessment of the increased likelihood of flooding etc will need to be incorporated into contingency and resilience planning to ensure that sufficient numbers of NHS staff are able to get to work and that access to healthcare facilities is not compromised. Boards should also consider the location of current and future NHS properties to ensure that they are not built on flood plains and will not be susceptible to river or coastal flooding. This may also impact on care homes and other facilities housing vulnerable people. Climate change needs to be taken account of in any planning decisions at an early stage in order to consider whether new build facilities risk being affected and whether existing facilities may need to be adapted or relocated in future.

Increased incidence of flooding is likely to produce a rise in self reported enteric infections, allergies and skin complaints, which are most likely to be dealt with by primary care. However, past experience has shown that for those whose homes are flooded the longer term health consequences tend to be mental stress associated with displacement, loss of personal possessions and financial losses. Mental health, psychological support and counselling services may experience a rise in demand following extreme weather events, such as floods. The Scottish Government has set targets to reduce the amount of dependence on anti-depressants by extending the provision of counselling therapies, which may be in greater demand to deal with the issues associated with flooding etc. This should be factored into service delivery in the medium to longer term.

The Scottish Environment Protection Agency (SEPA) already disseminates flood warning alerts through their web pages and the **Floodline service** which is easily accessible for business and the public. The Scottish Government has also funded SEPA to develop a state of the art national flood warning dissemination service, Floodline Warnings Direct, that will automatically send electronic flood warnings to all those who have signed up to receive them. The service will be up and running from March 2011.
In addition, the Scottish Government has funded the [Scottish Flood Forum](#), which works with communities, individuals and businesses to raise awareness of flood risk and build resilience for future flood events. It recognises the long term trauma and health issues that can affect flood victims and provides support and practical information about coping after a flood event. The Water Environment and Resource Sector Action Plan gives further details of how we are adapting to the increased risk of flooding from climate change.

**Disease Prevalence**

Health Protection Scotland (HPS) currently monitor the incidence of infectious diseases and environmental hazards in Scotland and this includes those reported in relation to Scots returning from abroad and issues that may have arisen through migration, such as malaria, TB and West Nile Virus. Further consideration will be given to whether the current system can be used or adapted to track disease prevalence which may be triggered by climate change in Scotland.

**Air Quality**

The Air Quality Strategy for England, Scotland, Wales & Northern Ireland, published in 2000 and updated in 2007, requires local authorities to monitor against statutory Air Quality objectives and take ameliorative action where these objectives are not being met. Air quality alerts are already available should air quality objectives be at risk of being breached, and these will be extended to include text alerts by the end of 2010. This is of particular importance for children and older people with respiratory problems.

**Increases in skin cancer and cataracts**

Scotland has seen a more than doubling of the number of skin cancers diagnosed over the last 20 years, with the recorded incidence of malignant melanoma of the skin increasing from 506 in 1988 to 1,164 in 2008. Numbers of non-melanoma skin cancers have also increased from 3,765 in 1988 to 10,054 in 2008. The Scottish Government has been working with Cancer Research UK on the Skin Smart Campaign in order to raise awareness about the risks associated with exposure to UV rays. Territorial Health Boards have produced localised sun awareness campaigns such as the “Keep Your Shirt On” campaign in Fife which targeted local school children. The Scottish Government will continue working with Cancer Research UK (CRUK) to raise awareness about the health risks of UV exposure. In addition the Health and Safety Executive has produced a resource for employers and employees called “Keep your top on” which sets out the risks from working on the sun and the precautions which should be taken. Messaging around skin cancer includes advice on wearing peaked or brimmed hats and sunglasses in direct sunlight and this messaging should be effective in helping reduce the risk of cataracts.
Impacts of Climate Change for the Sector (threats and opportunities)

Physical and mental health

A projected rise in mean annual temperature with the relative rise being greater in the winter than the summer, coupled with a projected reduction in rainfall levels is likely to lead to a greater uptake of outdoor activities, which has positive outcomes for both physical and mental health. Milder, dryer weather may lead to more people walking and cycling, reducing vehicle use, which will not only benefit physical health and help achieve the Scottish Government’s objectives to reduce obesity and greenhouse gas emissions, but also has the potential to benefit mental health and improve local air quality, potentially reducing rates of respiratory ill health.

