



Campaign to Protect
Rural England

Proceedings of the

Tomorrow's Kent

Climate Change Conference, 1 February 2008

hosted by the Kent Branch of the Campaign to Protect Rural England (CPRE)

FINAL



1 Background

1.1 About CPRE Kent

The Kent Branch of the Campaign to Protect Rural England (CPRE Kent) campaigns for the countryside to be protected and enhanced for the benefit of everyone, now and for future generations.

We are a membership organisation, founded in 1929, and nearly all of our income comes from members' subscriptions, donations and legacies. Membership is open to all.

We work closely with other branches and the national CPRE organisation to achieve:

- improved quality, tranquillity character and diversity of the countryside;
- wiser use of natural resources;
- less harmful and intrusive transport infrastructure;
- open and more inclusive local democracy and land use planning.

More information on our work can be found at www.cprekent.org.uk and www.cpre.org.uk

1.2 About Tomorrow's Kent climate change conference

The successful event on the 1st February had the following aims:

- To raise the profile of what climate change means for Kent, particularly rural areas, and what needs to be done to understand those impacts and identify sustainable adaptation strategies;
- To identify climate change caused conflicts in land use planning, natural resource management and rural priorities;
- To give a forum for CPRE members and planning professionals to discuss Kent climate change issues and to develop mutual understanding of needs and constraints;
- To raise CPRE Kent's profile in the climate change debate and to build partnerships with other organisations;
- To establish some consensus on priorities and topics to guide the follow-on draft of the CPRE Kent report on climate change.

1.3 About this document

This report serves as a detailed record of the presentations, discussions and feedback from the event. Every care has been taken to ensure that the information has been reproduced accurately and in good faith. However, please note that the views expressed aren't necessarily those of the organisations involved and speakers should not be held accountable for off-the-cuff responses to intense questioning!

All comments and suggestions are welcomed. For more information, please contact:

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2 Programme

10:00	Chairman's welcome Gary Thomas, Chairman, CPRE Kent
10:05	Keynote address Shaun Spiers, Chief Executive, CPRE
10:25	Climate change challenges for agriculture Sandra Nichols, National Farmers' Union
10:50	Ecological networks and living landscapes Richard Moyses, Kent Wildlife Trust
11:35	Coastal management: making tough decisions on future land use Andrew Pearce, Environment Agency
12:00	Planning for climate change in the Ashford growth area Richard Alderton, Ashford Borough Council
12:25	Panel discussion Chaired by Shaun Spiers

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13:00	Lunch and fringe meetings (1) <i>Agriculture</i> (2) <i>Ecology</i> (3) <i>Coasts</i> (4) <i>Planning</i>
14:30	What does climate change mean for Kent? Alison Cambray, Kent County Council
14:55	A rural community facing sea-level rise - a case study from Faversham Road, Seasalter Chris Blunkell, Faversham Road Residents' Association
15:20	Creating a vision for the future of Kent's countryside Sean Furey, CPRE Kent
15:45	Panel discussion Chaired by Shaun Spiers
16:20	Summing up and close Gary Thomas

3 Keynote Address

Shaun Spiers, Chief Executive, Campaign to Protect Rural England

Thank you for the opportunity to kick off this conference. I will keep it fairly broad brush. I want to talk a bit about CPRE's work, in particular the new positive vision for the countryside in twenty years' time that we are developing.

The loss of countryside

One of the reasons for doing this is that although a lot of our work at a national and branch level is about influencing legislation and planning frameworks, we are often seen as a negative and backward looking body.

Now, it is worth remembering that England loses 25 squares miles of countryside every year, an area about the size of Leicester. Beyond the land area actually lost to development, we know that the 'development halo' is profound. The area of land lost to development might be relatively small, but over half the countryside is now affected by urban disturbance - the figure for Kent is 64% - and there has been a huge increase in the last 15 years.

So of course CPRE, as an organisation is primarily concerned with protecting the countryside, has to say 'no' to inappropriate developments. It's not always wrong to be negative. And we can get quite gloomy about the future. A few years ago we produced a pamphlet, *Your countryside, your choice*

which presented a dystopian vision of England in 2035. It started: "If it happened all at once, there would have been a huge outcry; determined, concerted action. But it didn't; it happened over several decades - gradually, incrementally, without anyone really knowing who was responsible, or whether it was anything to do with them. But it was to do with them. And so those who remember how things used to be look back uneasily. They find it hard to believe it happened. But it did. It's 2035 and the countryside is all but over."

In the foreword to the pamphlet I said that we would be developing positive solutions to avert the dystopia, and I remember receiving a letter from the then Secretary of State for Environment, Margaret Beckett more-or-less saying "yeah, yeah, we look forward to anything positive from CPRE". So that's what we are now trying to do now.

Philip Larkin, in 'Going, Going', his poem about the loss of the English countryside, wrote that "most things are never meant". In fact I don't believe that continued piecemeal erosion of the countryside is meant. I am un-cynical enough to believe that when politicians say they want to protect the Green Belt, they mean it - it's just that the also want to build a good many houses very quickly, and they don't know how to achieve both their housing numbers and the protection of the countryside.

The challenges we face

So what we are trying to do in the vision for the countryside in 2026 is set out the future that we want to see and suggest how we can get there. We are trying to recover the sense of direction we had when CPRE was founded in 1926.

Looking at CPRE's first decade we can discern three main policies: the first was to protect the country's special landscapes by creating National Parks and other landscape designations; the second was about protecting ordinary countryside around our towns and cities through the creation of Green Belts; and the third was about ensuring a clear distinction between town and country through a strong, democratic town and country planning system.

It took three decades to achieve these things, but large areas of countryside have been protected as a result - as a result of CPRE setting out a forward-looking vision for the future development and protection of the countryside, and fighting to persuade others of its merits.

But now we're in a new world. We have:

- freer global trade, with subsidies for agricultural production apparently on the way out;
- a growing, more affluent population, with greater expectations of home ownership. Restrictions on new housing are increasingly questioned;

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- a more urban national mindset, perhaps particularly among the political elite. CPRE's former president, Sir Max Hastings used enjoy railing against 'politicians of the pavement who wouldn't know a cuckoo if it laid an egg in their gin and tonic'. It is harder to find in either party people whose principal passion is a love of the countryside, and that is a reflection of social trends as well. This more urban outlook makes it much harder for a countryside protection organisation to justify itself than when CPRE was founded, when Stanley Baldwin ("for me, England is the countryside and the countryside is England") was prime minister;

Above all, we have the overriding challenge of climate change.

So, CPRE cannot be purely about protection. We need to make the case for the value of the countryside and come up with answers for the politicians who are scrabbling around in the dark at the moment.

2026: a better countryside

And we need a better countryside. We have a glorious, wonderful countryside in England - but much of it could be improved. And in this respect, the history of the last twenty years should give us hope, because much of the countryside has been enhanced through things such as the creation of the National Forest in the East Midlands; the stewardship of landowning charities such as the RSPB, the National Trust and the Wildlife Trusts; and the work of private landowners, such as Philip Merricks in Kent. The last 5-10 years have also seen welcome improvements in farming practices. If countryside is not beautiful, or does not have amenity or wildlife value, then it is harder to defend.

The changes to agricultural subsidies that are coming give us the best chance to reshape the landscape since the Second World War. The whole system of agricultural funding is so complex that almost no-one understands it. (I do, but there isn't time to explain.) But the task we face is relatively simple: to find ways of paying farmers for public goods they provide, such a maintaining and improving the landscape, flora and fauna and access, in addition to their primary role of growing food.

We also need a countryside which more people will be able and want to visit. In 20026, according to our vision document - one possible vision, not the last word - "many more adults and children visit the countryside, and when they do they see farm animals outdoors. The wildflowers, birds, insects and mammals that had so dwindled over the previous 70 years have returned in a rush of sights, sounds and smells". It is a very poetic and I think appealing picture. We envisage a countryside that is wetter, more wooded and a little wilder. This is a countryside that is not only beautiful, it is helping us mitigate and adapt to climate change.

Alongside that, and more controversially, our pamphlet talks about a more peopled countryside. It envisages more people living in or visiting the

countryside - more people appreciating it. This relates to my earlier point - the need to engage and get the support of the urban majority if the countryside is going to be cared for. I'm sure we've all read stories about children not knowing where milk comes from or thinking that chicken comes in cellophane or in a KFC box. This is a serious cultural problem. We need to get more people into the countryside!

As we get more people into the countryside to appreciate it and the countryside improves, so more people will care, and we get into a virtuous circle: more people who visit, more people who care, further improvement.

Where will people live?

Then we have the built environment. CPRE has always been about improving towns and cities. If we can't make towns and cities liveable then we can't protect the countryside. We know we will have to find space for more houses, but how can we accommodate them? CPRE generally refuses to play the numbers game. We need the houses we need and in the places we need them, not the houses we think we might need at some time in the future.

But the pamphlet takes a high figure of five million new homes over the next 25 years and suggests that the can be built with relatively little loss of countryside if they are planned well and built well. 11.2% of the land area of England is currently urban. That would rise to 11.8% under this scenario. Loss of countryside on this scale is regrettable, but CPRE has always acknowledged that, with a growing and increasingly affluent population, some countryside will be lost to development. Some of these new houses will be built in market towns and villages, some will be in urban extensions, many will be in existing towns and cities. They will be well designed and well planned to increase liveability and sustainability. This is not the sprawl and piecemeal encroachment on the countryside that we are currently fighting.

The current clash of conservationists vs. the Government, 'NIMBYs' vs. developer is very limiting and sterile. It would be good to get away from it and consider intelligently what we want and need as a country. But we can we can only do that with a strong and legitimate planning system, and while the planning system is being dismembered it is difficult to see a way of resolving these tricky questions about where people will live. The Government needs to take its tanks off our lawn! It is, for instance, difficult for CPRE to rise to the challenge of greening the Green Belt while the Green Belt is as threatened as it currently is. There is a tendency to fight for every last inch of it - whatever its amenity or biodiversity value, whether or not it is in the right place - because if we don't defend it as bloody-mindedly as we can, we fear we won't get a better green belt, or more 'green infrastructure', or more urban parks: we'll just be left with a lot more substandard built development.

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Climate change

The last question is climate change. We ran five seminars on different topics of the 2026 vision and at every seminar there was a division between those who acknowledged that climate change was a serious problem, but did not regard it as so serious to change their whole mindset, and three or four people in every seminar for whom climate change was so serious that all bets were off and it was time to take to the hills. Worryingly for me, those people tended to be those who knew most about climate change.

Climate change is a truly frightening reality, not least for the poorest people in the world. But it has some incidental and time-limited benefits for environmentalists. There are some things we want that climate change will make easier to deliver - fewer inputs into agriculture because of the price of oil, more tranquillity because of less flying, more local foods because of the high price of oil, more compact communities because they will be more economically viable than urban sprawl. That's not a reason to welcome climate change, or to reduce our efforts to mitigate it, but it is worth recognising that there are some ways in which the things that CPRE have been saying for years have more resonance now than they did before.

Reasons to be cheerful

What I want to end on is the sense of optimism that CPRE had at its beginning, that the countryside is a huge resource for this country and hugely valued by people, and that we can make the countryside better and more appreciated by people. We want to help frame the thinking of decision-takers so that we get to a situation in 20 years time where town and country are recognised as benefiting each other, where the countryside is recognised as an invaluable resource for people living in towns and cities, which after all is the vast majority of us, and as playing its full part in combating climate change.

If CPRE can articulate a 'narrative' of this sort, and get wide support for it, we will find it much easier to shape future decisions on development. We won't constantly have to react to this, that and the other threat, shouting 'no, no, no'. We will be able to spend at least some of our time improving the countryside and even welcoming developments that enhance it.

4 Climate change challenges for agriculture

Sandra Nichols, Senior Policy Adviser, National Farmers' Union

Introduction

What I would say in response to what Shaun has said about people not being aware of the changes to the CAP (Common Agricultural Policy) is that in 2005, the most fundamental reforms of the CAP since it was created came into force. That reform broke the link between support and production. Farmers are now paid to keep their land in good agricultural and environmental

condition. So support is not dependent how much wheat or head of livestock is being produced, it is about keeping the soil in good condition and so on. This Single Farm Payment scheme will end in 2012 and there are talks going on now about what will replace it. There is likely to be more emphasis on environment and rural development and well away from production agriculture.

Climate change will affect us all; farming however is on the front line. It is our industry that produces food for the world. Production of that food relies on weather. Last summer was the wettest on record and much agricultural land was affected by the floods. We have seen more than a doubling of cereal prices this year because of world shortages. For the 6th time in the last 7 years, grain consumption has exceeded grain production. World grain stocks have halved since 1999 to less than 57 days supply, that's not even three months. Grain crop yields fall by 10% per 1 degree Celsius above the optimum temperature for that crop during the growing season. 57% of Grade 1 agricultural land is below the 5 metre contour, making it vulnerable to sea level rise. We have a Government whose policy is managed retreat and is more than willing to sacrifice productive agricultural to the sea because protecting it is not one of their spending priorities. I wonder what the next generation is going to think about that. A cabinet office report out just a few weeks ago estimates that 50% of our arable land will be unusable by 2050, that is just 42 years away which if not in our lifetimes is certainly within the lifetimes of our children.

60% of farmers think climate change is impacting their farm now and 60% of farmers believe their growing season is lengthening. These figures come from a project with which we are involved called 'Farming Futures'.

Climate change is a key policy area for the NFU and we are committed to giving a positive message to our members so that it is used as an opportunity. We think this is the way to get people engaged and also help to encourage action.

