

Environmental Audit Committee

Oral evidence: Climate change and security, HC 634

Tuesday 14 May 2024

Ordered by the House of Commons to be published on 14 May 2024.

[Watch the meeting](#)

Members present: Philip Dunne (Chair); Barry Gardiner; James Gray; Chris Grayling; Ian Levy; Clive Lewis; Caroline Lucas; Cherilyn Mackrory; Jerome Mayhew; Anna McMorrin; Matthew Offord; Cat Smith; Claudia Webbe.

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Witnesses

[I](#): Dr Kira Vinke, Head of Center for Climate and Foreign Policy, German Council on Foreign Relations; Erin Sikorsky, Director, Center for Climate and Security; and Dr Helen Adams, Senior Lecturer in Disaster Risk Reduction and Climate Change Adaptation, King's College London.

[II](#): Professor Stephen Belcher, Chief of Science and Technology, Met Office; Professor Jim Hall, Commissioner, National Infrastructure Commission; Margaret Read, Director of Policy, National Infrastructure Commission; Baroness Brown of Cambridge DBE, Chair of the Adaptation Committee, Climate Change Committee; and Richard Millar, Head of Adaptation, Climate Change Committee.

Written evidence from witnesses:

[Erin Sikorsky \(Director at Center for Climate and Security\)](#)

Examination of witnesses

Witnesses: Dr Kira Vinke, Erin Sikorsky and Dr Helen Adams.

Q1 Chair: Welcome to the Environmental Audit Committee, where we are pleased to have two panels of experts giving oral evidence today on our first session on climate and security. We have quite a tight programme today, so we are going to get straight on with it.

I am particularly pleased to welcome—I think both of you are from the United States—Dr Kira Vinke from the German Council on Foreign Relations. Dr Vinke, would you like to introduce yourself and explain what your role is in relation to this subject.

Dr Vinke: Thank you so much. I head the Center for Climate and Foreign Policy at the German Council on Foreign Relations.

Chair: Thank you. We are also joined by Erin Sikorsky from the Center for Climate and Security in the United States. Welcome.

Erin Sikorsky: Thanks so much. I direct the Center for Climate and Security research institute, based in Washington DC. Prior to that I led climate and environment analysis across the US intelligence community.

Chair: Thank you. In the room we have Dr Helen Adams from King's College.

Dr Adams: I am a senior lecturer in disaster risk reduction and climate change adaptation. I tend to work on climate-related migration and have worked on climate security in the context of the IPCC.

Q2 Chair: Terrific. I am going to start with Erin. From the perspective of the United States, could you give us a sense of how climate change is regarded as a security risk within the US Government?

Erin Sikorsky: It is an honour to be here. The US Government have put climate change and national security at the front of their foreign and security policy agenda under the Biden Administration, but really it has been a bipartisan issue for over a decade now, with the US Congress integrating climate and security considerations into the National Defense Authorization Bill for many years, looking at it as a direct risk to the US military—its installations, its resilience, its operations—but also a compounding risk to drive instability and risks of conflict in places that are of interest to US national security.

The State Department and the US Department of Homeland Security have also been involved in these conversations, really taking a whole of government approach led by the National Security Council, and with this Administration an executive order on tackling the climate crisis at home and abroad, really pushing not just for climate being considered in the



climate office or the climate shop at these institutions, but fully integrated into regional analysis.

The regional combatant commands here in the US are all taking a look at climate change and what it means for the regions that they focus on, and they are integrating it into war games. I am not seeing it as separate from geopolitical competition with China, for example, or the threat from terrorism, the threat from Russia, but instead layering in a climate lens. There is still progress to be made, for sure, but over the past decade or so there has really been a shift towards a more fully integrated approach looking at climate as a national security risk.

Q3 Chair: Does that also apply to domestic physical risk from climate to defence and security assets, critical national infrastructure, that kind of thing?

Erin Sikorsky: Yes, I think so, especially with the military. You have had disasters like Hurricane Michael a few years ago, which destroyed Tyndall Air Force Base on the Gulf Coast, causing billions of dollars of damage. You have had a great increase in recent years in the number of hours that the National Guard here in the US is fighting wildfires, for example. You have had atmospheric rivers in California interrupting military training. So within the military domestically, absolutely.

More broadly, the Department of Homeland Security and FEMA have increasingly been thinking about climate as a security risk domestically, in terms of hazards to electrical infrastructure and other critical infrastructure. Domestic migration is something to also be thinking about. The Homeland Security Department has developed climate security training for its personnel, which is a step in the right direction. I do think that the military domestically has really been leading the way.

Q4 Chair: Do they consider climate risk as a threat multiplier? You mentioned geopolitical risks—is it seen in that context? Is it seen in particular regions of the world where there are particular pressure points from climate change? Is that taken into account as an extra risk?

Erin Sikorsky: It is. The US Intelligence Community released a threat assessment on climate change—a national intelligence estimate. That is public. It is unclassified. In that, they identified 11 countries and a couple of regions of the world in which it sees that threat multiplier challenge happening, so they are integrating it there. Like I said, the combatant commands are as well.

I do think one gap where we have been pushing them is to look not only at places that are already at high risk, places like the Sahel, places like east Africa, which are already in crisis for a variety of reasons, not just climate change. As we look 10 to 20 years down the road, there are going to be places that may be stable today where climate change will again intersect with other factors to tip things over into instability, so we



need to look at that more broadly but, yes, the US absolutely is looking at it as a threat multiplier.

Q5 Chair: Thank you. I am going to turn to Helen to discuss the UK for a moment. How do you see climate security being regarded within risks for the UK Government?

Dr Adams: This one is for me, as well as something for the second panel, where you have the CCC and the Met Office. From an academic perspective I think we are fairly good at looking at climate change as a human security risk. We have quite a good framework for understanding how we need to adapt. The issue in the UK is that we are not meeting our own adaptation targets, and in that sense we are leaving ourselves exposed to a lot of climate risks.