The risk of increased acute weather episodes (for example, flooding and extreme gales) will have commensurate effects on healthcare resourcing, such as increases in traumatic injuries and drowning, along with mental ill health due to distress following flooding events. Flooding may also cause enteric infections due to disruption of water supplies and deteriorating water quality.

Modelling work undertaken as part of UK Climate Projections 2009 (UKCP09) does not show significant changes in incoming UV based on annual exposure, although the seasonal pattern may change to give more UV exposures in summer when people are likely to be outside, especially if it is warmer. However, it should be noted that the effects of climate change on cloud cover are highly uncertain.

There is potential to boost vitamin D levels which remain low in Scotland. This may reduce the incidence of Osteoporosis (brittle bones), rickets, Seasonal Affective Disorder (SAD) and the rate of multiple scleroses, but it is likely that the negative impacts of increased sun exposure outweigh the positive impacts. Again this will depend on future cloud cover.

Climate change presents an opportunity for healthier lifestyles, including healthier travel choices, such as walking and cycling and outdoor pursuits. The Scottish Government environment and human health strategy “Good Places Better Health” identifies the positive benefits of our built and natural environment on the health of Scots, including their mental health. Examples of best practice identified by this project will be available in Spring 2011, demonstrating the potential to enhance quality of life as well as health outcomes.

In the longer-term, increased migration from EU and non EU countries may lead to an increase in diseases previously uncommon in Scotland and NHS Boards would need to respond by providing appropriate treatments and assessing and containing any increased risks to public health. A new online resource has recently been launched by the HPA entitled “The Migrant Health Guide” which gives information and advice to support healthcare practitioners in assessing and treating migrant patients.
**Respiratory Conditions**

A predicted fall in excess winter mortality rates due to ambient temperature rises and reduced risk of poor air quality due to temperature inversions in winter could take place. This could be coupled with a reduction in fuel poverty resulting from a reduction in the amount of energy required to heat a household through the winter months due to warmer ambient temperatures and an increase in the uptake of government home insulation measures being offered to mitigate climate change.

Whilst air quality may improve during the winter months, with fewer temperature inversions, we might see an increase in the number of Ozone (O$_3$) pollution episodes during the summer months. This could result in an increase in respiratory illness in the summer months. In the mid to longer term it is estimated that there could be approximately 130 additional deaths annually for Scotland.

It is predicted that the growing season in Scotland will lengthen and as a negative effect of this, the extended period for exposure to pollen particles will adversely affect hay fever sufferers. Milder wetter winters and warmer summers may lead to an increase in fungal growth in buildings with a consequent increase in allergic respiratory and other fungal conditions.

**Vector Borne disease**

A possible rise in vector numbers is predicted with a consequent potential for an increase in vector borne disease. Changes in human outdoor recreational activity during warmer weather may increase exposure to vectors, such as ticks, with a potential for an increase in Lyme disease rates. There are no current predictions for malaria and other mosquito related illnesses to rise in Scotland.

Changes in climate with milder winters and wetter summers may lead to changes in the incidence of disease that are spread by ticks, mosquitoes and midges. These are vectors of existing diseases in Scotland, such as Lyme disease (tick borne) in humans. They are also vectors of diseases currently prevalent in warmer climates, such as the mosquito borne West Nile virus that has recently appeared in Italy and is responsible for a significant outbreak in Greece. In both these countries it has been responsible for deaths of humans and horses. A similar mosquito borne disease, Chikungunya, very recently appeared with locally acquired cases in France. As climate changes, the potential for survival over the winter and migration of new types of ticks and mosquitoes increases and whilst current species may not act as vectors for some disease, incoming species may do so. The picture of vector borne disease is, however, complex and changes in the use of pesticides in sheep and in farming practice may also contribute to changes in diseases such as Lyme disease.

Awareness of potential risk of diseases, such as Lyme disease, will be increasingly important in those at greatest risk such as forestry workers, game keepers and ramblers. Prevention is important, especially avoidance of insect and tick bites through use of protective clothing, insect deterrents and early removal of ticks. Raising the awareness of the general public is important but it is especially important in the groups of people identified as at greatest risk.
Food and Water Borne Disease

An increase in food-borne and water borne illness in Scotland is probable.

**Food** - It is estimated that a 1°C rise in temperature would result in an increase of food borne illness of approximately 4.5% across the population. Possible changes to food practices are likely, such as more outdoor eating and barbequing, requiring greater awareness about food hygiene.