Adaptation:

This is coping with the climate change that is already happening and that is going to be happening. Agriculture is almost unique in its ability to adapt to climate change, both for ourselves and for the wider society. Consideration will need to be given to:

- water management & efficiency: with planning permission we can build winter water storage reservoirs.
- farm infrastructure & its resilience to extreme events
- Changing crops and breeds to ensure you can cope with future climate changes. We are already seeing a number of vineyards across the south of England increasing and they are growing tea and olives in Cornwall.

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- Planning appropriate flood defences are going to become increasingly important.

Climate change as a threat?

Climate change means warmer, wetter winters, hotter, drier summers and more extreme weather events. This will mean that we have to think about fundamental things, such as whether our farm buildings are suitable or stable enough, particularly those housing livestock.

New pests, weeds & diseases: this is particularly timely, unfortunately, because we are seeing the first outbreak of really the most devastating livestock disease, called Bluetongue, and this disease originated in Africa and until 1999 was never seen above a line in southern Spain. As of this summer, most of northern Europe is affected and I really can't stress how devastating this disease is. In Belgium, of the flocks affected there was a 42% mortality rate, 15% of the national flock was lost. If you equate that to the UK, we'll be talking about the loss of 5 million sheep animals. There is no compensation to the farmers for this. There is a race against time at the moment because a vaccine is being prepared and it should be available by the end of May. The disease is actually transmitted by a midge and because the weather is cooler at the moment it isn't active, but as the weather warms up, the midge will become more active and we face the threat of the disease becoming more widespread. So this is a really serious issue for the livestock industry in the UK, and Europe, and climate change is something that has brought this about.

Increased winter rainfall may lead to more flooding and more waterlogging. This can lead to problems with establishing crops and maintaining crops as well.

Rising sea levels and storm surges have the potential to lead real problems regarding the Government's attitude to sea defences. A significant proportion of our coastline is less than one metre above sea level, so there will be problems with saline intrusion and coastal erosion.

Future greenhouse gas reduction targets on agriculture and surrounding industries: there are targets from Government and also pressure to achieve 'carbon neutrality' from buyers looking for low carbon products and supply chains.

Climate change emissions:

Agriculture is responsible for only for 7% of the UK's greenhouse gas emissions, but it is responsible for:

- 1/3 of UK methane emissions, primarily from dairy cows. Methane has 20 times the damaging effect as a global warming gas than carbon dioxide.

- 2/3 of UK nitrous oxide emissions. This mainly from fertiliser use. Nitrous oxide is some 200-300 times more damaging than carbon dioxide.

- But only 1% of CO₂

While we can be part of the solution, we are part of the problem and we need to be aware of our own greenhouse gas footprint. We will also need to work together, as an industry, to develop imaginative solutions that will allow us to remain fully productive.

Some of the things that are being looked at are anaerobic digestion plants, which will not only help tackle methane emissions but they will also provide a new market opportunity in terms of electricity generation and the digestate.

The climate change task force is a joint initiative by the NFU, CLA and the Allied Industries Confederation, which is the trade body for our suppliers and buyers. The task force has prepared a report on our greenhouse gas emissions and how we can tackle it. The emphasis on self-regulation, promotes best practice and indicates where research is needed to guide future development. It concludes with a series of recommendations, highlighting the support we expect from the Government. It can be found on the NFU website.

Climate change as an opportunity:

Accepting what I have already said, we are in an almost unique position to deliver climate change benefits. We have an opportunity to be the solution rather than always being viewed as the problem, or part of the problem. We can help mitigate climate change.

Diversification/new crops: there will be more and different opportunities for farm diversification, possibly tourism for example, assuming that we do have a great new breed of English summer. There are great opportunities for new market crops that haven't been grown here before, or haven't grown well here before. Some I have already mentioned, but there is also soy bean, navy beans (used for baked beans), sunflowers, new varieties of existing crops.

We could be looking at longer growing seasons because of fewer frosts and warmer weather. Of course, moisture will be the limiting factor, not only in terms of sufficient rainfall in the growing period, but also actually being able to get onto the land during the wetter winters.

We may be able to provide water storage for local authorities or allow floodwater onto land where it is appropriate. These measures help other parts of the economy adapt to climate change as well.

Renewable energy is a talk all in itself. From existing well-known crops we are able to produce feedstock for the production of biofuels, which have had a bit of an unfair bad press lately. We can produce oilseed rape for biodiesel, cereals for bioethanol. With biomass for heating, the South East is a good

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source of wood fuel. However I don't think that CPRE, or ourselves, would be very happy to see most of the countryside covered in miscanthus, or elephant grass, which does seem to be quite popular with Defra.

Climate change is an opportunity as 60% of farmers are now in the Environmental Stewardship Scheme and that is a fantastic achievement. The scheme is likely to include climate change options in the future, for example, peat restoration for carbon storage or growing crops on floodplains that can actually take flooding.

Emissions trading, while controversial is an opportunity as we have the potential to store carbon, for the benefit of the other sectors and receive credits in return. There are still details to be worked out, such as methodology, how long credits last, how they are awarded. The scientific basis must be robust and not just window-dressing.

Finally could see changing markets and demands. For example, there is a question about whether it will still be viable to grow tomatoes in Spain, given their high demand for water and decreasing water.

This slide shows how agricultural production can change globally. The red areas show areas where production is likely to decrease and blue areas show areas where production is likely to increase. The first thing you'll notice is that there are a lot more reds than blues. A lot of the red symbols are in Africa, so there is likely to be an increased requirement for us to be supporting them in terms of food production.

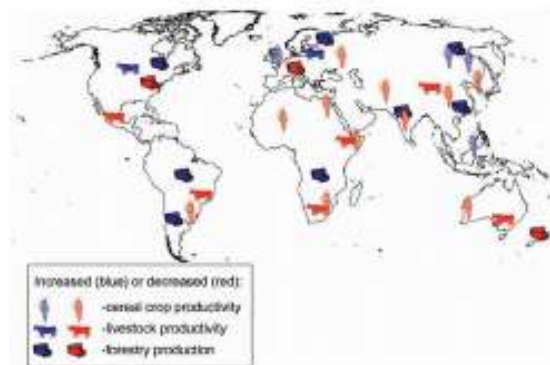


Figure 5.4. Main impacts of climate change on crop and livestock yields, and forestry production by 2050 based on RCP4.5 and RCP8.5 scenarios (IPCC AR4, Working Group II Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007)

Climate change impacts are mixed.

Decreasing summer rainfall may be good or bad depending on where you are. It may lead to some areas of Wales becoming more suitable for arable cropping, where it is not too hilly. Or it may lead to water stress and drought problems, particularly here in Kent. It is estimated that irrigation use will increase by 20% by 2020, and 30% by 2050. If this water is not available then it will have a big impact on the industry in Kent, and the country as a whole. So we need to look at changes to planting and harvesting dates so that we can try to avoid times of peak moisture demand. Interestingly, and controversially amongst this audience, this is where polytunnels could help because they help to reduce evaporation and make water use more efficient.

Changing industry competition: the previous slide showed areas that may change. The UK is an area where production may increase, given the land and the Government policy to do so. This may be new crops, as other countries are able to grow our traditional crops better.

Energy costs are impacting now. Will the industry have to spend more on cooling? Conversely will the industry produce more of its own energy.

Something that doesn't get a lot of coverage is the impact of increasing carbon dioxide levels on plant growth. Some studies show an increase in primary productivity and some don't. This is yet another example of the importance of retaining and increasing our scientific base. This is another area that, I'm sorry to say, is under threat.

NFU work on climate change:

Climate change is one of NFU's priority areas. We are involved in the industry-led Climate Change Task Force.

We have also received funding from Defra for a project called "Farming Futures" looking at how we can communicate climate change issues to farmers. This project has been very successful so far and details can be found on the website: www.farmingfutures.org they have produced 14 factsheets and paper studies and had substantial media coverage, and forming networks and partnerships across the UK.

The Rural Climate Change Forum is a Government coordinated group which tackles climate change related issues with a group of rural stakeholders. Issues on the agenda currently include adaptation, communication with the rural audience and anaerobic digestion.

We are also involved in:

- Leading farmer awareness and responsibility;
- Carbon footprinting;

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- Renewables development (including biomass, biofuels and anaerobic digestion).

Conclusions:

- Already feeling some impacts on farm, but need to be aware of future impacts;
- Must have climate change in decision making now, in Government and business, even if effects personally not felt yet;
- Must exploit the opportunities, but also focus on adaptation for ourselves and the wider society;
- Prioritise environmental objectives - focus on what needs to be achieved most;
- Impacts actually felt dependant on so many factors, including markets and Government.

There are those that say that we should convert to organic production, but it is very much in the minority and it is a niche market. The world population is going to rise from 6 billion to 9 billion by 2020. By 2050, it is estimated that we are going to lose half of our productive land. We are not going to be able to feed the world on organic production. We are going to need each and every tool that the scientists have to be able to feed the increasing population, and this will mean that we may have to look again at genetic modification. Scientists are looking to produce plants with greater drought tolerance. They are also looking at introducing nitrogen fixation, such as happens with peas and beans, into cereals. That will help considerably to reduce emissions of nitrous oxides from fertiliser application. We are not going to be in a position to indiscriminately dismiss genetic modification, we're going to have to look at it again.

Finally, how we react, indeed how we survive as an industry, will depend on many different factors and will depend on world markets and depend on Government policies, both here and in the EU, and it will depend on our ability to adapt to change.

5 Ecological networks and living landscapes

Richard Moyse, Head of Conservation & Policy, Kent Wildlife Trust

It was interesting to hear from Shaun at the beginning about the CPRE vision for the re-establishment of wildlife in the countryside and bringing back the sights and sounds and smells associated with wildflowers and birds, because that is really a lot of what I am going to talk about in this presentation. I want to show how the work the Wildlife Trusts is helping that come about through delivery of the programme that we call "Living Landscapes".

The thinking behind Living Landscapes does not directly stem from climate change but it is extremely relevant to this theme, and particularly to climate change adaptation. We started by looking at an alternative to the way we look at wildlife at the moment, which tends to be boxed in, in nature reserves, behind fences, separate from the landscape. We want to go beyond that, taking wildlife out of the box, and rebuilding nature on a really significant scale. So the Living Landscape approach is about rebuilding the natural environment at a landscape-scale, across Kent, across the South East and eventually across the UK, and, in doing this:

- To make it easier for people to get in contact with nature, but perhaps more importantly bringing nature to where people live.
- To exploit the potential of the natural environment to deal with our problems - such as creating natural wetlands which store floodwater and provide for wildlife at the same time.
- Most of all, to think big, creating a connected countryside from horizon to horizon.

Challenges

Climate change is affecting wildlife now and affecting natural systems. It's visible in:

- Sea-level rise;
- Shift in climate space - the set of conditions that a given species needs to survive. Some species currently found in mainland Europe, will find their climate space will move into the UK. At the same time, species traditionally associated with Kent may find their climate space moves right out of Kent and up into the north and west of the UK. So, for example, some species until recently never seen in the UK, like the small red-eyed damselfly, are now extremely abundant in the south east of the UK. Meanwhile, the garden tiger moth, that 30 years ago was widespread in Kent, is now restricted to a few coastal areas in the county and its distribution generally is moving north and west;
- Phenological change - the timing of natural events is changing. Spring is coming earlier, autumn is dragging out longer. As well as directly affecting the behaviour of species, this can start disrupting the relationships between species that have developed over many centuries. So spring nesting birds are now finding that they are hatching their chicks earlier when there are no caterpillars around to feed those chicks because those insects are responding to a different trigger entirely. There are already attested cases in Europe where that is occurring and breeding failure is happening;

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- Extreme weather events - extreme event, like the 1987 hurricane, are likely to become more frequent. These events are natural, but where wildlife is constrained to small, isolated sites, the impacts of extreme climate events can be overwhelmingly catastrophic. Large, connected systems are buffered against the impacts of extreme weather, and are more likely to recover;
- Drought, in combination with our high per capita water consumption, has a significant effect. We are already seeing very low flows in some rivers, and at the same time we are looking at more take for reservoirs, which in turn reduces winter peak flows that in turn affects wildlife habitats.

So there are a lot of things that are happening at the moment that are affecting the wildlife of Kent. However, there is a fairly clear understanding of what needs to be done if wildlife is to adapt to climate change. These include:

- Conserving existing biodiversity, and particularly protected areas and other high quality habitats;
- Conserving the range and ecological variability of habitats and species;
- Reducing sources of harm not linked to climate, for example pollution of watercourses or the atmosphere;
- Developing ecologically resilient and varied landscapes. For example, we currently often protect south facing chalk grassland slopes, which are important now precisely because they are warm and dry, but may not be able to support key species under a hotter, drier climate. We therefore need to look at protecting north, west or east facing slopes which may not be suitable for important chalk grassland species today, but which will probably be extremely important for these species in years to come;
- Conserving and enhance local variation within sites and habitats;
- Making space for the natural development of rivers and coasts, and considering how can we reduce constraints, such as flood defences, and allow managed realignment so that habitats can migrate inland as sea-level rises;
- Establishing ecological networks through habitat protection, restoration and creation.

Why is this important? Why now?

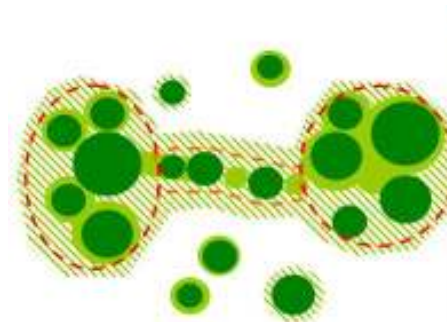
- Isolated nature reserves will not sustain wildlife in the long term as climate spaces shift and they become increasingly vulnerable to

extreme weather. Here's what the recent Stern Review said on this subject.