From my perspective, risk comes a lot from vulnerability as much as from the hazard. Yes, climate change is going to get worse, but whether or not a hazard becomes something terrible and destroys lives and infrastructure depends on our levels of vulnerability. A lot of our systems and infrastructure are under pressure, even without climate change, and there is that big adaptation gap to fill. That is in our hands to fill. Therefore, a lot of it is not about the climate getting worse, it is about us not looking after our own people and our own infrastructure.

Q6 Chair: Do you look across the UK sphere of influence within our overseas territories, for example?

Dr Adams: I think the biggest thing is that climate change is undermining development gains. In a lot of overseas territories, you are getting cyclone after cyclone or hurricane after hurricane and a lot of lower income, smaller—I am thinking about islands here. They are recovering from one event after another and not moving forward. They are running on the spot, if not going backwards, in terms of development gains. I think that is the biggest impact overseas.

Q7 Chair: Thank you. Before I bring in Barry Gardiner, who has got more international perspectives, could I ask Kira to give us a quick overview of how the German Government regard their climate change risks in their security portfolios?

Dr Vinke: The German Government recently published their first national security strategy in which they conceptualised three pillars of security, and one is sustainability. Therein they outlined the threats of climate change, the threat of biodiversity loss and the implications for food security. This is also a whole of government approach to national security but with a human security lens.

The Government regard climate change as a threat to national security. They have also published a climate foreign policy strategy where there are some links made to climate security and the implications for German climate foreign policy and climate diplomacy going forward.



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The German Defence Ministry recently published a strategy on how to adapt to climate change, so there is a lot of movement in this area. It is also seen as something that different levels of government need to pay attention to—the security community, the foreign policy community and the development community, especially when it comes to Germany’s engagement with other countries abroad.

Chair: Thank you very much. Before I bring in Barry Gardiner Chris Grayling has a quick question.

Q8 **Chris Grayling:** You said the number of hurricanes was getting worse and worse. I am not doubting the importance of climate change, but the number of hurricanes is lower than it was in the nineteenth century, isn’t it?

Dr Adams: I actually don’t have the stats on that. I can come back and answer it, but I would not want to answer it off the cuff.

Clive Lewis: We had a Met Office inquiry.

Chair: It is in the next panel.

Clive Lewis: No, it was in a previous panel. It gave a specific figure on that, which was quite shocking in terms of not just the frequency but also the severity of the hurricanes and the statistical probability of that.

Chair: Let’s hold that question for the Met Office when they join us in the next panel.

Q9 **Barry Gardiner:** Clearly, climate change is posing a number of risks that you have outlined, and those can be divided into short-term risks—which a state considers immediately—and long-term risks. I want to try to get you to distinguish between those and also make comparisons. If one looks at the UK, Dr Adams, you have just outlined that we are trying to cope with the human risks from climate change. Then we have the strategic engagement with the rest of the world to ensure that those longer term strategic risks do not impact on us adversely.

What I want to ask you is—and I will probably put this to Dr Sikorsky first—which countries can see a benefit to themselves in climate change, whether that is a relative benefit in comparison with other countries or a total overall benefit and, therefore, may be less disposed to engage in aiding a long-term solution?

Erin Sikorsky: Thank you for the question. To clarify, I am not a doctor. I don’t want to compare myself to Dr Vinke or Dr Adams.

In terms of who benefits from climate change, I would argue that every country will see negative repercussions if we continue on the trajectory of warming that we are currently on. Sometimes in the popular press you will see Russia held up as a beneficiary because of the melting Arctic, because of a longer potential growing season. I will note that before



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Russia invaded Ukraine, President Biden, in a public address talking to President Putin, said something along the lines of, "One of the biggest risks you face is a burning tundra that will never freeze again". So even Russia, the fact that the Arctic is melting, that the permafrost is melting, they have critical infrastructure that is on that permafrost that is being destroyed, energy infrastructure and they do not have—

Q10 Barry Gardiner: Sorry to interrupt you, Ms Sikorsky, but the Environmental Audit Sub-Committee on Polar Research has already looked at the opening up of the northern flank for Russia and the strategic implications of that. By and large, you would say everybody is going to lose and, therefore, everybody has something to gain from co-operating in long-term, political diplomatic ways of managing the problem?

Erin Sikorsky: Yes, I agree with that. There are opportunities, however, for countries in that co-operation to lead that co-operation, to build alliances with countries being hurt by climate change on the frontlines. There is a geopolitical opportunity for the UK and the US to lead, yes.

Q11 Barry Gardiner: You talked about that previously where you said China is eager to try to take advantage of a divide between the global north and global south concerning climate finance.

Erin Sikorsky: Yes.

Q12 Barry Gardiner: Looking at that specifically, and looking at COP29 and the negotiations on the New Collective Quantified Goal on Climate Finance, what weight do you believe the global north, the US, the UK, and the European Union should be placing on getting that agreement at COP29?

Erin Sikorsky: It is a huge opportunity for the global north to show to the south that we are going to live up to our commitments—that we are going to provide those resources, not because it is the right thing to do necessarily, but because it is a benefit to the global north in its geopolitical position. Investing in stability, resilience and adaptation in these countries prevents future conflict, and prevents risks of overwhelming climate migration. I think it gets ahead of those long-term risks you were talking about by making that investment today and it strengthens our position geopolitically—again, from a US perspective—as we think about China.

Q13 Barry Gardiner: Thank you. Dr Vinke, what are your reflections on the most effective ways in which we could be encouraging that global co-operation on climate security?

Dr Vinke: Thank you. Tying back to your previous question, we need to look at planetary security and dealing with concrete climate impacts. This is how I would differentiate between the long term and the short term. When it comes to planetary security, as Erin Sikorsky said, all countries will be affected, and of course we have special interest groups that may



gain from prolonged fossil fuel use. However, territories' populations will be affected across countries. Of course, there are differential effects on different populations—marginalised communities, for example—and it is important to take into account that we have these diverse demographic differential impacts. We have very strong impacts in the tropics.

We have impacts in regions that are already arid that may become more arid or see increased variability in rainfall. This means that co-operation needs to particularly target countries that are the most vulnerable—countries that may see further displacement of people and may also see people trapped in places where they cannot move out of harm's way.

