

Appendix A

Summary of climate change impacts

Agriculture, horticulture and forestry	
<p>Opportunities</p> <p>Longer growing season providing increased yields</p> <p>Potential for new crops (grapes, navy beans, sweetcorn, soya and sunflowers)</p> <p>Reduced frost damage should increase productivity</p> <p>Potential increased growth rate (eg for forest trees) Opportunities for new forestry planting in floodplains to mitigate flooding</p>	<p>Challenges</p> <p>Reduced die-off of pests and diseases due to warmer winters</p> <p>Decreased soil quality and increased erosion due to increased run-off from winter precipitation</p> <p>Need for increased irrigation in summer</p> <p>Possible wind and storm damage to standing crops and nursery stock</p> <p>Increased heat stress to poultry and livestock</p> <p>Potential loss of South West's competitive advantage</p>
Coastal issues and marine fisheries	
<p>Opportunities</p> <p>Increased tourism in coastal zones may boost local economies</p> <p>Increased marine activity, water sports, surfing etc</p> <p>Increased scope for aquaculture of new species of fish and shellfish</p> <p>Some fisheries may be enhanced by longer breeding season</p>	<p>Challenges</p> <p>Increased rate of coastal erosion and silting of estuaries</p> <p>Loss of natural assets in the coastal zone eg wetlands and beaches</p> <p>Reduced overall productivity of oceans, and loss of some commercial species (fish and shellfish)</p> <p>Deterioration in water quality and increase in algal blooms</p> <p>Increased run-off and leaching from land, damaging flora and fauna in coastal zones</p> <p>Pressures arising from increased tourism in coastal zones</p>
Biodiversity	
<p>Opportunities</p> <p>Flora and fauna species with pronounced southern distribution to become more widespread</p> <p>Integrated land management to aid nature conservation</p>	<p>Challenges</p> <p>Risk to species vulnerable to drought</p> <p>Risk to species requiring sub-zero period to break seed dormancy</p> <p>Risk of expansion of naturalised aliens (eg Fuschia in Cornwall)</p> <p>Increased visitor pressure on natural environment</p> <p>Loss of coastal and estuarine habitats due to increased rate of coastal erosion and invasion</p> <p>Threat to Chesil Beach and saline lagoon, and silting of estuaries</p> <p>Increased incidence of fire in hot dry summers</p>
River flooding and drainage	
<p>Opportunities</p> <p>Introduction of sustainable urban drainage systems</p> <p>Commercial opportunities in flood defence and flood management</p> <p>Opportunity to integrate estuarine and coastal flood defence</p>	<p>Challenges</p> <p>Increased risk of flooding from increased rainfall and possibly more storms</p> <p>Improvements and higher specification required for flood defences</p> <p>Improvements and higher specification required for urban drainage and rainwater disposal systems</p>
Water resources and water quality	
<p>Opportunities</p> <p>Increased supply available in winter but needs capturing and storing</p> <p>Greater potential for one-season recharge of larger reservoirs and aquifers</p> <p>Greater potential in winter for increasing water releases to hydropower</p>	<p>Challenges</p> <p>Increased evaporative losses from surface water stores</p> <p>Increased demand for water in summer</p> <p>Higher concentrations of pollutants in watercourses from reduced summer rainfall</p> <p>Increased risk of algal blooms and pollution in reservoirs with reduced water levels and low inflows in summer</p> <p>Potential for saline incursions into coastal water abstraction plants and boreholes</p> <p>Increased risk of sediment and pollution runoff into watercourses caused by changes in farm management practices adopted to adapt to climate change</p>
Built environment and housing	
<p>Opportunities</p> <p>Reduced heating demand, especially in winter, and therefore reduced heating costs</p> <p>Commercial opportunities for developing regional expertise in passive solar heating, cooling, shading and other environmental technologies</p> <p>Increased scope for outdoor activities around buildings, especially in summer</p> <p>Increased potential for renewable sources of energy (eg passive solar)</p> <p>Increased need for shading (eg more trees in urban streets and squares)</p>	<p>Challenges</p> <p>Planning and design of new buildings in locations vulnerable to flooding</p> <p>Potential overheating of interior environment in existing and new buildings in summer will require sustainable solutions to cooling</p> <p>Increased subsidence and associated insurance claims due to drying out of substrata (especially in clay areas)</p> <p>Structures under construction vulnerable to storm damage in exposed locations</p> <p>Increased summer demand for water</p> <p>Design standards will need to be revised in light of new climate scenarios</p>