"Climate change will require nature conservation efforts to extend out from the current approach of fixed protected areas. Conservation efforts will increasingly be required to operate at the landscape scale with larger contiguous tracts of land that can better accommodate species movement."

The Stern Review 2006

- We need ecosystem services. We have never been in more need of the support which we all receive from the natural environment. These 'ecosystem services' include reducing flood risk by slowing run-off of water, improving our climate, maintaining soils, and sheltering us from extreme weather.
- It's good for our mental and physical health. There is plenty of evidence that contact with the natural environment can improve mental and physical health. Indeed, the Dutch have calculated the savings in health costs from their own proposals for a nationwide ecological network.
- Once common and widespread species are in catastrophic decline. While nature reserves, SSSIs and other protected sites are working for many rare species, they have not been able to stop the decline of many once common and widespread species.



We have a simple methodology for tackling these issues. This figure represents a map of an area of landscape - or townscape - with the areas in green being wildlife habitats. Firstly we identify the concentrations of that habitat. Then we look at sites in between that could be potentially used as

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stepping stones, or common conditions, such as geology, that can be used to link these larger areas.

Then within the red-dotted core areas we would be looking at extending, linking, joining up the existing habitat into larger single blocks of habitat that will be more robust and viable in the long term. A further important aspect is 'softening the matrix', that is, making the setting more wildlife friendly so that the core areas function more effectively.

There may be sites that fall outside of a meaningful landscape network. They shouldn't be forgotten; they should be reinforced and buffered.

The map shows the model created by the Wildlife Trusts in the South East, using the kind of method outlined above, for a coherent ecological network stretching across the whole region, and linking with a similar network proposed for the South West of England:

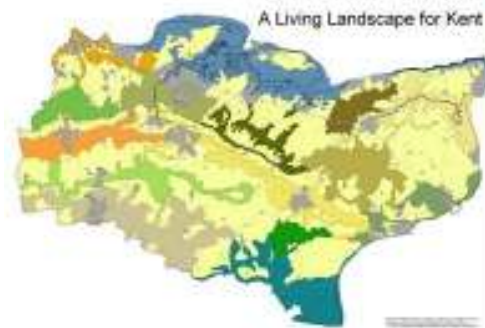
- It includes 'core areas' where there are existing concentrations of wildlife habitat, and links these with habitat corridors.
- It crosses political boundaries.
- It takes in important marine sites as well as areas on land.
- And it reaches into the hearts of towns and cities throughout the region.

We are not claiming that this is a perfect model or the only model for a South East ecological network. It should not be seen as set in stone, but as a push to get the debate under way, and as a starting point for more detailed modelling at a county, district and local scale.

In particular, we feel that it is essential to give local authorities and other key agencies direction on how they can start implementing national and regional planning policies which call for the creation and reconnecting of wildlife habitats at a landscape scale.

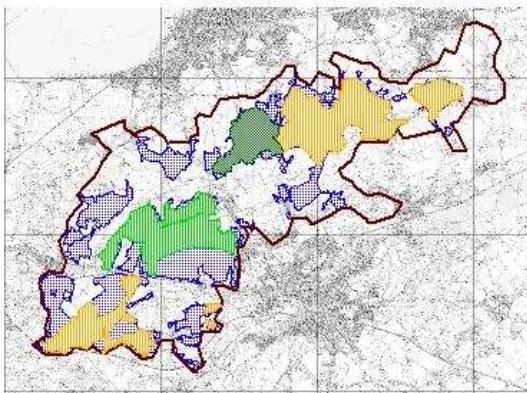


In Kent we have been able to develop a very specific model and we have been working closely with KCC to building up the evidence base for this model. This has been based on digital map data derived from the Kent habitat Survey and from data on the potential of areas to support different types of habitat developed as part of the Kent Landscape Information System. This has enabled us to produce more detailed map which shows clearly where there is the most potential to extend, link and recreate wildlife habitats, and which can be 'drilled down' to the local scale.



A South East ecological network is not pie-in-the-sky. Here is one example of how the Wildlife Trusts and other partners are starting to put the network in place.

The Blean is a major complex of woodlands on the outskirts of Canterbury, and is one of the largest concentrations of woodland in the whole South East Region.



Parts have been managed as a National Nature Reserve for some years, including Kent Wildlife Trust's East Blean nature reserve. It is a popular place for walkers, and serves a large population in this part of North Kent.

Over recent years, Kent Wildlife Trust has been acquiring parcels of land to the south and now owns or manages a substantial block in South Blean.

Recently, we made our single biggest purchase, buying 600 hectares of West Blean and Thornden Woods.

Add into the equation land owned by the Forestry Commission, and one of the most important 'core areas' in this part of the South East is already secured, with some 7½ square miles in conservation management.

The Wildlife Trusts believe that the time is right to start working towards this new vision for a rebuilt countryside which works for people and wildlife.

Indeed, we have no time to waste if we are to help wildlife adapt to the rapid pace of climate change and to have the kind of natural environment we will need to support growth and regeneration in the South East.

We hope this new document will drive the process forward so that we can all enjoy a countryside truly fit for the 21st Century.

6 Coastal management: making tough decisions on future land use

Andrew Pearce, Area Flood Risk Manager, Kent & East Sussex Area, Environment Agency

Introduction

The title of this talk is "Coastal management: making tough decisions on future land use" and in some ways it's not quite correct because we don't make decisions on future land use, we make decisions on the alignment of coastal defences. We recognise they have impacts on land use and that others who have views on land use don't always agree, as we found out in an earlier presentation. So we hold a central ground, the coastal defence line, which in some cases is as narrow as a metre and so it is a difficult area to work, as I have found out over the 13 or so years of working at the Environment Agency, or the National Rivers Authority as it was when I joined.

A flood risk manager has a responsibility to protect peoples' lives and their properties from the risk of flooding, and I think that is an honourable occupation. At the same time I'm asked to do that by enhancing the environment, which I can't disagree with either. But there are pressures on Kent, as we heard earlier and there are times when running to the hills seems a good plan of action. But, it's a job and it's got to be done and it is going to be an increasing difficult job to do.

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What we try to do at the Environment Agency, and what I try to do as a civil engineer, is not to impose solutions on people but we look to identify problems, we look to present options to solve problems and then we look to build schemes. Ultimately we look to build things that people want, and most times people do want them when we build them but unfortunately we tend to annoy a lot of people in the process, which is something that we've got to sort out because there isn't much point in protecting and enhancing the quality of life in the future if you make their short term lives very stressful.

Contents

- Current Climate Change Predictions
- Future impacts of Climate Change on the coast
- Shoreline Management Planning
- SMP consultation
- Sample policies around coast
- The next steps for coastal defence in Kent



This isn't a map of all the designated wildlife areas in Kent, though it might as well be. These are the areas at risk of coastal flooding and as you can see it is a significant area with 44,000 properties at risk from coastal flooding and there are over 1200 square kilometres of land at risk.

You'll notice that as we go round the coast we go from very dynamic shingle beaches that are internationally designated. We go round to amenity beaches, then soft cliffs, back to shingle banks, then soft cliffs around Thanet. Then we have another area of soft clay cliffs then back to low-lying areas of marshland. So really there isn't an area of coastline that will be stable in the face of climate change. It isn't that much better in East Sussex.

Moving on to climate change effects: we have heard how it is affecting the agricultural industry now. The effects are also being seen around our coastline now. These are the climate change figures that we, the Environment Agency, and other operating authorities on the coastline use when we look at predicting the impacts. So we are all using consistent numbers, that may or may not turn out to be correct, but at least we are comparing apples with apples.

Table 1: Regional net sea level rise allowances

Administrative or Devolved Region	Assumed Vertical Land Movement (mm/yr)	Net Sea-Level Rise (mm/yr)				Previous allowances
		1990-2020	2020-2050	2050-2080	2080-2110	
East of England, East Midlands, London, SE England (south of Flamborough Head)	-0.8	4.0	8.0	12.0	16.0	5mm/yr constant
South West and Wales	-0.5	3.5	8.0	11.5	14.5	5 mm/yr constant
NW England, NE England, Scotland (north of Flamborough Head)	+0.0	2.5	7.0	10.0	13.0	4 mm/yr constant

*Updated figures now reflect an exponential curve, and replaces the previous straight line graph representations.

- South East England will face biggest Net Sea Level Rise
- 1.1m rise predicted in next 100 years
- Exponential SL rise will mean decisions post yr 20 are critical

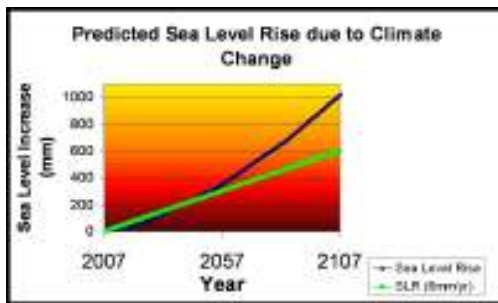
Historically we used to use a 6mm/year for 50 years and that is in the right hand column, labelled "Previous allowances". Now our experts understand climate change better, we understand that it is an exponential curve not a linear curve. So in the early years we are expecting sea-level rise of around 4mm/year over the next 20 years. It then starts to ramp up quite dramatically from 8.5mm/year to 12 to 15mm/year.

So any decisions we take on the coastline beyond the 20 year period are quite sensitive and they need to be adaptive, because we are in that band of uncertainty that goes along with climate change predictions.

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So what impact do these new figures have? Well we are working on the basis of around 600mm of sea level rise over 100 years but now we are working to over a metre.



That is middle range figure. I know that the Thames Estuary 2100 project, which is considering the flood risk to London, are looking at sea level rises far greater than a metre. As we progress down this line we know more but we need to realise that there is a range of sea-levels that we need to accommodate.

In addition to sea level rise, other changes that may occur due to climate change include:

- Increased frequency and intensity of storms
- Increased frequency of flooding
- Increased wave activity
- Increased winter rainfall - potential for increased cliff activity (water destabilising soft cliffs) and fluvial flows
- Possible changes to sediment transport patterns

Continue Present Management: Long Term Picture of Hold the Line

- Hard defended areas become headlands.
- Loss of intertidal areas and beaches fronting defences, creating a visual and economic impact
- Increased stress on the shoreline - diminishing beaches will mean higher exposure to waves

- Increased flooding and erosion hazards
- Need for much more substantial & expensive defences.....will these be economic? Can we afford these defences? Do we want these defences? My experience of people who say "Why can't we defend to a standard similar to the Netherlands?" is that they haven't been to the Netherlands and seen what the coastline looks like, and there are huge and substantive sea defences which have a landscape impact.

Long Term Picture

The coast will change so it is our management of change that is important over the next 5, 10 20 years as we consider and monitor how our coastline is adapting to climate change and sea level rise.

Strategic Framework

We have a management framework that has evolved over the last 20 years of coastline management. We have a hierarchy of a strategic plan, a strategy and schemes that fall out of that analysis and study. These are the timescale that we see as relatively normal.

	Timeline
Shoreline Management Plans	18 Months
Local Authority / EA Approval	21 Months
Sea / Coastal defence Strategies	40 Months
Internal / Defra / Treasury Approval	58 Months
Scheme design	68 Months
Internal Approval	70 Months
Scheme Construction	84 Months / 7 years

It takes about 18 months to develop a Shoreline Management Plan. The idea of the high level plan is to establish flood risk and coastal defence policy for each area and take a fairly broad scale approach, which some detailed modelling but not detailed analysis in all cases. And these will provide the policy units for discrete sections of the coastline.

Once these plans have been approved by councils and the Environment Agency and other bodies then we develop a strategy which looks at each individual reach, or section of coastline, to see how we can implement these policies in a holistic way, working with the natural processes, a sustainable way such that we can come up with technical, feasible, environmental, acceptable solutions for each section. This can take about 40 months and it can take a lot longer as well. We are hopefully in the last stages of the Folkestone to Cliff End strategy and so far we have looked at 29 options for one section of coastline and it is still not certain that the options we are currently looking at will be agreed, though we are very confident.

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So it can take a lot of time, work and consultation before we can move onto the detailed design stage and begin construction work. So overall we are looking at around seven years, and that's if everything goes well and in many cases things do not go as well as we would hope.

Shoreline Management Plans (SMPs)

- The SMP is a policy document for coastal defence management planning.
- It will inform wider strategic planning and take account of other existing planning initiatives and legislative requirements
- It will not set policy for anything other than coastal defence management
- Although it is a non-statutory plan we expect local authorities to take consideration of the policies within the Shoreline Management Plan, and the Catchment Flood Management Plan, when they are looking at their land use plans.

The plans are set out into three distinct timescales: 0 to 20 years, 20 to 50 years, 50 to 100 years.

SMP Policies

There are four generic policies, which don't say how we're going to implement the policy, just what it is:

- **Hold the Line (HTL)** - maintain the existing defence line. In the first generation of SMPs the documents were written by officers for officers and generally maintained the status quo because that was the easiest way to do things. However, increasingly we realise that we have to look at more radical options:
- **Managed Realignment (MR)** - allow the shoreline to change with management to control or limit movement
- **Advance the Line (ATL)** - build new defences seaward of the existing defence line
- **No Active Intervention (NAI)** - a decision not to invest in providing or maintaining defences, which is generally around chalk cliffs and other areas where we are looking to maintain natural processes.