To encourage this, I think we also need to connect humanitarian development, and the peace nexus through the climate agenda will be very important going forward. We need to engage in joint training on this, whether through NATO or on a bilateral basis, in both the hard security sector and also the foreign policy sector. That could be a means of engagement.

Q14 Barry Gardiner: I am most interested in the foreign policy security sector. There are key factors that are likely to cause conflict, whether those are from famine, whether from water shortage, or whether they are disputes over water. We know what those are, so how should we be prioritising our diplomatic engagement to ensure that we create as much stability in those areas as possible?

Dr Vinke: I would say through mitigation, adaptation, and migration policies. I think our first line of defence is mitigation. This is domestically as well as engaging through the COP process, through bilateral engagements for more ambitious climate protection, because there are limits to adaptation if we go above two degrees warming and even above 1.5 degrees, especially for the UK's overseas territories and other very exposed regions.

On the adaptation agenda, this is both specific climate adaptation but also classical development policies. We need to increase the resilience of communities, increase trust building in communities and good governance. These are all factors. In regions that may become uninhabitable, or where the risks are very high, we need to enable people to move safely out of harm's way, for example, and to have better management of internal migration.

Today the Internal Displacement Monitoring Centre released a new report on the displacement numbers for 2023. It is very concerning, both on the disaster side and on the conflict side, that we see such high numbers of displacement. These pressures will increase with rising climate impacts and, therefore, we need stronger engagement on this issue—

Q15 Barry Gardiner: What impact has the Sendai Framework had on that?

Dr Vinke: We have seen progress in disaster risk preparedness globally, infrastructure preparedness and also communal response mechanisms.



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However, in the long term, what we are seeing is it may not be able to keep up with the rising climate impacts. This is due to the non-linear nature of climate change. As we put more CO₂ and other greenhouse gases into the atmosphere and the warming increases, the impacts may not continue gradually. Rather, we may see rapid changes and large-scale disasters for which we do not have adequate frameworks.

It is a good framework. We have made improvements that have saved people's lives. This is very evident. However, more is needed.

- Q16 **Anna McMorris:** Can I turn to you, Dr Adams? In our request for evidence, we asked Government Departments to submit the policy strategy papers that each Department has on looking at security risks on climate change. Not all of them came back to us but, from looking at it, it all seems quite bitty across government. For example, we know that the Prime Minister got rid of the role of the climate envoy within the FCDO, which was a cross-government role. We know that there are different strategies for each Department, but what is your view on the current Government's policy towards security risks from climate change? Do you think it is adequate and what would you like to see?

Dr Adams: I was part of the Cabinet Office for COP26 and led on science engagement for COP26. Part of that work, and what we were trying to do, was to think differently about how we communicate risk in government, and this idea that you have this, it is completely separate. We know the severe risks that climate change is going to pose for normal functioning of life in the UK—the economy, jobs, wellbeing—and that is going to kill people, yet we are not acting at that scale. Why is that not happening?

This is not answering your question yet, but I think the first thing is that back then things were not getting up to a high enough level, so things like the IPCC were stopping at quite a low level. Even things like the CCC and the climate change risk assessments were not getting to the higher level, and that information was not being delivered in a way that it reached that top level where you could have an all of government approach to it. You have things like the Climate Resilience Board that has just been set up. I don't know whether that offers potential now to have that cross-government co-ordination and the ability to deal with climate intelligence and respond in a holistic way.

What do I want to see? I want to see climate change information being presented. I think it is also on our side a bit in the way we present climate information. We are not presenting it in a consistent way. Even though we all know how severe the impacts are, we are not presenting it in a way that is, "This is what you care about in your Ministry, and this is what you need to be thinking about". They are basically two separate worlds.

- Q17 **Anna McMorris:** The disjointed nature of it means that Departments are quite often working in silos. How do you ensure that there is a coming



together of government focusing on this issue?

Dr Adams: I am not in government. For me, it has to come from the top down and there have to be structures in place. It is basically what Erin was talking about. We have been talking about mainstreaming climate change for a very long time. Thinking about this session, climate change isn't a security risk in and of itself. It is a security risk because it impacts on everything that we are doing. I think Erin's response on what they are doing in the US in terms of every single decision we make has to have a climate component.

You have to avoid that then becoming a tick box. In every decision we make we have to make sure that we think about ethics. We have to make sure we think about equity and diversity. In every decision we make we have to think about climate, and then it becomes a bit tick box, but they are some of the steps you can take. I think it has to be top down. To do that we have to make sure that these key climate findings are taken on board, because we have to deliver them in a way that is not—which is why this session is so great—about the hazards or the risks. It is about: what does this mean for the things we care about? We have to get better at that.

Q18 **Anna McMorris:** Thank you. Can I turn to you, Erin? You opened the session talking about what Biden had done in the US. We saw Biden come in and instigate this rapid climate and security assessment. Can you tell us how the UK's approach compares with the US and perhaps other countries? How does it compare in terms of the grasp of the issue?

Chair: Within one minute, please, Erin.

Erin Sikorsky: Sure, understood. What I have seen—and you see this in many countries—in the UK's grasp of the issue is that the analysis of the risk is there, but it is the moving to action part where the gap is. One of the biggest challenges is building a national security workforce that is climate literate and climate strong, so that it is not from the top down, but you have the middle managers, the one and two star generals in the military, who understand why climate is important and how it makes their job easier to bring a climate lens. You are not just asking them to do one more thing, but they can integrate it. I think it is that education and workforce building piece that will make this stick.

Chair: Thank you. Anna, I am afraid we are under real pressure. We are going to have to take Clive Lewis. We have two more sets of questions coming.

Q19 **Clive Lewis:** Who is best placed to give us a very brief definition of the term "cascading risks" and "tipping points" in the context of climate change and security? Who would like to have a stab at that?