Indirect effects extend to disruption of the food supply chain along with possible changes in the quality and quantity of food available. This is being addressed in the Food Standards Agency review of the effects of climate change\(^3\) and research being undertaken by the Global Food Security initiative.

**Water** - drinking water quality could be compromised following heavy rainfall events, with pathogens, such as E.coli O157 and Cryptosporidium, increasing due to increased shedding in animals, and compromised water treatment processes. Scotland already has higher than average rates of E.coli O157 and climate change may increase the risk further. This could especially impact on private water supplies which serve 3% of the Scottish population and frequently receive minimal treatment. Water supplies could be lost altogether for periods of time due to factors such as flooding and weather related power issues. However, Scotland already has a Waterborne Hazard Plan which is a multi agency approach to waterborne hazard incidents. It provides a framework for the management of a co-ordinated response to any actual or potential waterborne hazard associated with the public water supply in Scotland. In addition, guidance was published in 2007 detailing the multi agency response for dealing with a major water supply incident.

There is a predicted possible increase in the proliferation of algal blooms in external water courses with the potential for toxin release into water courses. This could impact on drinking water supplies as well as posing a health threat to recreational water users, such as canoeists and swimmers. In 2007, the Scottish Government produced revised guidance on Blue-Green Algae in inland and inshore waters, in order to assist with the assessment and minimisation of risks to public health. The guidance will be reviewed at 5 yearly intervals.

**Emergency Planning and Resilience**

Severe weather will also lead to problems for health and social care staff resourcing i.e. difficulty in travelling to work. Ensuring that climate change is taken into account in the management of the NHS Estate and other health and social care facilities will help to avoid some of the costs associated with retrofitting at a later date. In addition, there may be gains in terms of reduced vulnerability to current climate variability, as well as contributing to the long term sustainability of the estate.

\(^3\) See: [www.food.gov.uk/science/research/supportingresearch/strategicevidenceprogramme/strategicevidencprogramme/x02profillist/x02001](http://www.food.gov.uk/science/research/supportingresearch/strategicevidenceprogramme/strategicevidencprogramme/x02profillist/x02001)
There may be an increased burden on NHS emergency health care services and social and welfare services in dealing with the impacts of sudden extreme weather events.

Extreme heat or flooding events could lead to failure of health-critical medical equipment, failure of mechanical and electrical equipment, or IT systems in hospitals. Road access & car-parking may be impacted by extreme heat or flooding. While higher temperatures are a risk to the effective operation of IT systems in the UK, it should be borne in mind that IT systems already operate in hot countries and lessons might be learned from these and built into future planning.

Increased sun/heat could result in a greater need for building shading & mechanical ventilation. Potential increased cloud cover could reduce the impact of any solar panel installation.

Increased heat might also lead to a need for greater food & cleaning hygiene in health facilities, although stringent measures are already in place on this front and these should be easy to adapt should temperatures increase.

A longer growing season could increase the availability of biomass for CHP combined heating/electric systems, and could increase the benefits of any solar panel installation, although there are some uncertainties around future cloud cover in Scotland.

**Migration**

Climate change may lead to migration to Scotland from other countries where climate change has led to a shortage of sustainable water or food supplies. Fewer Scots may choose to emigrate to Mediterranean countries and beyond if they experience extreme temperatures and water shortages, and some expats may choose to return to the UK. There may also be an influx of immigrants from further afield. International migrants are often younger and of working age, whereas those who migrate through forced displacement may have a wider age profile. Migration may bring positive and negative impacts. Potential positive impacts include the reversal of the ageing population and potential positive contributions to the economy. Negative impacts include the potential to spread communicable disease and different health behaviours and patterns of morbidity from the indigenous population. Health Boards will need to regularly monitor population levels as part of their planning processes and consider whether there is a need to expand their services in order to meet any increased demand.