SMP Consultation

The second generation of SMPs needed more democratic involvement to ensure that the more challenging policies were accepted and taken up by local authorities. So we developed this model for how we consult in a pilot back in 2002. Effectively there is a project team made up of the officers from the local authorities and the Environment Agency. There also private frontage owners, such as Network Rail, the MOD and British Energy who have responsibilities around the coast. We also set up a stakeholder forum that includes planners and other officers from the maritime authorities, Natural England, English Heritage and there are about 45 bodies represented in this forum. They inform the development of the plan at every stage.

The wider stakeholder group that comprises over 250 bodies or individuals, all of whom have a direct interest in the plan area and they are invited to comment on the plan at various stages. Once the consultation plan has been produced in draft there is a consultation period of three months, sometimes longer if we can, for the wider public to comment. We then advertise the plan locally.

The final group is the elected members' forum and when this group are happy that the plan is complete then we submit it to each local authority for approval and the regional flood defence committee for the Agency for approval of the strategic overview of the coastline.

Example: Allhallows to Grain

Currently we have a policy of "Hold the Line" and the SMP identifies that there will be managed realignment over a period of 20-50 and 50-100 years. It is important that his policy unit is managed in accordance with the policies emerging Thames Estuary 2100 because we need to ensure that we have

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enough land for flood storage and compensatory habitat for the habitat that is being lost throughout the estuary due to increased sea level rise and coastal squeeze of habitats up against the defences.



Example: Faversham Creek to Seasalter

The Faversham Creek to Seasalter policy unit was more contentious in that there were properties, and a community, affected by the policy. Now the stakeholder group and the forum consulted and devised a policy of Hold the Line for 0-20 years and then Managed Realignment from 20-50 years and 50-100 years. Again the policy doesn't state how we would do that but it signals intent. After consultation, the local community made representation, a strong representation, and the SMP was amended to break the frontage into two sections where frontage (a) kept the same policy but frontage (b) has managed realignment over the 50-100 year timescale.

Now the interesting question is that how did we get to a position where everyone agreed on the final policy and it was largely accepted but that we didn't manage to engage that particular local community until the last minute? When we did we came up with probably what is a better solution.

Example: Whitstable Harbour

This was a fairly non-contentious policy area in the way that the community is hard up against the coastline as it is. There isn't really any opportunities for coastal realignment so the policy is to Hold the Line. Notice that all these

Hold the Line policies do not identify to what standard of protection will be provided, that is something that we would have to determine in the strategy based on the economics of the area that is being protected.

What Next?

- Detailed studies to establish where Managed Realignment extents will be.
- Work with communities at risk of flooding under Managed realignment policies.
- Defra funding submissions where defence improvements are required.

Once a preferred option has been developed and agreed, we would then need to go onto the detailed design and implement the scheme. Now in many cases, these schemes then have to sit within the framework of national priorities.

Conclusions

- The impacts of Climate Change will continue to increase and become more dramatic.
- The coastline is dynamic, and sustainable policies are needed that won't leave us with an expensive concrete coastline, which I don't think the people of Kent want around its entire perimeter.
- In some areas, hard decisions must be taken, so early planning is key to adapting to the changes ahead.
- SMPS are reviewed every 5-10 years to ensure the policies are still valid, and take advantage to the latest information / understanding.

We put a lot of effort into consultation but this doesn't always steer us onto a direct line to a preferred solution with buy-in and acceptance. So we need move away from consultation and into engagement. The general public has an increasing distrust of public bodies and we need to do things differently if we are going to build that trust so that we can make balanced and fair decisions. Now the Environment Agency recognises this and it recognises that its engineers aren't always natural communicators and so it provides us with guidance and this is a booklet and here is the first paragraph, which is directed at Agency staff:

"Building trust is about improving the way we communicate with everyone, being more open and seeking to work together. Every time you pick up the phone or talk to someone, you are the Environment Agency. Your words and actions have a direct effect on how people see our organisation. The public needs to believe it can trust the information we give and the services we

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provide. We also need to trust the public and be willing to work with them. We all have a part to play in this.”

And I think that's the message I'd like to leave you with.

Further information and full Shoreline Management Plan documents can be found at:

www.se-coastalgroup.co.uk

7 Planning for climate change in the Ashford growth area

Richard Alderton, Head of Planning & Development, Ashford Borough Council

I would like to share with you something of our work from the last three years, but within the wider context of growth in general in relation to climate change. As well as explaining how we approached the planning of major growth in Ashford, and how we responded to climate change, I also want to say a bit about some interesting testing to see how effective our response might be.

Ashford is a sea of numbers at the moment, and they tend to get bigger and more intimidating at some levels. What is abundantly clear is that we have a national housing shortage. We also have an affordability crisis. It is easy for many of us, who are in, what could be euphemistically called, their 'middle years' who are perhaps just seeing off their mortgages, to lose sight of this until our kids need to buy a home and then the scale of the affordability gap becomes all too apparent for all of us.

Our footprints

1.2 million tonnes of CO₂ is currently emitted by Ashford. Without doing anything, this will become 2 million tonnes by 2031.

Let's look at the concept of ecological footprinting, which is slightly different from carbon footprinting, which I have just illustrated. It is the notion of how much productive land on this planet for each of us, which is about 1.8 hectares. People in Bangladesh, typical of a developing country, use substantially less than the average footprint that each of us enjoy. If everyone in world consumed resources at the rate that we do in the South East, and in Ashford, then we would need three and a half planets. We only have one, so the consequence is that it is struggling to regenerate, struggling to deliver what we need.

Ashford is not the worst performing borough in the South East, but the maps show that ecological footprint is closely related to income levels, as it is around the country as a whole.

Creation of place

All of us, planners, designers, engineers, environmental professionals and the voluntary sector are all aware that we are creating an environment that will last, at least we hope it will last. This makes climate change an issue of now, not one to be put off to the future.

Despite the best intentions of everyone involved in housing growth, the reality is that we replace the housing stock in this country at less than 1% a year. This has huge implications for our existing housing stock and how we improve their efficiency. This is a big challenge for planners.

Ashford's Future

We started by seizing the agenda and said the growth of Ashford should be determined by its carrying capacity to absorb growth and create employment. In doing so, we set the national agenda on Ashford's growth, not Government. All the national, regional, county and local policy stems from the capacity study work done locally.

This means that the housing growth numbers are not arbitrary, they are based on detailed study. Our aim and aspiration is that Ashford's growth should be neutral in terms of water use, carbon emissions and waste generation. This is hugely challenging, but the national agenda is rapidly catching up with this aim.

Stage two was master-planning that looked at how the growth could be delivered whilst minimising the environmental impact in every sense. Our masterplan has subsequently been taken up within the statutory Local Development Framework.

I am delighted to say to this audience that a lot of how we have tried to address this agenda and have real community involvement stems from early involvement in the planning process and the involvement of CPRE in particular. We probably have one of the best track records in the country at running design workshops, even before the growth area status.

The process is about giving people the knowledge and skills to be involved in the process so that members of the public feel confident enough to interact with professionals on these important issues. The process has been fascinating, even humbling.

A collaborative approach has been used for the planning of the whole of Ashford, as it was done previously for individual sites. We brought together 150 members of the community, as well as local politicians, professionals and external specialists. A game was played over three days that helped shape the growth plans. The result was a compact development model, which can help create the critical mass for services, such as fast, reliable public transport corridors.

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The process has created a broad consensus so that there were not public demonstrations or mass protests against the growth when the Core Strategy of our Local Development Framework recently went through its Examination in Public. There is an acceptance that a participative process has been gone through.

Policy

Turning now to the drier area of planning policy: this is where we can address many of the issues around energy and climate change. We have a policy with three elements:

- Use of Code for Sustainable Homes and tightening of building regulations. It would be good to have firm commitment from Government that the code will be incorporated into building regulations. For commercial buildings there are similar codes from the Building Research Establishment. We don't lack tools, it is a question of political commitment that is the real issue. Different levels of the Code are applied around the Borough depending on their achievability, and they ratchet up over time;
- Renewable energy: we have set ourselves the ambitious target of 20% renewable energy generation in the new development areas;
- If you accept that these two measures can't achieve carbon neutrality on their own, then we have also included provision for carbon trading. This can be done in quite creative ways, such as planting trees and in and around the floodplains that in turn create biofuel for woodchip combined heat and power plants locally.

Carbon Footprinting

Housing and transport are the really big contributors to our carbon footprints. We have done some work recently that tests the effectiveness of our policy approach. The results are really very interesting.

This is the impact of the computer model of carbon footprints of housing. The top two lines are the upper and lower uncertainty boundaries for a scenario based on current national and local technology, policies and behaviour. Carbon emissions go up to begin with and then come down so that per capita carbon emissions are about the same as they are now in 2031, but obviously with Ashford having twice the population, this means twice the impact. So this is not a terribly encouraging prospect.

The next two lines are the high and low range of what the local planning strategy in Ashford will achieve. This will give a substantial improvement from about 4 tonnes of carbon/person/year down to something like 2.5 - 2.75. This assumes that we do everything we say we will do in the masterplan and the planning documents. So there are lot of 'ifs' in there.

Then next line is where Government requires us to achieve in their latest targets, and the bottom line is what we would need to achieve to reach single planet living by 2050.

So even with a really challenging context like Ashford, we get some way, a long way even, but still some distance away from long term Government targets and even further from true sustainability. The existing housing stock has a huge bearing on how we achieve these targets and this will take more than planning regulations.

Transport isn't such a promising outlook. Naively, we thought that our Smartlink rapid transit system would make big difference, but even with better public transport, the trend is still upwards. This is due to the exponential growth of air-travel, which swamps anything that we can do at a local level and this is a very salutary lesson. There are many things we can do on housing, but the real problem is with transport.

The overall position is about 6 tonnes of carbon/head/year, rising gradually over time in the 'business as usual' scenario. The planned interventions in Ashford will save about 20% over the next 25 years, which is not insignificant but we can see that the national policy requires a 40% cut and single planet living rather a lot more.

So, do we despair? No, we can't afford to. It's too important. My messages to leave you with:

Keep it simple: Firstly, despite all the complicated and sophisticated tools that have been developed. Trees as an example - how much do we think about their planting and their role in providing shade for buildings in summer to prevent overheating, clean the air and then in winter, deciduous trees are extraordinarily clever and drop their leaves and so you have solar gain back to your houses. One of the biggest areas of consumer spending is on air-conditioning. What a crazy situation if global warming is going to give us hotter summers and we use more and more energy to keep cool.

There is hope: There are exciting things happening, there are zero energy developments being built, albeit not very many, but the Code for Sustainable Homes is getting stronger but still needs more political commitment. Green roofs are becoming more common and they are important for holding back water to reduce flash flooding, improving thermal efficiency of buildings. Water capture of all types is vital with attractive and effective sustainable drainage systems to keep back water when we need it, and to get rid of it in a controlled when we don't.

There is a huge agenda out there at it will need private, public and voluntary groups, as we have here today, to work together. At the risk of sounding a bit like Al Gore, nothing less is at stake than the future for our children and our children's children.



8 What does climate change mean for Kent?

Alison Cambray, Climate Change Project Manager, Kent County Council

Over the next century we can expect a range between 1.5 and 6 degrees warming with 4 degrees most likely outcome, globally. The IPCC are now 90% certain that man-made greenhouse gases are the cause and not explained by natural variation alone.

We can expect some of the greatest UK changes...

Annual / seasonal averages

- Warmer, drier summers (spring, autumn too);
- Milder, wetter winters;
- Rising sea levels;
- Shifting seasons.

Extreme weather events

- More very hot days;
- More intense downpours of rain;
- Increased flood events;
- Shorter return periods for high water levels at coast;
- Changes in storminess, high winds / storm events.

This is not just a developing world problem and not just a future problem.

Some changes have already happened:

- Increases in global surface temperatures of 0.6 °C during the 20th century;
- Sea level rise of 1-2 mm per year during 20th century;
- Changes in natural systems (e.g. species distribution, timing of migration) individually and also in combination.

Climate change is not just an environmental problem - economic and social impacts. The cost of doing something is far less than the cost of doing nothing. What are the impacts in Kent?

In Kent impacts will be on range of sectors, communities and infrastructure

- Increased flood risk;
- Increased coastal erosion;
- More stress on water resources.

- Threats to public health;
- Threats (and opportunities) for agriculture;
- Opportunities (and threats) for tourism;
- Risks to utilities and infrastructure;
- Loss of and change to natural habitats.

Impacts can be:

- Economic, social, environmental;
- Positive or negative;
- Direct or indirect.

Highly impacted sectors

- | | | |
|---|--|----------------------|
| ▪ Agriculture | ▪ Biodiversity and conservation | ▪ Built environment |
| ▪ Business and economy | ▪ Education | ▪ Emergency services |
| ▪ Energy | ▪ Flood and coastal zone management | ▪ Forestry |
| ▪ Health and social care | ▪ Heritage | ▪ Spatial planning |
| ▪ Utilities, infrastructure and transport | ▪ Tourism, recreation, leisure and lifestyle | ▪ Water resources |

... all of which we have an interest in at KCC

So what are we doing?