Dr Adams: I am happy to. I feel strongly about the term "tipping point", so I will start with that one. "Tipping point" has become a bit popular with very little basis and I don't think it is that useful in terms of driving policy



because it is not that well defined. I think in the security world we lay people lazily use it as a kind of synonym for mass migration, triggering conflict without any understanding or reference to the causal mechanisms that might lead to that happening. Social processes do not often happen as a tipping point.

Social processes like migration and conflict are always called social tipping points but they do not just emerge from nowhere. As these guys have said, they emerge from the political, the governance, the poverty, and the vulnerability, so, yes, a tipping point in the social system would be a rapid change due to, for example, terrorism or an increase in social instability. That is how it is used, but I think it is lazy and not very useful for understanding why those things are happening and trying to stop them.

Q20 Clive Lewis: Very quickly on this—I do not want to take too long on this—but please do jump in, Dr Vinke and Erin.

Dr Vinke: I just want to add to what was said. Climate tipping points in the climate science community are a little bit different from the social tipping points that you have just referred to.

To go into that a little bit more, in climate science we talk about climate tipping with regards to large-scale elements in the earth's system that appear to be relatively stable or to be dealing relatively well with the different anthropogenic pressures from climate change but also other factors, but that can then rapidly and irreversibly transition into a new equilibrium.

For example, tropical coral reefs, after a certain threshold of both acidification of the ocean and heating—both related to CO₂ emissions—face thresholds, after which they face mass bleaching events and then die off, and they are not coming back from this. We have already seen this in parts of the Great Barrier Reef. If these mass bleaching events occur several times, the reef is irreversibly dead.

These types of tipping elements are very different in nature. They are in different world regions and have a global effect, and they are interlinked so they can have influences. For example, if the Greenland ice sheet crosses a tipping threshold, this has an influence on various other parts of the earth system.

Q21 Clive Lewis: Which brings us on to cascades, which is where one thing happens, then that leads to another and another and another and a cascade effect. Thank you for that.

The question I want to ask is, as policymakers, if we are going to protect people—I can see the term “UK interests”, but I am thinking about people—is it necessary to implement specific human rights and invoke people's human rights to be protected by their Governments against cascade effects, against tipping points, against the impacts of climate change and the implications that that may have? Is that something that



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policymakers should be thinking about?

Very recently, ClientEarth won a High Court case where the court said that it won the case because the UK Government's climate strategy was not seen as fit for purpose and therefore breaches the UK Climate Change Act. Do you think there is a role for policymakers to protect people's human rights from these cascade events and these tipping points?

Dr Vinke: Yes, I do think so. At the UN level we now have the right to a safe, clean and healthy environment. This is one human right, but there are others that are at risk from climate change: the right to life, for example. There is also the health risk that stems from climate change, especially the high impacts that may result from cascading risk, and impacts that we are seeing now such as heatwaves. There is another case of Swiss climate seniors whose their health was detrimentally affected, and this was considered to be a violation of their rights.

Q22 **Clive Lewis:** Thank you, Dr Vinke. Just very quickly, Dr Adams, if you could just come in from a UK perspective on human rights.

Dr Adams: I was just going to say that I agree with Kira. Cascading risks are a real issue, especially when we are talking about the UK in the international context. Why should we act on that and why should we co-operate? It is because the UK cannot insulate itself from international cascading risk. I don't think you have to invoke cascading risks or tipping points to make the argument that about the need to protect human security, because even with just a normal heatwave you get thousands and thousands of excess deaths.

Chair: Thank you. Before Claudia Webbe begins her questions it looks as if the business in the House is reaching a conclusion, so I am going to ask Chris Grayling to take over as Chair. I would like to thank you for your attendance today, particularly from the US. and

[Chris Grayling took the Chair]

Q23 **Claudia Webbe:** It seems to me that countries in the global south in particular are spending more per head on servicing international debt than they are on meeting the needs of their civilians in relation to climate change. Could I put this question to Dr Vinke? As an expert on climate change and migration, could you explain the relationship between the two?

Dr Vinke: Human migration, as with many human actions, is driven by various factors. There are economic drivers. There are environmental drivers. There are security drivers of migration, and usually it is as the result of a variety of factors that people decide whether to move or not. Climate change can influence these types of drivers, for example, by reducing the security of a country by decreasing food security, or by depleting the economic and financial resources of a household. The household's individual decision may, again, be the result of a variety of personal factors, the set-up of the household and so on.



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The availability of networks and places of arrival may then be the deciding factor in whether a person decides to move or stay under the pressures of climate change. Even under very severe pressures of climate change, some people may decide to stay because they feel very attached to where they live. Some people may not be able to move because of high financial constraints, or they are not able to leave their household for other reasons. It is an intricate matter. However, there is very strong evidence that there are links between climate change and the drivers of migration, and that people are moving, especially when there is a disaster and it is a matter of life and death.

Q24 **Claudia Webbe:** Thank you. I can see that Dr Sikorsky would like to come in.

Erin Sikorsky: I want to briefly highlight three security risks we see stemming from climate migration, and I want to note that it is not the migrants themselves who are the security risk. It is because of the strain on governance and resources within developing countries that people are migrating, often from rural to urban areas. That can be a risk. A second risk is destabilising, reactive political responses to those migrants, as we have seen in the global north. The third is the weaponisation of migration, by political factors or countries as well, which is a real problem.

We have evidence here in the United States from USAID that investments in helping communities stay when they can, making investments in agriculture, for example, can reduce the desire to migrate. They have looked at Honduras, in particular, where they have interviewed folks who have the funds from USAID for agriculture and found that those folks' desire to migrate is much less than the rest of the country. Those adaptation and resilience investments can make a real difference in many places, and we need to focus more on that.

Q25 **Claudia Webbe:** Thank you for that. Can I just ask Dr Adams: this Committee has received mixed evidence in terms of the impact of population mobility on the UK, in particular, induced by climate change. What is your assessment?

Dr Adams: To follow up on the responses of these guys, it is useful to think about climate-related migration in three categories. You have climate-related migration that happens more slowly where it is part of a decision-making process. Then you have climate-related resettlement where, say, you have people living on the coast. There is managed realignment. You have to move people out of harm's way. Then you have climate-related displacement where there is a hurricane, and you are going to move to save your life and then come back. They are very different.

