Increasing resilience to global warming effects

The Government is leading the creation of a framework for climate change adaption. *Jon Herbert* looks at the policy approach.

You can only begin to control what you can measure. The actions of individuals are important. However, the UK as a nation needs a co-ordinated strategy to learn to live with and, wherever possible take advantage of, the irreversible effects of global warming.

Taking steps to counteract the effects of climate change is step one. This is mitigation. Building in resilience by reinforcing, replacing, or duplicating systems is step two. However, when this is no longer possible, society has to face up to the consequences. This is adaptation. Effective adaptation, it is estimated, could halve the cost of climate change damage.

One of the Government's key roles under the Climate Change Act 2008 is to establish a framework in which threats, adaptation actions, success rates, and continuous reassessment and improvement can take place. It is also the Government's business to "nudge" citizens, businesses, local authorities, planners and infrastructure investors towards making the sort of behavioural changes needed in their daily lives to offset the impacts of climate change.

The UK's adaptation policy falls into several stages. The first is the UK Climate Change Risk Assessment (CCRA). This is a grand, five-yearly audit of the major risks and opportunities associated with climate change — the measurement stage.

The first CCRA was completed in 2012. It found that, without adaptation, the largest threats — mostly manifest in more erratic and challenging weather — would be an increased risk of flood damage and disruption, increased pressure on some of the UK's water resources, greater risks to the health of vulnerable individuals from rising summer temperatures and mounting harm to ecosystems. However, there could also be benefits and opportunities. The assessment also noted that warmer wet winters could reduce the number of cold weather deaths. Meanwhile, a general rise in temperature might extend the growing season for certain crops.

The next CCRA will be carried out in 2017. An Adaptation Sub-committee (ASC) of the Committee on Climate Change has been set up to advise the Government on how this can be done most effectively.

Action this day

The second stage is an action plan — the National Adaptation Programme (NAP).

This is the Government's long-term strategy framework to respond to and make the most of the aspects and impacts identified in the CCRA assessment. It, too, will be updated every five years; the first programme was published in 2013.

The NAP has several action points. The first is to raise long-term awareness of the need for the UK to learn to live with often unpleasant changes. Winter storms in early 2014 are a good example.

The second priority is to encourage the building of increased resilience against present and worsening future climatic extremes. Bringing forward a major investment programme of overhead electrification to cope with harsh winter weather on the railway line between Southampton and Basingstoke is one example. The cross-party Transport Select Committee wants the project to go ahead in the next five years rather than in 2019.

Then, because some measures take a long time to put into effect, early thinking is called for. A move away from building homes on flood-prone land is an example here. As an alternative, the chairman of the Environment Agency, Lord Smith, has floated the idea of houses designed to rise on top of flood waters. This is priority three.

The final aim is to fill in the knowledge gaps where new evidence of risk and possible counter-measures is needed.

Reporting and revising

The next stage of the Government's strategy is the UK Adaptation Reporting Powers held by the Secretary of State. These oblige public service bodies to explain what they are doing to meet climate change and affect some 90 organisations. Their combined evidence will then feed back into the next risk assessment round.

In addition, other factors also affect the UK's ability to react positively to a warming climate. How the activities of water companies are regulated, and the Government's recently revised planning policy, are also instructive.

Put together, these complementary stages are the mechanism by which the Government intends to continuously measure and take control of the uncontrollable in British daily life.

In practice

So what can be done? The ASC stresses that it is important to make an early start to adaptation. It also points out that mitigation and adaptation must both go on hand-in-hand; efforts to hold back a rising tide while also discovering how to live with a rising tide.

With average annual UK temperatures now significantly higher than in the 1970s and spring arriving some 11 days earlier, the following areas have been identified for action.

The use of land needs better planning, including the design of cities and urban spaces to increase the absorption of rainwater and cope with heat waves.

Infrastructure also needs thinking about. Essential roads, railway lines, water and wastewater treatment works, power stations and flood defences need to be able to handle not only the immediate effects of climate change themselves, such as coastal lines being battered by angry seas, but also to respond constructively to changing consumer demand patterns.

Buildings also can be designed, and to some extent adapted, to manage the heat of summer and conserve and make maximum use of ambient temperatures in winter. Their resistance to occasional flood damage can also be increased by a variety of practical measures.

There is scope to manage natural resources more sustainably, again not only in terms of material demand and procurement, but also with regard to biodiversity and safeguarding ecosystems.

As the last winter also illustrated, the nation's capacity to react effectively in emergency situations, including emergency response planning strategy and communications, can have a profound effect on whether we can live well with the weather.

Findings

The 2013 progress report gave the ASC a wider brief to look at vital ecosystem services for land, and how decisions affecting the use of UK land can best be made to adapt to climate change.

For example, despite the recent wet winter, the evidence points to a widening gap between water supply and demand if action is not taken. It is predicted that, in a dry year during the 2020s, this gap could be as large as 120 billion litres annually. Food supplies may be affected, and a shortage of water would also hit industry.

It is generally acknowledged that a thriving natural habitat has direct and indirect benefits for the environment in which business also expects to thrive. However, not only is this a question of securing wildlife habitats that need extended tracts of joined-up land, climate change is also adversely affecting the quality of these habitats — a decline of 42% to 37% in a decade.

Peat is a carbon store. However, degradation of 3550 km^2 of English upland peat beds is said to be destroying their capacity to hold CO_2. The ASC recognises the economic case for peatland restoration as climate change bites deeper.

There will also be a greater emphasis on enhancing the flood protection provided by coastal habitats. Some 75% of intertidal habitats are at risk from rising sea levels, in part because they are prevented from migrating further inland by "hard" sea defences. If 10% of these hard defences were moved further inland by 2030, flood defence costs would fall by between an estimated £150 million to £350 million.

There is a warning, too, that the present rate of flood defence construction, along with special protection measure for individual properties, is being surpassed by the increasing risk of flooding caused by climate change.

Water scarcity is also an issue, with UK household consumption rates being among the highest in northwest Europe. However, the current 145 litres per person per day is on track to fall to 130 litres by 2035.

A basket of indicators is used to measure changes in society's exposure and vulnerability to climate-related risks and the uptake of adaptation measures. The ASC also analyses decision-making in central organisations to judge whether the adaptive actions being planned and implemented by the public sector are adequate for existing and future risks.

However, in December 2014, work will begin on drafting evidence now collated by Defra for the next assessment, which will be published in January 2017.

To strengthen Europe's ability to adapt to the effects of climate change, the EU Adaptation Strategy was adopted in April 2013. It also issues guidelines for action. ■

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