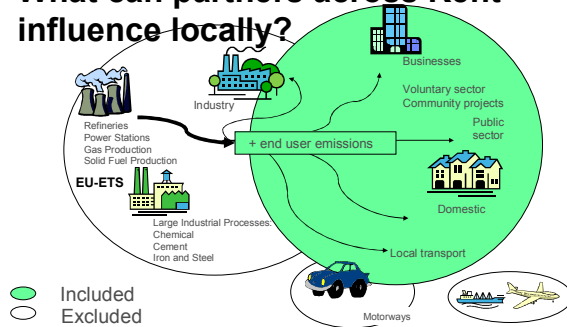
- Nottingham Declaration on Climate Change
- KCC Climate Change action plan
- Vision for Kent (community strategy)
- Kent Partnership
- Kent Agreement 2008-11: *Creating a low carbon and climate change resilient economy*



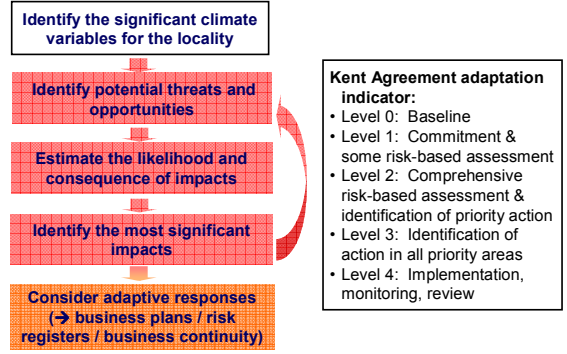
Reducing Kent's carbon footprint



What can partners across Kent influence locally?



Risk-based adaptation



Scoping climate impacts

- Is the operation currently affected by weather or climate (directly / indirectly)?
- Does the operation involve taking decisions with long-term consequences (decades) for land-use, built assets or people?
- Does the operation involve infrastructure or business areas that are sensitive to changes in weather or climate?
- Is the operation vulnerable to disruption of external factors such as utility supplies and transport infrastructure?
- Is it critical to the aims and objectives of the operation to maintain continuity of service during extreme weather events?

Factors to consider

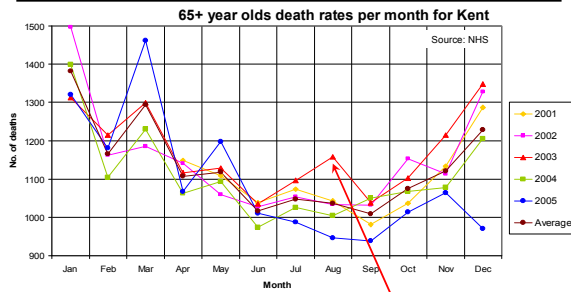
- **People:** implications for workforce, customers/clients and changing lifestyles
- **Demand:** changing demand for services
- **Premises:** impacts on building design, construction, maintenance and facilities management
- **Process:** impacts on the processes of service delivery
- **Finance:** implications for investment, insurance and stakeholder reputation
- **Logistics:** vulnerability of supply chain, utilities and transport infrastructure
- **Management implications:** how will climate risks and impacts be managed effectively?

Learning from the past

KCC has led work to develop a Kent Local Climate Impacts Profile: by analysing recent extreme weather events (1997-2007) and combining with predicted future trends we can better understand how climate change will affect services, infrastructure and communities in Kent and take appropriate action. This approach will be expanded in 2008 and has the potential to become a valuable shared resource for all partner organisations across Kent."



Case study: 2003 heatwave



The vulnerable are hit hard by extremes in temperature. This graph highlights that in August 2003 during the heat wave the number of deaths among the vulnerable age group of 65+ was 121 deaths above average for the month at 1158 deaths in Kent.

Case study: heavy rain



Flood incidents in Kent are not evenly distributed. The highest number of incidents occurred in the coastal strip between Dover and Margate, with a significant concentration in the area around Folkestone and Deal.

Summary

We have much to do in Kent but we have a good framework for progress in 2008.

- What could you do to contribute to reducing Kent's carbon footprint?
- What more could you contribute to help Kent adapt to the changing climate?

9 A rural community facing sea-level rise

Chris Blunkell, Faversham Road Residents' Association

My name is Chris Blunkell. I live in Faversham Road, Seasalter - just outside Whitstable - with my wife Claire and my 11-year-old son Lewis. I'm a public relations professional by trade, and I do a lot of work with central government and occasionally with local government - but that is not why I'm here.

I'm here because since July 2007 I've been campaigning on behalf of local people for changes to the recommendations to the Shoreline Management Plan for North Kent - or SMP - as it applies to our stretch of coastline. It's been an interesting, if challenging six months, and I want to thank CPRE both for their help and support during that time, and for giving me the opportunity to talk to you today. I'd also like to thank Malcolm Kerby from Happisburgh in Norfolk wanted to be here today. He has been a wonderful source of help, and is a lovely bloke.

So - I'm going to talk a little about my experience, and by extension the experience of my community, with regard to SMP. I'm also going to offer some thoughts on policy making and governance, and the importance of public engagement in contentious issues such as this.

Faversham Road and its people

The SMP policy recommendation that affects us runs along the Thames estuary from Faversham Creek at the western end to the Blue Anchor, Seasalter, the eastern end. I think I'm right in saying that the majority of land - that to the west of the Sportsman - is uninhabited. That between the Sportsman and the Blue Anchor - with beach to the front and marshland to the rear is occupied, and this is the stretch I am concerned with today.

The population here comprises permanent residents, holiday home owners, and a small minority that falls in between the two. A significant proportion of people have enduring roots in the area, but whilst this attachment runs deep, it is not blind. People are conscious of a flood risk (although they may not agree on its severity), and some have suffered floods. But, as one local has put it on making the decision to buy there: "we understood the risks of

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flooding but felt the benefits outweighed the drawbacks and accepted the risks.”

When Claire, Lewis & I made the decision to move to Faversham Road we too knew there was a risk of flooding, which we accepted. What we were not prepared for were the proposals contained in the draft SMP, a summary of which slipped through our letterbox on July 9th last year.

Shoreline Management Plan

SMP is a process by which decisions are made with regard to the UK's sea defences over the short term (0-20 years), the medium term (20-50 years) and the long term (50 to 100 years). Through a process of consultation and cost benefit analysis decisions are made to either 'advance the line', 'hold the line' or to pursue 'managed retreat'. In other words, to claim ground from the sea, to maintain existing defences or to let them go. Central to this process are projections of sea level rises and their likely effects, and of sea defences required in the future. The operating authorities undertaking SMPs involve a range of stakeholders, with the process ultimately owned by Defra. Principle players are the Environment Agency and their consultant Halcrow, local authorities, organisations with environmental and heritage briefs and other stakeholders. All of this takes place against a backdrop of limited - some say insufficient - funds for this purpose, a judgement that the entire coastline can not be defended, and a desire for a more 'natural' coastline. Once complete, SMPs inform Local Development Frameworks developed by local authorities.

In our case, to paraphrase, we were told that the South East coastal group, recommended a policy of "managed realignment" for our stretch of shoreline in as little as 20 years time. We were told that the authority expected that maintenance of existing defences would cease and a new defence line constructed inland. The sea was rising, sea defences cost money, and the sums just didn't add up. And here's the bit that chilled my blood. We could expect our homes would be lost in the process, with no prospect of being compensated.

The letter also carried details of a meeting for residents at which the recommendation would be covered in more detail. I could not attend, but shortly afterwards I was asked if I would lead a campaign, to which I reluctantly agreed.

"We want everybody to feel safe in the communities in which they live." - Paul Carter, Leader of Kent County Council, Foreword, Towards Kent 2010.

"The proposal has taken away our future." - Faversham Road resident

Many residents felt truly helpless in the face of what confronted them. We had been fingered for obsolescence - told that we, our homes and in some cases our businesses, and our way of life - had no value. We felt that we faced financial ruin. No less importantly, we all felt that the rot would begin to set in as soon as this recommendation became policy. How keen would utilities companies be to invest in infrastructure that might not be needed in 20 years time? What would happen to the road - already in poor condition? Would we ever be able to sell our houses, insure them, borrow money against them?

Local businesses had made sizeable investments to improve amenities. Others had bought their homes to do them up, and had already started making investments to that effect. But I can tell you that their enthusiasm for such activity - for home-making - stopped in its tracks. And this was true for Claire, Lewis and I. We had bought a house that we planned to make our home, but instead of it being our security in all kinds of ways, our house came to represent our vulnerability.

Constructing a response

Where to start? We had been advised that if we wanted to mount a challenge we should either do so on the basis of the data upon which the proposals had been based, or to lodge a strong and widely held objection. So, I gathered information from my neighbours - what were their experiences of tides, and what did they think about what we had been told about rising sea levels and their likely effects? What did they think of the recommendations, and the process of consultation? What did they want to see happen next?

Response was good. Some people provided critiques of the principles behind SMP. Some decried the process for being unimaginative, pointing to international examples of risk mitigation and asking why they weren't being explored as part of this process.

People expressed dissatisfaction with both local and national government, complained about lack of investment in the area and of being neglected, and reported being significantly and adversely affected by the shock of the draft SMP.

Although residents didn't feel qualified to challenge the science underpinning the analysis, they felt the risk of flooding had been exaggerated. Residents also believed that the area could be easily and adequately defended if recent neglect of sea defences were put right with simple and routine maintenance. And they questioned the logic of seeking a more natural coastline through realignment, pointing out that in part at least, all of our coastline is the result of engineering or industrial activity elsewhere, be it sea defences or dredging.

Destroying one sea defence and building another further inland - as had been outlined as a likely outcome over time - was absurd, people said. Were we to

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accept that the public purse wouldn't stretch to sea defence improvements now, but somehow would stretch to building them from scratch in the future? And where, was the wisdom in sacrificing land that they believed could easily be defended, when land was becoming an increasingly precious resource? You can forgive those who insisted that there was a hidden agenda here.

And we were mystified that the SMP's cost benefit analysis appeared to draw on such thin assessment of the social, cultural and economic value of the area prior to deciding that it - and we - were not worth defending.

Social, cultural and economic factors

Come to Faversham Road from Easter weekend through early October - and the chances are you'll find the beachfront car park packed to the gills. This is an area rich with beauty, noted for its wildlife and popular with holidaymakers, walkers, fishermen, watersports devotees, day-trippers and artists. There are two sizeable caravan parks, a shop, a sailing club a water-ski club, a pub and a restaurant.

This seems like a good point to congratulate my good friend and neighbour Stephen Harris on his restaurant - The Sportsman in Faversham Road - being awarded a Michelin Star last week. It is a fine place to eat. The vast majority of its food is made from locally-sourced ingredients - it's pork and lamb comes from a farm just up the road, and if you order potatoes, they will almost certainly have been freshly dug from within shouting distance. What you may not know is that this little area has been named by an American gastronomic society as one of the most important food producing places not in Kent, not in the UK, not in Europe - BUT IN THE WORLD.

More prosaically, residents expressed concern that the closure of Faversham Road itself would have detrimental effects on local infrastructure, especially on those occasions when the dual carriageway - the A299 - is closed, and Faversham Road is used as a detour. And, tellingly, one retired engineer suggested that the road, and residents, could be protected by splitting the frontage at the Sportsman - effectively dividing the stretch into the occupied and the unoccupied, and defending the occupied stretch for longer.

Consultation

"...minds seem to be made up already and my view does not count."

- Faversham Road resident

Almost without exception, people were disappointed with the way in which consultation had taken place, with a representative view being that *"...minds seem to be already made up and my view does not count."*

We were given little over half of the time available to us that we should have had to respond, and whilst we noted the informal offer of an extension to the deadline, it was not lost on us that the consultation period now fell at a time

when parliament was in recess and when academics and other specialists who might help us with a challenge were likely to be on holiday.

Residents felt the organised meeting gave them insufficient opportunity to have their questions answered, and that the exercise appeared to isolate the area under discussion from the wider locale contrary to SMP procedural guidance. People felt that the consultation was a 'tick box' exercise rather than a genuine attempt to involve local people in a decision of seminal importance to them. However, residents also became increasingly conscious of the efforts of officers from Canterbury City Council, and I want to thank them sincerely for that.

Council engineers provided information, suggested people I could talk to, and put me right as required. It is worth saying that during the course of these discussions, I started to get the sense that they were sympathetic to our position, and that something might be done. They seemed particularly interested in the idea of treating the inhabited and uninhabited stretched of coastline as separate entities. Would we find a policy recommendation to hold the line for a minimum of 50 years acceptable?, I was asked. Perhaps we could press for more shingle for the beach, and for groynes to be built along the stretch of Faversham Road unprotected by a sea wall. After all, I was told, this work had been agreed a couple of years back but have not taken place. I put these ideas to residents - at meetings, and via newsletters. A cautious 'yes' was their answer - this would help.

We petitioned, we lobbied politicians, we spoke with campaigners and rural interest groups, we worked with the local press and sought advice on our legal position.

And so our consultation response began to coalesce, and two recommendations formed:

- An amendment of the 'hold the line policy' from 20 years to 50 years between The Sportsman and the Blue Anchor
- That, as agreed, funds should be released for sea defence and beach maintenance work at Faversham Road.

But I also became gripped by other possibilities - ideas that had been explored in the margins of my conversations with engineers and others. Might it be possible, in the longer term, to breach sea defences and flood marshes without destroying houses? I was told there were precedents. If money for sea defences is tight, is there any reason why the beach car park - currently free to use - might not become a 'pay' car park with funds diverted to upgrade sea defences. A seed was sown with me that the process of consultation really should have made room for imaginative solutions - and not just from public officials and consultants.

Research

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So I read - policy documents, guidance on policy documents, studies informing guidance on policy documents, and other academic work. And fascinating it was.

"In all types of plan preparation, stakeholder (including the public) involvement should be early and continuous." (Hutchinson et al, 2006 p. iii)

SMP procedural guidance recommended a participatory approach involving community interests and Jim Hutchinson, a key figure in SMP for Defra, argues for coastal communities discussing their futures with officers of both operating authorities and the local planning authority or regional planning body before SMPs are commissioned. Such discussions, he says, requires long and careful nurturing and for capacity-building to ensure participants have a secure grounding in the issues.