Obviously, when there is a cyclone you know that was the climate. Whereas when a farmer moves, it could have been the climate. It could have been agricultural policies. We don't know the different elements.



Then with resettlement, again, it is very much the climate, but there is a longer time scale. When we talk about climate-related mobility, it is good to break it down because they have different drivers.

Turning to the UK, I think the consensus is that most people are not coming near the UK from the regions that are affected. In that sense climate-related factors are going to generally come more to the forefront in this migration decision-making process, but most of those decisions are happening in west Africa, and those people are not going to come near the UK. They will go to countries that are next door, for example.

Where you have international migration to the UK that is starting to have more of a climate signal in that decision-making, the way I look at it is that you are getting calls from the private sector that we have serious skills gaps. You are getting calls from various industries that we have labour shortages, and the risk is that we have politicised migration too much, so that we are not able to leverage the benefits for the UK when we actually have skills and labour shortages.

I have just worked on a report with the International Organisation of Employers about the need for green borders. Even if you think about linking it to climate change and the net zero transition, we don't have the skills for the net zero transition. Where are those skills going to come from? They are going to come in part from migration. I think on that discussion you really need to have a just transition lens. If you think about Port Talbot, that did not need to happen. Something could have been put in place. We knew that was coming with the net zero transition. People cannot just be losing their jobs and then displaced internally or lose their jobs and then see them replaced by people coming in as migrants, so I think we have to have a lens on the just transition—this idea of leaving no one behind.

There is not much out there on intra UK migration. There is a lot more in the US, and it is about leveraging the opportunities of that. If people are going to leave places on the coast because living there is too risky or there is a problem of erosion, we need to think ahead—where could they go and which towns need those people?—and plan for that migration. As I think Erin said, we need safe and orderly routes so that people can migrate to different places.

Q26 Claudia Webbe: Is that saying that the UK does not have much to worry about when it comes to migration caused by displacement and climate change in other countries, and the UK does not even need to plan for it? Is that where we are at?

Dr Adams: I think we need to plan for it. To me, it is a missed opportunity rather than a threat. If we don't plan for it, if we are not thinking about receiving populations, if we are not thinking about increases in population, we will miss the stress—I think Kira mentioned it—that migrants may put on schools. Obviously, when new people come



in you need to think about where they are going. You need to think about social cohesion.

- Q27 **Claudia Webbe:** What you are saying is that if there is devastation elsewhere the first port of call for people displaced by that devastation is more neighbouring countries than it is the UK.

Dr Adams: One hundred per cent.

Chair: I am going to draw questioning to a close because we are coming up to 3 o'clock. We have to have time for the second session.

Dr Adams, Dr Vinke and Dr Sikorsky, thank you very much. I would have challenged you more on the hurricane numbers, because I think biodiversity loss is much more significant. The number of hurricanes has fallen. The number of serious storms has fallen, but biodiversity loss is becoming an acute problem, but that is for another day. To all of you, thank you very much for joining us. We will bring this session to a close.

Examination of witnesses

Witnesses: Professor Stephen Belcher, Professor Jim Hall, Margaret Read, Baroness Brown of Cambridge DBE and Richard Millar.

- Q28 **Chair:** Welcome to the second panel for our climate change and security investigation. We are joined by Baroness Brown of Cambridge, Richard Millar, both of the Adaptation Committee of the Climate Change Committee, Professor Stephen Belcher, chair of science and technology at the Met Office, Professor Jim Hall and Margaret Read from the National Infrastructure Commission.

Professor Belcher, can I start with you? I am going to ask each of you how your organisations feed into the UK Government's approach to understanding and addressing the security risk in the broader sense posed by climate change.

Professor Belcher: Thank you for the question. I am the chief scientist at the Met Office. You will be aware of the Met office's weather forecasts, I hope, and our app. We also have responsibility for looking at past climate internationally—particularly for the UK—and then future climate again globally but the particular relationship for the UK. We have a whole range of services related to that, which I hope we can come to.

Baroness Brown of Cambridge: Thank you for asking us to appear today. I chair the Adaptation Committee of the Climate Change Committee. The Climate Change Committee is a statutory adviser to the Government—in fact, all four Governments in the UK—on climate change and mitigation. Both the Committees were established under the Climate Change Act, and our statutory obligations are to advise the UK Government on the five-yearly climate change risk assessments. For the last two, and for the forthcoming one, they have asked us to oversee the



preparation of the independent evidence report on which that is based as well, and also every two years to review the UK's progress in delivering its national adaptation plan.

Professor Hall: Good afternoon and thanks for the invitation to join you. The National Infrastructure Commission is the Government's impartial and independent adviser on long-term infrastructure strategy. That spans six economic sectors: energy, transport, water, wastewater flood-risk management, digital communications and waste.

We look to the long term, conduct five-yearly national infrastructure assessments, with the most recent one published last October. The goals we work to are set by the Government to support economic growth across the regions and to prepare for net zero and—significantly for this conversation—to prepare for resilience in many senses.

Q29 **Chair:** Thank you very much. I will come to Richard Millar and Margaret Read in a moment.

Professor Hall, perhaps I can ask you this, because one of the things we did not touch on in the first panel was the practicality. The reality is for the UK, if nobody else does anything about climate change, we are badly affected and the implications for the UK are significant. Infrastructure is one of the key areas where that could be the case. What other organisations involved in infrastructure development and planning for the future do you think play a significant role in this work and how do you collaborate with those who run the infrastructure and those who plan the infrastructure? How do you work together?

Professor Hall: You are absolutely right. Infrastructure is very much central to this conversation because it provides essential services to us. It also supports supply chains and all sorts of other essential economic activities.

Infrastructure has a series of design standards, planning arrangements, all of which are regulated to a greater or lesser extent within this country, and climate change is only partially incorporated in those long-term planning processes as they exist at the moment. One in the spectrum—the water sector—has now adopted a standard of planning for a drought with an annual probability of 0.2% or a one-in-500-years drought. That is one instance of a long-term target for what the sector is now planning to do.