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Transport	
<p>Opportunities</p> <p>Increased scope for walking and cycling for everyday travel and tourists</p> <p>Improved rail and road infrastructure to provide alternative and diversionary routes in case of extreme climate events</p> <p>Less frost damage to roads from winter cold; less need for road salting</p> <p>Fewer ice/snow related accidents on roads and footpaths</p> <p>Fewer ice/snow related points failures on railways</p>	<p>Challenges</p> <p>Increased pressure on transport systems from more tourists</p> <p>Flood risks (including flash floodsto roads) disrupting roads in some major towns</p> <p>River/coastal flooding and landslip threats to railways</p> <p>Increased threat of storm damage to road and rail</p> <p>Some disruption to air traffic (eg air links to Scilly Isles and from Cornwall to London)</p>
Utilities	
<p>Opportunities</p> <p>Reduced heating demand, especially in winter may lead to lower bills for consumers</p> <p>Commercial and environmental opportunities for developing renewable energy production (wind, tidal, bio-mass, bio-fuels, solar) Commercial and environmental opportunities for passive solar heating, cooling, shading and other environmental technologies</p> <p>Increased potential for renewable sources of energy (eg passive solar)</p>	<p>Challenges</p> <p>Increased tourism, in summer and winter, will increase demand on utilities</p> <p>Potential summer overheating of buildings will require sustainable solutions to cooling</p> <p>Utilities infrastructure is vulnerable to storm damage in exposed locations</p>
Health	
<p>Opportunities</p> <p>Generally less ill health due to reduced cold conditions</p> <p>Reduced winter mortality (eg from hypothermia)</p> <p>Healthier lifestyles due to increased opportunities for outdoor activities</p> <p>Fresh, healthy and locally-produced food available for a longer period</p> <p>Less risk of injury due to falls on ice</p>	<p>Challenges</p> <p>Increased risk of food poisoning</p> <p>Increased risk of sunburn, heatstroke, and exposure to UV radiation (skin cancer)</p> <p>Increased risk of heat exhaustion and dehydration in summer</p> <p>Risk of deterioration in water quality and increase in infection Higher air pollution in urban locations leading to respiratory disease Increase in some diseases (eg Lyme disease from ticks)</p>
Tourism and leisure	
<p>Opportunities</p> <p>Longer, more reliable summer season leading to increased visitor numbers and visitor spend</p> <p>Warmer winters, leading to a more year-round tourist season</p> <p>More outdoor and water-related recreation</p> <p>Potential increase in UK holidays, urban tourism and city breaks as Mediterranean destinations become too hot</p>	<p>Challenges</p> <p>Increased demand on transport and utilities infrastructure due to increased visitor numbers</p> <p>Coastal attractions vulnerable to sea level rise and storms</p> <p>Increased visitor pressure on natural environment</p> <p>Threats to historic gardens of changing habitat and species</p> <p>Storm and flood damage to caravan sites and other tourist infrastructure</p>
Environmental technologies and Biotechnology	
<p>Opportunities</p> <p>Commercial and environmental opportunities for passive solar heating, cooling, shading and other environmental technologies and expertise</p> <p>Commercial and environmental opportunities for pollution monitoring and control technology and expertise</p> <p>Genetic modification of crops (eg to resist summer drought)</p>	<p>Challenges</p> <p>Operational difficulties for equipment at high temperatures</p> <p>Changes to water supply and quality will restrict water intensive activities</p> <p>Increased demand for 'greywater', water treatment and new water-efficient technologies and expertise</p>
Financial services	
<p>Opportunities</p> <p>Reduced insurance claims arising from cold weather conditions</p> <p>Investment opportunities resulting from increased economic activity (eg tourism)</p> <p>Investment opportunities resulting from new market opportunities (eg environmental technology)</p>	<p>Challenges</p> <p>Increased insurance risk due to flooding, landslips and subsidence</p> <p>Higher insurance costs generally and potential for insurers not to provide cover to certain locations, premises, and activities Increased insurance costs of storms and impacts on transport, infrastructure, business and property</p> <p>Increased marine and offshore impacts and related investment and insurance losses</p>
Food and drink	
<p>Opportunities</p> <p>Availability of new crops and species in the region, reducing import costs</p> <p>Developing new markets for local produce, especially new local varieties</p> <p>Increased consumption of warm weather food and drinks leading to new markets</p>	<p>Challenges</p> <p>Increased demand for cooling with associated environmental and financial costs</p> <p>Increased bacterial build-up in foods leading to health risks and associated litigation</p> <p>Loss of some traditional species and crops</p> <p>Impacts on transport infrastructure especially ports, affecting distribution to and from markets</p>