Accordingly, I encouraged residents to agree a third recommendation:

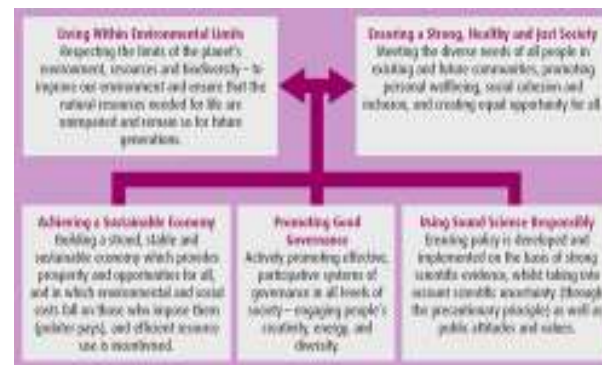
- A detailed commitment in the SMP for the operating authority to partner residents, property owners and business owners, and other stakeholders in developing a vision for the area that covers issues of social justice and well-being as well as environmental, historic and economic concerns.

1,500 petition signatures and 5,000 fully referenced words later - we submitted our collective consultation response.

...which brings us to issues of policy, principles and governance.

Policy, principles and governance

Article 1 of the Human Rights Act (1998) says the Government or a public authority "cannot take your property away from you unless the law states that it can and it is in the public interest to do so. If your property is taken away, you should be able to claim compensation." So European Law doesn't appear to like people and their properties being sacrificed and, paradoxically, nor does Defra's own thinking on sustainable development. The Department's UK principles of sustainable development, to which the UK government as a whole has signed up, says that for a policy to be sustainable it must respect all of the following five principles.



Slide - Defra's five principles for sustainable development

1. Living within environmental limits...
2. Ensuring a strong, healthy & just society: Meeting the diverse needs of all people... promoting personal well-being, social cohesion and inclusion, and creating equal opportunity for all.
3. Achieving a sustainable economy: Building a strong, stable and sustainable economy... in which environmental and social costs fall on those who impose them (Polluter Pays)...
4. Using sound science responsibly: Ensuring policy is developed and implemented on the basis of strong scientific evidence, while taking into account scientific uncertainty (through the Precautionary Principle) as well as public attitudes and values.
5. Promoting good governance: Actively promoting effective, participative systems of governance in all levels of society - engaging people's creativity, energy and diversity.

I would argue that SMP fails this test. Whilst it is clearly concerned for the environment, the policy positively avoids the question of the well-being of those affected by managed realignment. The principle of 'the polluter pays' articulated in principle 3 also suggests that it should not be the victims of climate change who pay the price for its effects - in our case the people of Faversham Road - but the perpetrators. If that is all of us, it surely legitimate for those affected by the policy - itself developed in response to climate change driven by pollution - to be compensated for any loss from the public purse. No. 4 invokes the 'precautionary principle' - a moral and

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political principle which states that if an action or policy might cause severe or irreversible harm to the public, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action.

So - the 'precautionary principle' not only makes unsafe any policy that will harm people, it places the onus on the policy maker to demonstrate that the policy is safe in this regard.

Conclusion

Other considerations aside, the policy of SMP as it stands asks those affected by recommendations of realignment to shoulder the costs on behalf of society. We believe those affected are disadvantaged from the second that recommendations are accepted. This offends Defra's principles of sustainable development, and a failure to address it - and to demonstrate that it has been addressed - sees the policy fail by the precautionary principle.

Rectifying this is perfectly simple. First, SMP recommendations must contain mechanisms for compensating people in full for any loss incurred as a consequence. Second, SMP procedural guidance with regard to involving people in decision-making must be followed, with operating authorities leading structured, properly-funded, and wide-ranging exercises in public participation. It is not enough to tell people that they are to lose their homes without compensation, to tell them that if they want to challenge recommendations they must do so on the basis of the data, and then to simply give them a pen and a piece of paper.

Democracy in action?

As things stand with regard to Faversham Road, a revised recommendation of holding the line for a minimum of 50 years is making its way laboriously through the system. Maybe you could argue that this is democracy in action, and that we got there in the end, and I that should stop moaning.

Alternatively, you might argue that this is poor democratic practice and policy making mitigated by the efforts of private individuals at their own cost. SMP is unjust and must be changed before any more damage is done, and I will continue to campaign to this effect.

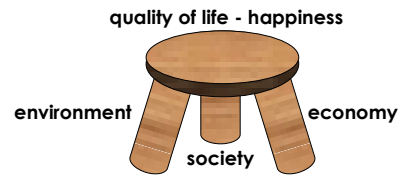
What I want most of all is a solution that all of the players can buy into, and I would urge those in positions of power to join Faversham Road residents in starting to build some bridges for the future. I want to see a process involving residents, other stakeholders and local people and with the aim of describing this part of the world in 50 years time. It should look at where people will live, and how. It should analyse the economic, cultural and social potential of the area - with a view to building on it rather than destroying it. And perhaps most important of all, it will free up the imagination of all those taking part. Issues of climate change will of course be a key component, and

this will be a great opportunity to educate people on these issues, to gain a clear idea of what people want and are prepared to do towards that end, and to repair a harmful legacy of mistrust and cynicism.

10 Creating a vision for the future of Kent's countryside

Sean Furey, Deputy Director, CPRE Kent

sustainable development...why it matters



for us and the future generations...

CPRE Kent is an advocate of sustainable development, which I like to think of as a stool that needs three legs of equal length:

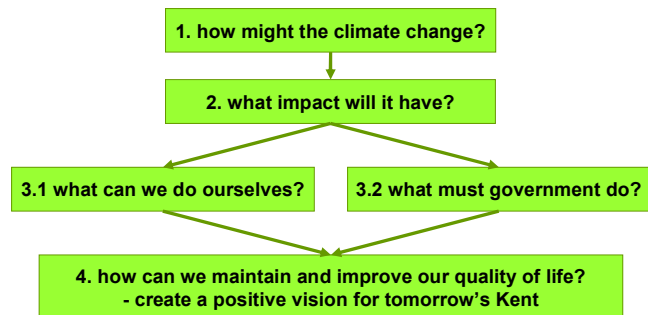
- A healthy environment;
- A healthy society;
- And a economy.

These are essential, but still not good enough to sit on. For that you need to consider the frustratingly intangible, un-measurable goal of a higher quality of life and greater happiness, not just for ourselves but also for future generations.

In this final talk of the day, I want to take us on a journey. This journey will look to both the past and future to ask what changes may happen to the climate and how they might impact our daily lives. From knowing that we can ask: what can we do about it? Both as individuals and by influencing Government. Our destination is a future for Kent's where our lives are better than today.



what does climate change mean for Kent?



From the large body of research that has been done on climate change impacts globally, regionally and locally, we can probably identify three main areas of concern:

First, and perhaps most serious, is sea-level rise.

Second is warmer weather and changes to the seasons

and Third, is that rainfall patterns are likely to become more variable and that the occurrence of snow will become increasingly rare.

So impact might these changes have?

Sea-level rise is probably the most uncertain and may have the greatest impact. To put the future in context, it is worth considering how dynamic and changeable, Kent's coastline has been on a historic timescale of the last few centuries.

Kent's motto is 'invicta', unconquered. Our tradition is that the last successful invaders were the legendary Hengest and Horsa, and before that the Roman legions of Julius Caesar and the Emperor Claudius. The shores they arrived on looked very different from today, with Thanet being a true island.



adapted from: "An Historical Atlas of Kent" (2004)

Over time we can see that Thanet was joined to mainland, however to attribute this to changing sea-levels alone is not quite correct. From the medieval period onwards there was increasing siltation in the Stour estuary, drainage of the marshes and land reclamation. Thanet was finally wedded to the mainland on the closure of the Wantsum channel.

We see a similar and even more dramatic story on Romney Marsh. 1500 years ago, the area would have been utterly unrecognisable to us. Today it seems incredible that places like Tenterden and Appledore could have been ports only five or six hundred years ago.

But the warning from history is that much of Kent's coastal land is as vulnerable to the sea as any Dutch polder. The power of major storms and the creep of sea-level rise will make these low-lying areas of the Kent and East Sussex coast increasingly vulnerable and expensive to maintain.

A lot of research has gone into how sea-level rise may affect the UK. What will happen will depend a lot at how successful at cutting back our carbon emissions. If we do a good job, then the sea may only rise a few tens of centimetres. If we carry as we are then we could be looking at around a metre by the end of the century, at worst.

But then last year, James Hansen, who is the Head of NASA's Goddard Institute for Space Studies in America, published a series of papers and articles that said the work of the Intergovernmental Panel on Climate Change, the IPCC, was far too optimistic. This is because it had not included the massive input of water that would arise from the melting of either the Greenland or West Antarctic icecaps.

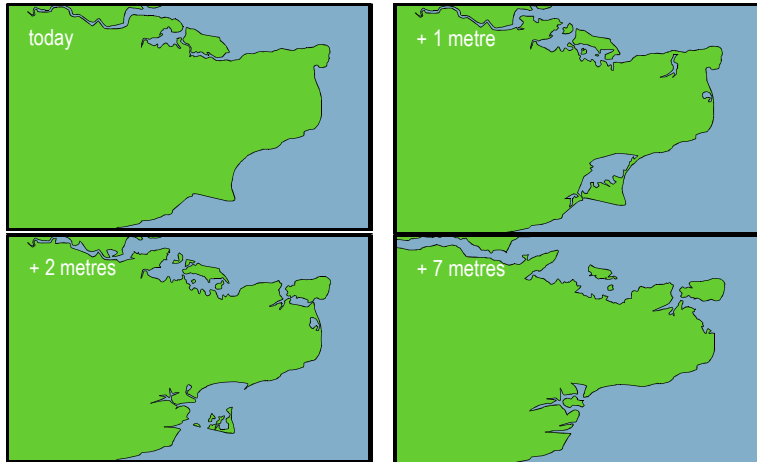
He warned that; "Business-as-usual global warming will almost surely send the planet beyond a tipping point, guaranteeing a disastrous degree of sea level rise"

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Both he, and other sources, conclude that such rapid melting, which is already starting to happen, could raise sea-levels by as much as five to seven metres.

So what would a sea-level rise of 5 or 7 metres mean for Kent. The following animation gives an indicative picture based on Kent's coastal topography.



I find it hard to imagine what kind of social and economic upheaval this kind of coastal change would cause. And remember, this would be happening all over the world in coastal areas, where the majority of the world's population lives.

I must point out that the protection from flood defences has not been included, and that the rate of ice-cap melt has great uncertainty and some models suggest that 5-7 metres level rise would be unlikely to happen much before the year 3000.

However, you may have noticed that some of the biggest coastline changes came between 0 and 2 metres and that is likely to happen a lot earlier, depending on how quickly we cut back our emissions of greenhouse gases.

Now some good news: scenes like this queue for the village bakery in 1987 aren't likely to happen very often again.

However, changes to temperature and seasons is likely to have two main impacts:

First the changes to our soils, ecology, rivers and agriculture. As well as affecting the availability of natural resources, the nature of Kent's rural landscape is likely to change significantly as crops and wildlife change.

The second impact is on people directly. Warmer temperatures throughout the year are likely to reduce heating costs and cold related health problems, but correspondingly, increase heat related problems and demand for cooling. Subtle, but expensive problems, like melting tarmac will probably happen more often. There are even links between warmer weather and higher violent crime rates.

Perhaps the most well known impact of climate change on Kent is on water. It is rarely out of the news or pub conversations as we seem to swing between torrential downpours and hose-pipe bans.

The issue of increased flooding, river water quality problems and water shortages has been brought to the fore not just by climate change but by the additional pressure from the government to dramatically increase house building and economic outputs in Kent and the South East.

Perhaps this change in our weather is best summed up by the following anonymous quote from a recent edition of a local newspaper.

"We need snow. It breaks up the monotony of the long winters and helps to keep the rhythm of the seasons. In fact what happened to seasons? Now we just seem to have two. April to October is a weird mixture of spring and summer, or Sprummer as perhaps it should be called, when anything can happen from drought to a plague of frogs. The rest of the year is a new season called grey."

So faced with these challenges ahead, the next question is: what do we do about it? Last year's Stern Report on the economics of climate change said that: "Adaptation is crucial to deal with the unavoidable impacts of climate change to which they world is already committed."

The report goes on to explain that: the purpose of adaptation is to reduce the harmful impacts of change and make the most of any benefits. In many cases people and organisations will take action independently of government

Stern outlines are two main types of adaptation that government can deliver:

The first is creating conditions to allow adaptation. This means providing the information, financial incentives and appropriate regulations and policies for individuals and organisations to make decisions and take action themselves.

The second is delivering government action, which means taking steps to reduce public vulnerability to climate risks and exploit opportunities. This can

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range from building flood defences to providing public services that meet the changing demands.

The big question with adaptation is: why worry now? why not meet the challenges as they arise? Why not leave it to future generations, future governments, business and technologies to provide solutions?

I would argue that these decisions that need to be considered and influenced today to prevent larger problems in the future. There is danger of locking society into decisions that are difficult and expensive to reverse. Building in floodplains is probably the best example: once built on, it is rarely restored.

One of the reasons why sea-level rise is of such concern is that there is very little an individual or family can do about it other than move away from coastal areas. For those whose properties are blighted though, this will become increasingly difficult.

The only real solution is climate change mitigation, and that means we all need to reduce our carbon footprints to reduce the rate and magnitude of global warming.

One of the interesting things about higher summer temperatures is that we are already seeing adaptation - air conditioning. The problem is that not only are they creating a new summer peak energy demand, but in dense urban areas, they pump out heat, which makes the urban heat island effect even worse. Therefore with your own home, think about how you can improve summertime ventilation and shading to keep you cool.