Across other infrastructure sectors we are not seeing the same degree of consistent planning and direction to achieve particular targets and standards. Within the Commission we argue that without that type of very focused and measured approach, in terms of what standards are to be expected, we are not going to see the level of consistent action that we need.

Q30 **Chris Grayling:** Professor Belcher, to what degree do organisations



involved in looking forward to planning in the public sector come to you for advice?

Professor Belcher: A huge range. As Jim has alluded to, climate change is affecting everything about our lives and, therefore, many Government Departments have roles and responsibilities around responding to those challenges. One of the roles of the Met Office is to, first, have records of past climate in the UK. The National Climate Information Centre is a resource that Departments and industry draw upon. We also provide climate projections for the UK, which are the authoritative source of advice on which, for example, climate change risk analysis is based. In that sense, the Met Office data underpins a whole raft of public and private sector thinking.

Q31 **Chris Grayling:** Mr Millar, Baroness Brown, what would you say are the greatest risks the Government should be prioritising?

Baroness Brown of Cambridge: I will kick that one off. In our last climate change risk assessment we highlighted food security, both in terms of the quality and the impact of climate on our agricultural production in the UK, but also the issues of supply chains. We can see the impacts in the work the Met Office does on climate change internationally, including impacts on the places where much of our food is grown—we import about half of our food and a lot of our fresh fruit and vegetables.

Food security is an important one. With that comes land, and of course land-use planning is a crucial part of that. There is also the National Infrastructure Commission—Jim will talk about this. We highlighted the challenge of the changing climate to our power system, particularly as we move towards net zero and we become more and more dependent on electricity as our main source of energy. It is a minority source of energy for us at the moment. By 2050 it becomes our majority source of energy, so it is absolutely crucial that our electricity infrastructure, for example, is built and designed to be strongly resilient against what the climate can throw at us.

There are also the health impacts of the changing climate, whether, as we heard in the last session, that is things like the increasing number of heat-related deaths or heat-related illnesses or whether it is the new pests and diseases that the change in climate will bring—they have been fumigating in Paris to get rid of mosquitoes carrying dengue fever, and it will not be long before we have them here with the way the climate is changing—how we build our towns and cities, how we prepare our communities to be resilient and, of course, how resilient our business and finance systems are to climate change.

Something that we also think is absolutely critical is the issue of interdependencies and ensuring that different parts of our society understand what and who they are dependent on and how resilient the



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people they are dependent on are, because that crucially determines how resilient they are.

Q32 Chris Grayling: Mr Millar, do you think the Government are taking the security issues into account in their climate change planning, adequately or at all?

Richard Millar: There are elements of it there. We provided an assessment of the most recent national adaptation programme, which is the plan the Government have to produce in response to the climate change risk assessment. We provided that earlier this year and we highlighted that it is a step forward in many of these aspects that Baroness Brown noted. However, we still think there are areas where it is falling short.

Some of the areas that we think are most critical are around the areas that Professor Hall highlighted, which is setting out a clear goal and objective for what we are really trying to achieve to be climate resilient, so that the Government can more effectively focus on the delivery side.

We would say that across the board we are seeing more inclusion of adaptation—these considerations around climate risks to aspects of security in planning of policies. The key bit where we think more needs to be done is the delivery of adaptation on the ground. That is having demonstrable effects in actually reducing the exposure and vulnerability of people and places around the UK to some of these climate security risks.

Baroness Brown of Cambridge: Could I just add very quickly to that? We are seeing more mention of it. For example, in the National Security Risk Assessment, we see a lot of mention of climate change. In the integrated review it is flagged up as a key topic. As Richard says, there are plenty of times that we see it mentioned. It is actually the implementation and action where we are still absolutely lacking.

Q33 Ian Levy: Thank you. Professor Belcher, could I direct my question to you? It would be great if we had a crystal ball, but obviously we don't. I would like to delve a little bit more into the work and the projections of the Met Office for the frequency of extreme weather events, such as flooding, droughts, heatwaves and wildfires, not just in the UK but in the overseas territories as well. That is a wide spectrum I have given you there.

Professor Belcher: It sounds like my whole career and all of my colleagues'.

To give some context, if we remind ourselves that 2023 was the warmest global mean temperature on record at 1.45 degrees and 0.3 degrees warmer than previous. We are really in the throes of climate change right now.



Thinking about extremes in the UK, you mentioned heatwaves, and it is virtually certain that heatwaves have increased in the UK as a result of climate change—and I use the term “virtually certain” in a statistically robust sense. Members will remember the 2022 July heatwave when temperatures reached 40 degrees for the first time, and that was extremely unlikely—again, I use that term in the proper sense—to have occurred without climate change.

If I could just divert briefly on that one. There were many impacts of that heatwave in July 2022, but one was that there was heat stress on a data centre near London. That data centre then prevented some health trusts from getting their health records. That is a really interesting example of a previously unthought-of cascading risk, as was talked about earlier.

As we see these events happening, we are getting a real-time story about what climate change is giving us. If we can then say how often those are going to happen in the future, that is a useful way of thinking about impacts in the future.

We have seen increased rainfall. Rainfall is much more variable in the UK, so it is much harder to see a signal. Despite that, there is evidence that winters in the UK are 12% wetter than they were in the 1960s to the 1990 period. We have robust evidence of that, and indeed that the extremely wet days have increased. On rainfall, the headline message from climate change is hotter, drier summers and warmer, wetter winters and that is consistent with what we have seen. However, the new evidence is showing us that, although it is hotter, drier summers, when it does rain in the summer, we will likely see very increased downpours of very heavy rainfall. It is a subtle picture on rainfall.

Can I just mention sea level rise because that is not a topic that is often talked about? In a health analogy, if a heatwave is a heart attack, maybe sea level rise is the high blood pressure that is the secret killer. It is that slow, pervasive change that we are seeing. It is 17 cm higher since records began in the early 20th century. There is a huge range of outcomes for the end of this century, but of course many impacts associated with flooding.