**Heatwave**

The Meteorological Office estimates that the temperature in Scotland and Northern Ireland has risen by about 0.8 C since 1980. Whilst this may seem fractional, it will have a greater impact on the likelihood of heatwaves occurring in Scotland over time. In terms of health, “the adverse health effects of hot weather and heat waves are largely preventable” (WHO 2008); thus being prepared for such events may help prevent morbidity and mortality. Whilst there is evidence of rising temperatures in the South East of England, in Scotland heat wave conditions have only been seen once
in the last 20 years in the Central Belt, in June 1995. Given that the risk of heatwave is currently assessed as low, there would be little benefit in producing a heatwave plan for Scotland at this point in time, when there is no evidence of increased summer mortality or morbidity. In the longer-term, a plan may be required to address the risks to the most vulnerable groups. Socially deprived people, elderly people and the very young (under 4 years) are more susceptible to extreme heat exposure. GROS will continue to publish, every quarter, the number of deaths that are registered in the previous quarter, and to complete statistics about the causes of death using the International Statistical Classification of Diseases and Related Health Problems. Should it become apparent in the longer term that sustained high temperatures are likely to significantly increase the number of deaths over time, the Scottish Government will produce a specific heatwave plan for Scotland. In the shorter-term, responses to potential heatwaves might be incorporated into broader extreme weather plans.

**Actions for the Sector**

This Action Plan undertakes the preliminary ground work for the first statutory Adaptation Programme, expected in 2013. The current actions set out below focus on improving our understanding of the potential impacts of climate change on health and health services. It is our intention that, as our understanding improves and the evidence base on climate impacts increases, we will consider what additional actions are necessary to manage the risks and impacts. The proposed scoping work by the short life working group should enable us to populate the second pillar on “Equipping decision makers with skills and tools” and identify any policy or legislative gaps. We will work in close collaboration with the NHS in Scotland, the Foods Standards Agency for Scotland, the Convention of Scottish Local Authorities (COSLA) and other relevant bodies to help build resilience within the health sector, along with development of priority adaptation measures on the wide range of health impacts that are likely to result from climate change.

Our priorities within the health sector are to :-

- Improve the adaptive capacity and capability of all bodies that have an interest in health and wellbeing.
- Minimise the potential negative health impacts identified from climate change wherever practical.
- Seek to address any health inequalities which may be exacerbated by climate change.
- Consider opportunities to promote healthier lifestyles as a consequence of climate change.

The following tables set out current and planned actions by the Health sector and other sectors which impact on health in order to build resilience to climate change, grouped by the three pillars of the Adaptation Framework. Some examples of activity already being undertaken in order to build resilience to the consequences of climate change have also been included in order to give examples of the work underway.
### PILLAR ONE - Understanding the consequences of a changing climate:

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<tr>
<td><strong>UK Climate Change Risk Assessment (CCRA)</strong>&lt;br&gt;Continue to support the CCRA to ensure high quality evidence on the impact of climate change is available for Scotland</td>
<td>UK Government, SG (HD)</td>
<td>Ongoing to 2012</td>
<td>Final CCRA Technical and Act Reports, due January 2012.</td>
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<tr>
<td><strong>Work with stakeholders from Health Protection Scotland, Health Scotland and NHS Services, including resilience and emergency planners, to identify the costs, risks and opportunities presented by climate change to enable adaptation indicators to be developed.</strong></td>
<td>SG (HD), HPS, NHS HS, NHS Boards, FSAS, EHOs</td>
<td>Ongoing</td>
<td>Set up a short term working group or series of meetings in 2011 to take this work forward.</td>
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<td><strong>Migration</strong>&lt;br&gt;Engage with the current UK Foresight project on Global Environmental Migration: and use the scenarios to inform health service planning in Scotland.</td>
<td>SG, <a href="#">UK Foresight project</a></td>
<td>2011</td>
<td>Analyse the issues arising which are relevant to Scotland and feed into our planning process.</td>
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<tr>
<td><strong>Good Places Better Health</strong>&lt;br&gt;Phase one of this project will develop a model on the relationship between environmental influences and their impact on human health. This will improve our understanding of how expected changes in climate may impact on health in Scotland. Phase two will assess the impact of mitigation or adaptation policies on the four childhood health issues of asthma, obesity, mental health and unintentional injuries</td>
<td>SG, HPS</td>
<td>Phase one to be completed by June 2011</td>
<td>Publication of first phase findings.</td>
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<tr>
<td><strong>National Air Quality Strategy</strong>&lt;br&gt;Alert bulletins are provided on the <a href="#">Scottish Air Quality website</a>. The website is also a comprehensive source of information for all aspects of air quality in Scotland. In addition, the Met Office already has a warning system for elevated pollen counts which are broadcast as part of the daily weather bulletins. This warns people with pre-existing respiratory conditions of heightened pollen levels in order that they can take any necessary medication or avoid prolonged exposure. The Met Office also provides a Chronic Obstructive Pulmonary Disease (COPD) Health Forecasting Service alerts for healthcare professionals and patients with COPD when there is increased risk due to weather conditions and circulating respiratory infections.</td>
<td>SG (Env), LAs, SEPA</td>
<td>Ongoing</td>
<td>Text alert service available from early 2011. Further work undertaken to raise awareness through NHS professionals to vulnerable groups by end 2011.</td>
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<td><strong>Water Quality Management</strong>&lt;br&gt;Use climate change research to assist with planning and equipping, to resist storm events, to minimise health</td>
<td>SG (Env), Water Industry</td>
<td>Ongoing</td>
<td>All Scottish Water supplies will have plans in place by the end of 2012, however, they are designed to be live.</td>
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## Pillar Two - Equip decision makers with skills and tools:

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| Ensure future food security | The Food Standards Agency is a partner in the Global Food Security initiative, a multi agency programme of research. [www.foodsecurity.ac.uk/assets/pdfs/gfs-strategic-plan.pdf](http://www.foodsecurity.ac.uk/assets/pdfs/gfs-strategic-plan.pdf) | 5 year research plan from 2011-2016 | Research themes include:  
1) Economic resilience – understanding how poor economic resilience leads to hunger, poverty and environmental degradation.  
2) Resource efficiency – including water, energy, nutrients land use and soils with a focus on sustainability.  
3) Sustainable food |
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<td><strong>PILLAR THREE - Integrate adaptation into public policy and regulation:</strong></td>
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<td><strong>Integrate climate change adaptation into policy and guidance relevant to health service provision</strong></td>
<td>SG (HD) / Health Facilities Scotland</td>
<td>2010/11</td>
<td>Sustainable Development Policy by 30 June 2011</td>
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<td>Lessons from NHS Scotland’s Good Corporate Citizenship Assessment Model and the Phase 1 NHSScotland carbon footprint report (1990-2004) will be incorporated into the review and refinement of the NHS Scotland Sustainable Development Strategy. Along with related sustainable development policy (SGHD) and identification and development of further guidance (HFS), it will seek further opportunities to integrate adaptation into policies and guidance on service provision.</td>
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<td>Revised NHS Scotland sustainable development strategy by 30 June 2011</td>
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<td>Further HFS guidance for NHS Boards as required/ appropriate.</td>
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<td><strong>Revise Scottish Capital Investment Manual to take account of changes in sustainable development policy and strategy.</strong></td>
<td>SG (HD) and HFS</td>
<td>2011/12</td>
<td>Scottish Capital Investment Manual will be revised March 2012</td>
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<td><strong>Addressing health inequalities of climate change impacts</strong></td>
<td>SG, Ministerial Task Force on Health Inequalities</td>
<td>2010/11</td>
<td>Assessment of actions flowing from the Health Sector Adaptation and Mitigation Plans (and relevant others) for their likely impact on health inequalities to ensure actions include measures to protect the most vulnerable groups of people, and avoid widening health and other inequalities.</td>
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<td>Review the Scottish Government’s Equally Well policy to further consider the health inequalities that may be caused, or exacerbated, by changes in climate.</td>
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<td>Ensure that climate change research and that adaptation planning, especially in relation to severe weather events, forms part of future NHS contingency and resilience planning.</td>
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<td><strong>Vector borne disease</strong></td>
<td>SG, HPS, NHS</td>
<td>2009</td>
<td>Online training modules for GPS now available and HPS</td>
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<tr>
<td>Conclude the work of the Ministerial Sub</td>
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<tr>
<td>Action</td>
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<tr>
<td>Group looking at raising awareness among the general public, rural workers and medical professionals about Lyme disease.</td>
<td>SG (HD), NSS, NP, NHS</td>
<td>ongoing</td>
<td>produced public information sheet/resource on Lyme disease which is available on their website. Consider review of outputs in 2011.</td>
</tr>
<tr>
<td>Ensure that IT suites in NHS properties take account of heat generated by equipment, and that any potential overheating issues are addressed at the time of installation of equipment.</td>
<td>NHS (ISD)</td>
<td>ongoing</td>
<td>This deliverable to be taken forward by NHS Procurement and Estates in considering accommodation design for housing IT equipment.</td>
</tr>
<tr>
<td>NHS System Watch website to be adapted in order to give advance notice to NHS Boards of extreme weather, such as cold snaps or heatwaves</td>
<td>NHS (ISD)</td>
<td>ongoing</td>
<td>This will be implemented as soon as possible within the next 5 years. (by 2015)</td>
</tr>
<tr>
<td><strong>Cycling Action Plan for Scotland</strong> sets out 17 key actions in order to encourage greater uptake of cycling with the aim that by 2020 10% of all journeys will be made by bike.</td>
<td>SG, LAs, TS</td>
<td>Ongoing with delivery by 2020</td>
<td>Formulation of plan by end 2010 to deliver coordinated approach to training; increased number of volunteers delivering training; support network for volunteers; and support to LAs for cycle training. Work with Network Rail and franchise operators to encourage cycling and rail integration, to be linked to renewal of franchise in 2014.</td>
</tr>
<tr>
<td><strong>Core Path Plans</strong></td>
<td>LA</td>
<td>ongoing</td>
<td>All local authorities to provide a basic framework of opportunities for everyday journeys and recreation. These will encourage people to walk and cycle for health as well as sustainable transport.</td>
</tr>
<tr>
<td>Sunsmart Campaign offering advice on preventing skin cancer forms part of the Scottish Government's cancer strategy</td>
<td>SG and Cancer Research UK</td>
<td>ongoing</td>
<td>Sunsmart campaign offers advice on how to minimise the risk of skin cancer. Advice includes recommendation on wearing wide brimmed hats and sunglasses which will offer protection against cataracts.</td>
</tr>
<tr>
<td><strong>Migrant Health</strong></td>
<td>HPA</td>
<td></td>
<td>Online resource launched by HPA as a one stop shop for health care practitioners in assessing and treating migrant patients in recognition that these patients sometimes have more complex health needs⁴.</td>
</tr>
<tr>
<td>Guidance on Blue-Green Algae (Cyanobacteria) in inland and inshore</td>
<td>HPS and SG</td>
<td>Update in 2012</td>
<td>The Guidance sets out the approach for managing the</td>
</tr>
</tbody>
</table>