We've heard today about Living Landscapes and the need to link habitats. Our own gardens can play a role in that. So think about your planting and how you can encourage wildlife.

It is probably in the area of more fluctuating rainfall that we can make the most difference as individual households and businesses.

We need to use water more wisely in both the home and garden, and there are many ways we can do this, from re-cycling rain and installing water efficient fittings, to gardening with more drought-resistant varieties.

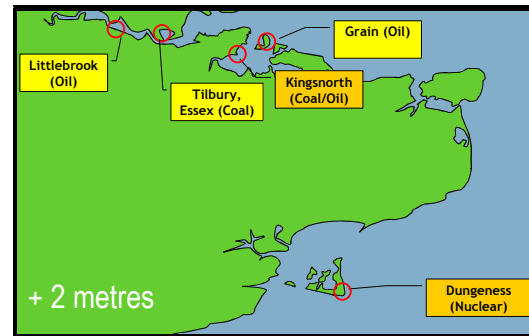
We also need to be more aware of how rainwater drains off our property. The trend towards paving and decking over gardens increases surface runoff and reduces the opportunity for rain to gently soak through the soil.

As we have heard today from our other speakers. There are some really tough decisions ahead when it comes to coastal management. Kent stands to lose large areas of land. Land that we need for wildlife, agriculture, homes, businesses, leisure, history and heritage.

At the moment, only scattered rural dwellings are being affected by shoreline management decisions and it is easy for detractors to say "Tough. You shouldn't

have moved there." But if the more severe sea-level rise scenarios come about then more and more people will be affected, even urban populations. Then we're talking about relocating people

By way of an example of the tough choices ahead map indicates where our major power stations are and what they all have in common is that they are right next to the sea or the Thames Estuary. It is therefore unsurprising that the new Kingsnorth coal power station is proposed right next to the existing station, and that Dungeness is high up the preferred list for a new nuclear station.



Surely as CPRE, we should applaud this? We don't want to see new power stations popping up on greenfield sites around the county. And we don't.

But the lifetime of these very expensive bits of kit puts them into the second half of the 21st century when impacts of sea level rise are really going to bite. Higher and higher sea defences will have to be built to defend them, and the consequence if they ever fail will also increase.

With dealing with higher temperatures and changing seasons, there probably isn't much government can do, except consider its impacts on healthcare, transport and emergency response.

However, there is likely to be an impact on the water quality and ecological health of our rivers, particularly Kent's chalk rivers. Government has a role to ensure that these waters are protected and meet EU water framework directive standards.

With water issues, government has various roles and responsibilities. However, perhaps the most critical is that government needs to accept that for Kent may not be able to accept the level of housing and economic growth

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that is proposed with creating serious environmental, social and financial problems.

The housing growth will need a big social change in how we use water. It will also need expensive and energy-hungry engineering solutions to provide the needed water resources, flood risk management and wastewater treatment.

So to conclude, Kent is a wonderful place to live and work. It has an incredible wealth of landscape, history, wildlife and people.

Climate change is perhaps the serious threat that Kent has faced since the Second World War, in terms of how it may disrupt our lives.

We all need to take responsibility for not only making our lives climate-proof, but helping to reduce the causes, by reducing our carbon footprints.

Collective action is just as important, and it the role of government at every level to play its part. Tough decisions will need to be made, but that is no excuse for excluding the most vulnerable from the decision-making process. We must not leave people behind. But change is not always bad. Change can open up new opportunities, allow in new ideas that can make all our lives better. We must not hide from change.

We need to decide what sort of place we want to live in and work in, before circumstances dictate to us.

11 Summing up

Gary Thomas, Chairman, Kent Branch Campaign to Protect Rural England

The following points have been summarised the flip charts:

- **Agriculture:** the main points seem to be a realisation that there will be a need for re-intensification and this will lead, among other things, to increased competition for water;
- **Ecology:** there will be much more conflict between agriculture and wildlife, and this will need resolving. There is need for education and the importance of biodiversity to a healthy lifestyle;
- **Planning:** there is a need to increase the standard of energy and water efficiency in new houses and particularly need to transport issues in their to energy use.
- **Coasts:** issues around funding that need to be resolved and concerns about Human Rights.

Overall there is a growing conflict over land-use for floodwater, crops, biofuels and for our flora and fauna, and some of these tensions seem irreconcilable.

I would like to finish with two things. One thing that hasn't come out that strongly today is the economy. To the Government the economy is the most serious issue of the moment. I'm pretty sure this is because they see the balance between the UK and Europe slipping against China and India. The world balance is changing and if it changes and those countries start consuming three and half planets like us then the logical conclusion is that as their consumption goes up and they take more natural resources then our economy will slip. It is already happening; the price of oil and corn has gone up, which is making everything more expensive.

This is creating a major conflict in Government because there is there is an old political statement, if you're doing badly "It's the economy, stupid". That's the American philosophy and why George Bush refused to sign the Kyoto Treaty. The economy counts more than the climate because it is, by necessity, short term. That's one of the problems of the democracy. Thinking long term is not an asset of our political system. Thinking to the next election is the need, or seems to be the need, and that dissuades hard decision-making.

We have the Prime Minister tampering with the planning system trying to overcome what he sees as constraints on economic development by the planning system. Kent and the South East are being targeted for housing growth because it is supposedly the 'engine' of the UK economy, so we are back to economy again. So climate change is being pushed out because of this short-termism. There are things are we can do on improving building efficiency, so why aren't we doing them now, rather than waiting for some paper at some point in the future. There is no urgency. Homes are being built now and they aren't up to standard.

I was fascinated by the NFU talk that showed that things are happening now with climate change. From the Kent Wildlife Trust we heard that wildlife is moving now, not in the future.

Government says that we need reduce our carbon footprints by 60% by 2050. It's very easy for a government to say that, they won't be there in 2050. We need to start now and we need to see very positive decisions coming down. The real problem is that the economy is at the forefront of everyone's mind.

George Bush was very bullish about technology solving everything. I don't think technology can solve the climate change problem, because it is too imminent. Technology will allow humanity, our children and grandchildren to live with the climate change not to avoid it. Changes in lifestyle will be forced on us eventually and it is the resistance by the current generation that will make that worse in the end.



12 Panel Discussions

At the end of morning and afternoon sessions there was an opportunity for delegates to ask questions to the panel of speakers. The following is a selection of the questions and answers.

Q:	When giving advice about development on flood plains, do you think the Environment Agency have the power to say 'we don't think what you are suggesting is sustainable for the future with regard to Climate Change'.
A:	Ashford Borough Council works closely with the Environment Agency, and the objective is not to worsen the current situation and to improve it if possible.
A:	The Environment Agency has adequate power in terms of objecting to the development of the flood plains. The ultimate decision as to whether development should go ahead is the responsibility of the planning authority to weight up the other needs they may have.
A:	The Environment Agency report to DEFRA annually on where their advice has not been taken up and they also have the ability to call for a public enquiry.
A:	Kent Wildlife Trust is working with Ashford Borough Council and the Environment Agency to turn floodplains into a new wildlife habitat.
Q:	Why doesn't the Council (Ashford) go for Level 6 for the Code for Sustainable Homes? Is it a question of price?
A:	It's a combination of price and achievability. At the moment there are not enough people doing it, so the technology is expensive. We need to ratchet-up as soon as possible.
Q:	There are several agencies like the Environment Agency and Natural England that are working against local people - they are not democratic.
A:	There is always conflict with European designations and the need to protect them. Local communities are not protected in the same way. Consultation in the past has favoured the involvement of large organisations, rather than local groups. We have to get away from the Decide, Announce, Defend approach and towards a model of Engage, Deliberate, Decide. That is the challenge to us and all the public bodies because it is more resource intensive. We have to get a more consistent and strategic approach, particularly when parties change their minds.
Q:	We were told a figure of 1.1m increase in sea-level over the next 100 years, but I've been told it is 1.7m.
A:	The 1.1m rise is the allowance that we are instructed to use by Defra policy. That estimate has changed over time and will continue to do so as our understanding improves. We can't wait for more definitive figures before taking action, because the risk is increasing every year.
Q:	Dungeness is shown as vulnerable to sea-level rise - what is the impact on nuclear energy?
A:	The Romney Marsh is below mean sea level and it is only dry because of the current defences, and we need to decide how these will be maintained.

	There is an ever-present and increasing risk of inundation. Dungeness is on a higher point and the power station has its own defences of 1 in 10,000 years. This is subject to the re-nourishment of the beach shingle. This is within the SPA and so we need planning permission to do this recycling. Natural England is not supporting this so we have to demonstrate that this is the best option. One of the big challenges is maintaining the flood defences and finding ways to mitigate the impact of those works because we protect those interesting areas because they are why Dungeness is a special place.
Q:	Who has the legal title to sea defences if they are built on a farmers land?
A:	Sea defences are maintained using public money and have by-laws to protect them but they are effectively a National Asset. The Environment Agency builds and maintains them.
Q:	I'm very doubtful that changes he mentioned will improve the look of things. Are we going to have to alter our aesthetic, do we have to accept wind turbines and polytunnels. Of the pictures up on that slide behind you, the best is of a scene from 200 years ago.
A:	I find my job with wildlife easier because we have something measurable, whereas aesthetics is extremely difficult because all your point is made from a personal aesthetic - I don't mind wind turbines and could see someone in a hundred years restoring one as part of our industrial heritage. So the aesthetics change over time. The difficulty for CPRE is having an agreed aesthetics and putting forward an agreed view that this is what the countryside should look like. What it looks like is often independent of its wildlife value. It is probably the most difficult question that as an organisation you need to answer.
A:	We do need to alter our aesthetics, we always have over time, but what we would like to see is not particularly revolutionary. There are trends in the countryside, particularly with the break between farm subsidy and production in agriculture, that are going our way in terms of aesthetics - more hedgerows, wider field margins, more wildlife and so on. There is likely to be a problem with the townscape as we strive to achieve code level 6 of the code for sustainable homes. This likely to lead to a lot of very modern looking houses, but that doesn't necessarily mean bad and we don't want everything to be pastiche.
Q:	On one hand we are looking at trying to reduce greenhouse emissions but we are already being told that whatever we do will make no difference. So shouldn't our focus be on sustainability and preparing Kent for the future of how we are going to survive in a non-world market. We are going to have to look at our own, shouldn't that be the focus?
A:	Several of us have recently attended a talk by Jonathan Porritt at Reading University. He outlined the changes that have got to take place with the effects of global warming or the effect of temperature increase. He said we will have to consume a lot less meat as we can't have so many animals

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A:	and we will have to start eating vegetables and as you quite rightly said, we will have to grow these locally. Unfortunately it isn't a good political message therefore I suspect very little work is going into it at the moment. You are absolutely right and we should be looking at how we can be sustainable in that particular way. The one thing about sea level rise is that it is effectively irreversible, but the evidence is that if we take action now we can affect the degree of change. If we can steer away from the tipping points we will be OK - but we are at the crossroads.
Q:	Concentration has been on the negative effects of climate change, but there are positives, e.g. the cost impacts of there being no snow or ice. We have also looked at comparisons over time - can't we look at comparisons with other countries, e.g. the Med countries, and how they have coped? Is it possible that the Mediterranean countries cope with the warmer weather conditions that we are likely to be moving towards or is it a disaster for them and has it always been a disaster for them?
A:	Southern European agriculture and infrastructure has developed in response to their climate. A northward shift in climate zones may give us a more Mediterranean climate, but it will give them a more North African climate. These changes will present different challenges but already in certain parts of Spain, the south in particular, we are seeing environmental, as well as political refugees. Not only is population an important issue but also migration. An indirect impact of climate change, which is already happening, is the raising of immigration barriers, not just flood barriers.
A:	The Local Climate Impact Profile is more balanced, as it looks at the positives and the negatives, e.g. retail and tourism benefits.
Q:	A small thing, but houses should have water butts. We have fluctuations between heavy rain and drought. Are the children being educated about climate change?
A:	Yes, children are being taught about Climate Change in Kent. KCC are also currently working on a Climate Change pack for Kent schools which will be going out at the end of March or beginning of April. There is also a dedicated Eco Schools Officer at KCC. They go around to schools and advise them how to reduce their Carbon Footprint as an organisation. They also help to increase the schools understanding and awareness of Climate Change.
Q:	Alison Cambrey referred to KCC's Action Plan, but concerned that, whilst the Vision for Kent (Kent's community strategy) mentions climate change briefly, more action is needed. What policies do we need to deliver change & integration with rural strategy?
A:	The Vision for Kent is a little old, and the level of understanding about climate change has now increased greatly. Most people would say that there has not been enough delivery - where is the practical action? A lot is being done through the new Kent Agreement - the short-term delivery plan for the Vision for Kent - in which new priorities and targets are proposed on

	both climate change mitigation and adaptation. (the rest of the answer is fine as drafted)
Q:	Is it worth reducing emissions? If we (KCC) can't do it and lead by example, how can we influence others? We know what to do; it's a question of the political will to do it.
A:	What is KCC doing? KCC has a large carbon footprint and a target to reduce it by 10% by 2010 and 20% by 2015. Doing so is challenging and requires a new way of working right across the organisation. A range of work is going on - for example we have a carbon footprint tool, staff travel plans, we are looking at the way we use energy in buildings, we have a revised environment policy, environment management systems, and a capital fund to reduce energy costs in schools and across our estate. Over time those things are adding up.
Q:	Re: the polluter pays - someone will always be able to pay, but pollution shouldn't happen. Pollution levels in this country seem to be low, but that's because we have exported so much manufacturing to China and other countries. I don't the polluter should pay, I think the polluter shouldn't pollute.
Q:	Decisions still seem to be made by uninformed Government and big business. There are fairly simple solutions - why can't these solutions filter upwards?
Q:	Global warming was first identified in 1886 by a Swedish chemist, and I've been working on it since 1987 and all the issues were pointed out then. We've had plenty of time. It is a matter of political will, but Government has just cut the grant for renewable energy from 50% to £2,000. The Government is not doing what it can - it has aspirations but no action. All the agencies need to get together and compromise - this is a bigger issue than global terrorism.
A:	If we rely on Government, change is not going to happen - we need to lead.
A:	Climate Change is top priority for our council (Maidstone). Whilst some politicians do not take it seriously, many do. It is difficult to engage people, as many are too busy. But we all need to work together and Government needs to lay down some solid legislation.
Q:	Congratulations to Chris Blunkell - decisions should not be made by the unelected.
A:	I would quite like to see elected people behave properly - the local politicians were not interested and I had to approach them (rather than them coming to me). I am concerned about unelected bodies having such a big say - local people and businesses need to be involved.
A:	One difficulty with elected members is politics! If we are going to engage local politicians they need to know what the local people think. Apathy is the biggest problem. How do we engage with local people?
Q:	The whole thing about global warming is a symptom of something else - population growth. It's not sustainable, and we need to cut global