Finally, turning to overseas territories, we mentioned hurricanes in the Caribbean earlier. What we do see in hurricanes—and we can attribute to climate change—is an increase in the rainfall associated with those hurricanes. Although the numbers are very uncertain to be able to say what is happening there, the intensity is going up and clearly there is a responsibility to protect British interests overseas in those areas.

Q34 **Chair:** Can I ask Margaret Read something in relation to sea level rise? Are we thinking carefully enough, for example, in planning a next generation Thames Barrage and similar projects around the country about sea level rise?



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Margaret Read: I think the Thames Estuary 2100 strategy is actually really good as an example of adaptive planning, because what they have been doing is working out when they need to monitor and look at the state of the assets—not just the Thames barrier but all the other assets that make up that defence for that estuary. They have already worked out that they are going to need to bring forward some of those decisions.

In some areas it is working really well. In other areas there is a way to go. The Environment Agency is doing some work with long-term investment strategies, which is thinking about those things for other areas of the country.

Professor Hall: If I may just jump in briefly on the coastal infrastructure question, because I think with the big ticket stuff, the Thames barrier, also coastal nuclear plants and so on, there is very careful consideration of the effect of sea level rise and adaptive strategies are ready to move in an appropriate lead time?

I think the issue is much more to do with smaller pieces of infrastructure—pieces of, for example, rarely or not significantly used railway line along the coast, of which there are several in coastal towns that are protected by sea walls that would be very costly to replace in an upgrade. That is the type of chronic threat that I think we need to pay attention to on the coast.

Chris Grayling: Ian, are you done?

Ian Levy: I am done, yes.

Chris Grayling: Thank you. Caroline Lucas.

Q35 **Caroline Lucas:** If I could come to Baroness Brown and pick up the issue around UK readiness, I wonder whether you could say a little bit more about what your assessment is of how well prepared the UK is to deal with the security risk posed by climate change.

Baroness Brown of Cambridge: We are concerned that we are not very ready at all. The recent challenges with hot summers and flooding have shown that we are not very ready. For example, on the important issue of food security, we lack a targeted strategy and indeed targets for ensuring that agriculture remains productive. We have an opportunity to deal with that in the still developing environmental land management system that was brought in through the Environment Act, but that is not yet particularly specific about ensuring that our land remains properly productive, and about supporting farmers to ensure our soil remains properly healthy.

We do not require any sort of reporting by large private food companies on their supply-chain risks, other than the ones who will be reporting as listed companies under the Task Force on Climate-Related Financial Disclosures. That reporting on physical risks is normally very poor and does not really give us much help.



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The Government do have something called the adaptation reporting power by which they can mandate critical suppliers to report on their adaptation reporting, but that has only been used as a mandatory power once, and every five years we encourage the Government to use that as a mandatory power to find out.

Q36 Caroline Lucas: When you say it has only been used once, can you explain?

Baroness Brown of Cambridge: It has only been used the very first time after the Climate Change Act was passed as a mandatory power to require critical infrastructure providers to report on their preparedness for climate change.

Q37 Caroline Lucas: Do we know why it has not been used more often?

Baroness Brown of Cambridge: Understandably, the Government do not like to impose more bureaucracy on companies. On the other hand, it is a really crucial tool that the Government have for finding out about the preparedness of things like our supply chains and our infrastructure, and we are encouraging them to broadening it to local government and things like that as well.

I could go through a long list, but there are a lot of areas where we would highlight that we are not well enough prepared. We would also highlight that for adaptation in the UK we actually have no targets to say, "This is what a well-adapted UK would look like". It is actually very hard to know whether we are travelling fast enough and whether we are going in the right direction. What we really feel most strongly about is that we lack a vision with objectives and targets, so that everybody can tell where we are in terms of our path.

Q38 Caroline Lucas: That would be one of your main recommendations that we need those targets?

Baroness Brown of Cambridge: Yes.

Margaret Read: I was just going to add that we also don't know the costs of adaptation. That is one of the things that was very clear when we did our second national infrastructure assessment. We suggested that companies needed to cost adaptation, particularly for infrastructure, and then report it through mandatory reporting under the adaptation reporting power.

Q39 Caroline Lucas: I am going to come to Professor Hall. The National Infrastructure Commission makes a large number of recommendations in your second infrastructure assessment. Which would you highlight as being most important to take forward in the context of climate?

Professor Hall: In the context of climate and adaptation—we are going to repeat ourselves now, I am afraid—it is a question of establishing the long-term adaptation goal and targets. As Margaret has said, that needs to be based on costing. There has to be some trade-off between risk and



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cost, but unless we fully understand what the costs are going to be we cannot arrive at what the appropriate level of adaptation might be. That will enable us to set those targets and then monitor progress.

It is also worth highlighting that a lot of this infrastructure is managed through regulatory settlements and the periodic price reviews that are done for the regulated utilities. It is important that we get this embedded as soon as we can because in the period 2025 to 2030, £400 billion of infrastructure expenditure will be agreed within those regulatory settlements. It is important that adaptation is embedded within those investments because these sorts of things are much cheaper if you do them upfront when you are planning to do something, rather than having to go back and do costly retrofits.

- Q40 **Caroline Lucas:** I want to come back to Baroness Brown for a second and talk about governance and accountability. Who, either individually or corporately, is ultimately responsible for putting measures in place to ensure the UK's security from climate change risks? Do you think, for example, that we should rethink quite a lot of the governance within Whitehall? Could the Cabinet Office, for example, be tasked with having more of an overview of all of this? Is it too piecemeal?

Baroness Brown of Cambridge: We heard in the previous session that comment about it being piecemeal and we would very strongly agree with that. For example, the climate change risk assessment and the national adaptation plan sit with DEFRA but the national risk assessment sits with the Cabinet Office. Of course, dealing with much of this and community resilience sit with local government. A lot of this is dependent on planning, which sits with DLUHC. Just about every Government Department needs to act on climate change and, as you mentioned, you did not get responses from all of them. That is exactly what we find as well; it is slightly encouraging to hear that you struggled on the Climate Change Committee.