⁴ See [www.hpa.org.uk/MigrantHealthGuide](http://www.hpa.org.uk/MigrantHealthGuide)
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>waters: Assessment and Minimisation of Risks to Public Health</td>
<td></td>
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<td>risks to human and animal health of exposure to blue-green algal toxins and the need for “Local Action Plans”. The guidance is reviewed at 5 yearly intervals</td>
</tr>
<tr>
<td>Scottish Waterborne Hazard Plan</td>
<td>Multi agency</td>
<td>ongoing</td>
<td>Statutory duties already apply in order to respond to actual or potential waterborne hazard associated with the public water supply in Scotland. The Scottish Waterborne Hazard Plan provides guidance for dealing specifically with waterborne hazards to enable a consistent approach to be adopted across relevant agencies. It is kept under regular review.</td>
</tr>
<tr>
<td>Private Water Supplies are regulated by the Private Water Supplies (Scotland) Regulations 2006 which transpose the revised European Drinking Water Directive (Council Directive 98/83/EC). In addition, the SG has introduced a Grant Scheme to assist users improve their water supply. Guidance for owners and users of private water supplies and enforcement officers in local authorities is available at <a href="http://www.privatewatersupplies.gov.uk">www.privatewatersupplies.gov.uk</a></td>
<td>LAs</td>
<td>ongoing</td>
<td>The Regulations aim to ensure provision of clean and wholesome drinking water and deliver significant benefits to those using such supplies. They incorporate the use of risk assessments from “source to tap” as part of an effective drinking water surveillance programme. Grants of up to £800 are available to improve private supplies.</td>
</tr>
</tbody>
</table>

SG = Scottish Government; SG(HD) = Scottish Government Health Directorate; SG (Env) = Scottish Government Environment Directorate; HPS = Health Protection Scotland; NHS HS = NHS Health Scotland; NHS (ISD) = NHS Information Services Division; FSAS = Food Standards Agency Scotland; EHOs = Environmental Health Officers; LAs = Local Authorities; SEPA = Scottish Environment Protection Agency; TS = Transport Scotland; NSS = National Services Scotland; NP = National Procurement; HPA = Health Protection Agency