A:	<p>population. What are your views on global population and its effect on Global Warming? Currently the global population is approximately 6.4 billion and we are told that in the next decade or so, this will increase to more than 9 billion. The way we are going though, this just isn't sustainable. I don't see people addressing this as a serious global problem.</p> <p>Scientists claim that providing they can educate women throughout the world to use contraception, the population would tail off in about 35 years and would start to decrease. All very well in theory.</p> <p>Dealing with population growth has been the topic hiding behind the scenes all afternoon. Population growth is a great deal of the pollution that is taking place. Population is a world wide problem and we have to consider how we deal with it. The reason we are not discussing it, is because it is a political 'hot potato' and nobody wants to address it.</p>
Q:	<p>We are focussed on measures to adapt rather than to mitigate. Big issues are not being addressed - air travel and transport etc... Government takes little notice of green NGOs. I wonder what we can do together to make Government listen?</p>
A:	<p>Elected people have responsibility, but it is also incumbent upon people and communities to do their bit and be reachable and to get involved. We don't want to be consumers any more, we want to be citizens again.</p>
Q:	<p>I would like to hear more about CPRE's vision for the countryside in 2026, especially resolving landuse conflicts arising from climate change, such as need for agriculture and extended wildlife habitats.</p>
A:	<p>There isn't enough time to discuss the issues in detail, but it is an issue that all green groups need to face. We need to remember that the environment debate does not begin and end with climate change, there are other pressures and objectives as well.</p>
Q:	<p>Example of a programme in India to plant trees - started at the local level and then supported by Government. All forms of communities were engaged and used. Central to change is change of attitude and awareness - not just putting packs in schools. CPRE can focus on this.</p>

The groups were asked consider the local impacts of climate change in Kent and what adaptation methods could be used to deal with those impacts. Many of the discussions went further to consider the impacts of adaptation.

Delegates were encouraged to move between groups and write additional comments on sticky notes. The information from these, and the flip charts, is presented below.

13.1 Agriculture

IMPACTS/ISSUES	ADAPTATION	POSSIBLE IMPACTS OF ADAPTATION
Declining Summer rainfall and increased Winter rainfall. Greater restrictions on water abstraction - metering and volumetric charging.	Introduction of more resilient crops.	New/increased pests and diseases. Have an impact on biodiversity and ecology?
	Increased irrigation ponds, water storage on farmland.	Increase in biodiversity. These may however be affected by eutrophication and will decrease land for farming.
Milder, wetter winters and decreased snow fall leading to increase in pests and disease.	Use of ecological services i.e. predators.	Natural response to pests means increased biodiversity of land and waterways due to reduced use of pesticides. Ecological services not always effective.
	Change crop types, possibly pest resistant.	Introduction of GM crop? Impact on surrounding flora and fauna. Reduced pesticide use
	Increased pesticide use.	Leaching of harmful chemicals into waterways resulting in possible loss of important aquatic life.
Greenhouse gas emissions. (especially	Emissions trading between different land	

13 Lunchtime Fringe Meetings

Delegates were organised into four groups to discuss four of the main themes from the morning talks:

- Agriculture
- Ecology
- Planning & Buildings
- Coasts

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IMPACTS/ISSUES	ADAPTATION	POSSIBLE IMPACTS OF ADAPTATION
Methane and Nitrous Oxide)	uses. Self regulation by farmers?	
Run off of soil and nutrients leading to contamination of water courses and silting. Eutrophication due to increased leaching of fertilisers and nutrients.	Conservation and introduction of hedgerows and set-a-side.	Increase in biodiversity and habitats. Reduced land for crop production, decreased yield?
Rise in sea level leading to flooding of agricultural land.	Build sea defences.	Loss of coastal wetland sites. Large costs involved.
Increased population and food demand.	Increased use of poly-tunnels.	Rainwater collection from tunnel however, rainwater not going into soil. Local food/fruit production vs. imports. Landscape impacts of polytunnels - loss of countryside character
Longer Spring/Summer season.	Reduces the need for as many poly-tunnels.	This reduces water demand
Changes to landscape characteristics vs. designation.	Stronger protection for grade 1 agricultural land.	

Additional points made:

- “Organic farming will not sustain the world. Let us farm good land intensively and use the poorer land for woodland.”
- “There seems to be a fundamental conflict between the need for production (food, bio fuel etc.) and land for wildlife means.”
- “We need to be more open to learning from elsewhere. I.e. locally, nationally and globally.”
- “It is important to recognise that some land has no use for production of arable crops and should be used for animals.”
- “Traditional agriculture, mixed farming, several crops, several domestic animals (cows, chickens, pigs) farmed organically, taking care of the soil each generation is how farming was done for hundreds

of years. It worked without damage in a sustainable way. This small scale mixed farming without the need for fossil fuel imports may be the best solution to our food production problem in the long term.”

- “When peak oil starts to take effect, there will be a huge need for the UK as a whole, and areas within it to be as self-sufficient in food as possible. This needs to be taken into account now, in a planned way and not come suddenly as a rude shock, in 10 to 30 years time.”

13.2 Ecology

IMPACTS/ISSUES	ADAPTATION
Loss of set-a-side. (Compensation for loss of agricultural production)	More education on ecology. Outdoor learning opportunities. Urban food production.
Welfare implications of intensification. Light (and other) pollution. Disturbance (domestic pets, people) on increasingly pressured areas.	Protected Landscapes.
Feeding the population.	‘Eco-tax’ on food miles.
Direct habitat loss and replacement.	Compared to value of ecosystem services.

Additional points made:

- “Main theme of this discussion was the extreme conflicts between all of the conflicting needs placed on our countryside. Space for people, water, crops, bio-fuels AND biodiversity. Who wins?”

13.3 Coastal

IMPACTS/ISSUES	ADAPTATION
Loss of food producing land.	Managed realignment can be flexible. Now inevitable in Kent.
Where does the Environment Agency fit in flood defence?	People’s roles need to be clearer.
Cost impacts and WHO and HOW is going to pay. Developers will resist.	House purchasers/renters may need to change the capital /running cost balance. Rethinking mortgages into something closer to total running costs.
Are sea level rises properly contextualised in public conversations?	‘It’s happening - it has to be managed’ Strategic overview will be an opportunity for Environment Agency.
Will houses be actively sacrificed?	Currently, No.

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IMPACTS/ISSUES	ADAPTATION
	There are a range of management plans.
Flooding of developed areas.	Avoid housing developments in vulnerable coastal areas.
Flooding of wildlife habitats.	Provide wildlife with a range of connected habitats. Prevent habitat fragmentation where possible.
What funding is in place for plans? Farmland needs higher priority in sustainable economy.	£600m - £800m available for this funding period. However, this figure is misleading as coastal represents a small portion of this. In Kent most of the funding goes on the coast. Coastal flooding is a high risk in Kent.

Additional points made:

- “Coastal defence is ultimately too expensive in the face of climate change. Let ‘managed retreat’ prevail!”
- “Grade 1 UK land will be flooded through ‘managed retreat’”
- “What percentage of the money saved by coastal realignment is passed on to those affected?”

13.4 Planning

IMPACTS/ISSUES	ADAPTATION
Light pollution - clash between technology and nature.	Legislation to prevent unnecessary lighting of buildings etc. Greater consideration of surrounding areas and wildlife before continuation/approval of developments.
Heating and cooling of shops with front doors that are left open contributing to the urban heat island effect.	Insist on solar powered air-conditioning to counterbalance the equation Legislation and/or education into more responsible company policy.
Development/expansion of rural villages and its effect on the surrounding ecology and biodiversity.	Review the potential of living accommodation above town shops. Restrict growth in rural areas and restrain growth in towns, by more upward growth. Use of brown field sites for development.

IMPACTS/ISSUES	ADAPTATION
Increased energy consumption in residential areas partly due to increased need for air conditioning and inefficient heating practices.	Licence the installation of residential air-con. Councils to supply free energy audits (domestic and business) which in turn can help subsidise solar and wind powered homes and enforce fines/licences for larger less energy efficient appliances (i.e. plasma TVs etc.) Press developers to build to the highest eco - standards. Develop buildings that remain cool in the summer and warmer in the winter using aspect and specialised building materials/methods. Reinstate natural blinds for shade in the summer. More information sharing on how to live towards a lower carbon footprint.
Increased Green House gas emissions due to travelling further and multi-car households.	Free public transport (at least buses) for a call to minimise combustion emissions (help to reduce carbon footprint) Encourage people to shop locally by introducing reduced or no fees for parking for local residents. (e.g.1 permit/household) Improve rural roads and lanes for cyclists and walkers. Improved public transport for out of town shopping centres and airports etc. This should help reduce the amount of cars used for these trips.
Increase in tourists due to milder weather and longer Spring/Summer period resulting in increased numbers travelling via car and public transport.	Encourage longer stays as apposed to day trips. Integrate tourism and transport solutions. i.e. improved public transport especially to areas of significant interest.

Additional points made:

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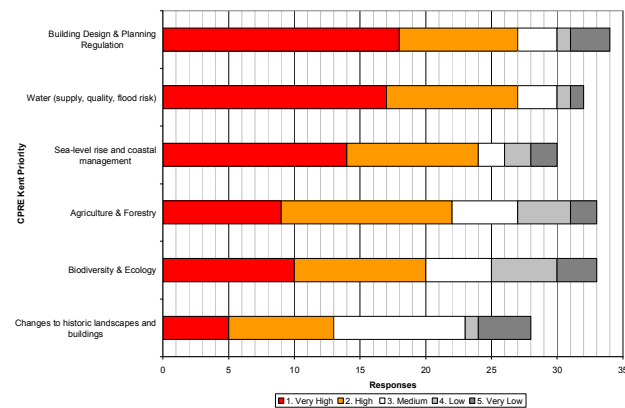
- “The use of Chalk Downs as ‘Cote D’Or’ and ‘Garden Route’ will help to encourage Agricultural diversity, Tourism and Food and Economy”
- “We need to promote the benefits of high density developments in urban areas”
- “It is impossible to reconcile growth (Housing and Economy) in the South East with biodiversity and agriculture, bearing in mind climate change.”

14 Feedback Form Results

Delegates were asked fill out a feedback form at the end of the event. This included the question:

“On which climate change topics should CPRE Kent focus over the next year?
1 = Highest Priority to 5 = Lowest priority”

The chart below shows the results from the 36 respondents.



- Improving existing housing stock
- Local community-led responses
- Greater public awareness of threats
- Monitoring government & private sector performance
- Builders/Developers to become more efficient
- Highway drainage and sewer flooding needs to be more efficient
- Countryside aesthetics and as a place to live
- Air Travel
- Effective public transport to provide alternative to cars
- Vehicle emissions
- Transport
- Population

Other comments on the content of the day included:

- “Very interesting discussions and speakers. There’s a big opportunity for CPRE to engage positively in developing and promoting solutions both in supporting emissions cuts (i.e. 80% by 2050 to keep within 2 degree C) and also working on linking people with their environment and landscape through access, education, local food production etc. and also on encouraging constructive community engagement in decision-making etc. (But focus on what WE can do... population is a part of the issue but such a big one as members think!)”
- “Interesting to discuss role of intervention and education sector as a whole in the climate change adaptation and mitigation: - research, skills training etc. What do partners in Kent CC climate change action plan want local universities to deliver?”
- “The need to raise levels of knowledge, awareness, understanding and commitment in all sections of society, and address the need for the necessary funding co-ordination among agencies and political support for this objective.”

Delegates were invited to suggest other categories. Suggestions included:

- Education



15 Conclusion

This event has shown that there is already a high-level of concern about the local implications for climate change, but that there needs to be a better public understanding of what climate change means for wildlife, agriculture, society and everyday life in Kent, and what we can do about it that does not make a bad situation worse.

For CPRE Kent and our climate change campaigning priorities, the message from the conference has been interesting:

- Building design and planning regulation
- Water (supply, water quality and flood risk)
- Sea-level rise and coastal management

Wrapped up in this is the issue of how the planning and democratic processes deal with the inevitable conflicts that will arise from the changing conditions and pressures on land-use.

Keep up to date with our work by checking the website, or if you are not already, become a member and receive regular updates and further opportunities to get involved.

The event was a great success with overwhelmingly positive feedback from delegates. Thanks again to the speakers and members who gave up their time and energy, the office staff who made it happen, and to the delegates who gave such enthusiastic and knowledgeable input.