We would like to see much better co-ordination of this and I am afraid we think that it needs to be in a much more influential Department than DEFRA. They work very hard on this in DEFRA, but it is not a Department that has a huge influence over some of the other Departments. In my personal view, the Cabinet Office might be a good place to put an overview, but you might also look at DESNZ, the Department of Energy Security and Net Zero, because there are an awful lot of interactions between adaptation and mitigation and it might be appropriate to put the co-ordination in that Department.

The Institute for Government recently produced a report providing a very large number of options, but it does need much stronger co-ordination. My personal view is that one central place to co-ordinate across Government, ie the Cabinet Office, would be a good place to put it.

- Q41 **Caroline Lucas:** Professor Belcher, which Government Departments does your organisation work with most on these issues?



Professor Belcher: We have a particular responsibility in DEFRA around the climate change risk assessment, and they sponsor the production of the UK's climate projections, which we update periodically to give the best possible information. That information comes with an authority and a peer review—for example, Jim Hall was on the review panel for it—but at the moment there is no quality assurance of data that is used in climate change. It is not the Met Office's data that is uniformly used.

We do a lot of work, of course, with the Department for Energy Security and Net Zero around energy security and future climate, particularly with the reliance on the renewable sector, and with FCDO for overseas interests.

Finally, Baroness Brown mentioned the national risk assessments and so on. The Public Accounts Committee recently did a survey of the national risk and response to emergencies, and I think that evidence discussed the fact that longer-term risks were beginning to be ingested into those security risks.

Q42 **Caroline Lucas:** I have a note about catastrophic wildfire events—we do not have a place within the structure for responsibility for that. Is that right? In other jurisdictions, other countries and so forth, there is a designated department for wildfire. Thankfully, we have not had any major problems, but what can you tell us about that?

Richard Millar: It is not one of the things that people think about when they think about UK climate risk, but the evidence does show that the kinds of weather conditions that are conducive to wildfires will increase, particularly in the middle of summer going forward. In recent years we have seen significant increases in the number of areas burned by wildfire events, often on moorland and things like that.

Because of that history, we may not be as well tuned in to thinking about how we combat wildfire in the UK. It is quite a cross-cutting area too; there are health impacts to it and there are agricultural impacts. There are lots of different facets to it.

I know the Home Office is thinking about the emergency response side. It is starting to rise up the agenda in the UK, but I think it is fair to say that it is still nascent. We will need to do more work to have a fully planned-out response to the kinds of weather conditions that might be conducive to wildfire, which we will see in decades ahead.

Q43 **Claudia Webbe:** I want to firstly declare that I am quite emotional because of the fact that many of my constituents, following Storm Henk, have not yet recovered four months on. They are not yet back in their homes in an inner-city urban area—Leicester East. This was shocking at the time. Homes were four feet underwater. Nobody was prepared and there were no adaptations in place. Baroness Brown, what is your assessment of the UK Government's plans to adapt to climate change, specifically in the context of security risks?



Baroness Brown of Cambridge: Our most recent assessment of the third national adaptation programme, which we did this year, is that we feel it falls way short of what is needed. We would start by saying that it does not provide a clear vision with goals and outcomes. It is a collection of information that has come from various Government Departments, but it is not an integrated set of ambitious plans. It does not have strong governance. It does not have the right metrics for us to be looking at progress.

As we have highlighted, the programme does not identify how we will get the funding, which, as we have heard, needs to be aligned with Treasury spending reviews and with the cost reviews done by the regulators of the critical infrastructure providers. It needs to be aligned with their cost and spending periods. Crucially, it needs targets and monitoring, and it needs a focus on cross-government delivery. It is missing most of those things. Until we get those, it will be difficult to say that we are making proper progress.

- Q44 **Claudia Webbe:** Indeed, in the Climate Change Committee's assessment of the Government's third national adaptation programme, not only do you say that it "lacks the pace and ambition to address growing climate risks" and that "the UK has lost its place as a leader in climate adaptation", you also call for an urgent refresh of the programme and of adaption governance in the new Parliament. With specific reference to climate change and security, what updates to the third national adaptation programme and governance arrangements do you recommend? This is a report that only came out in March of this year.

Baroness Brown of Cambridge: That is right. We would like to see a review of the governance. As I say, my personal view is that I would like to see an overview coming from Cabinet Office, but there are a number of things Government could look at. The Institute for Government laid out a wide range of options.

We have seen a new committee of senior civil servants that is supposed to be meeting, which is a national resilience committee. That sounds like a good but modest step in the right direction. We think we need to see the Government starting to set goals for where we need to be by, for example, mid-century. We are now seeing that. Germany has legislation that is putting in binding targets for adaptation. The Canadian adaptation strategy has measurable targets in it. We are seeing funding commitments for adaptation in the USA. While we were ahead of the game with the Climate Change Act, on the adaptation side we are now seeing a lot of other Governments internationally moving ahead of us, starting to set targets and putting real funding in place to deliver them. That is where we need to get to in the UK.

- Q45 **Claudia Webbe:** What is your assessment of the UK funding for adaptation, both in UK territories and overseas?



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Baroness Brown of Cambridge: We do not cover the overseas territories. I am afraid I cannot comment on that as it is not something I know about. Clearly, we do provide funding for overseas countries through the FCDO. Richard, can you pick up from there? You have the notes to hand.

Richard Millar: Yes. As the first panel talked about, so much of this is connected global linkages between countries. Impacts that are happening elsewhere in the world have impacts here in the UK through global markets, trade flows and so on.

The committee has always been clear that doing the UK's part in tackling climate change means preparing domestically, reducing emissions and adapting here, but also doing our bit to help the world decarbonise and adapt, which will in turn help reduce those risks to the UK. We think it is important that the funding commitments that we have made in the UK are delivered and targeted well, to ensure that they deliver resilience on the ground elsewhere in the world.

That should continue to be an important part of the UK's strategy, particularly as we move out of the period where we have been the host of the COPs. Ensuring that we remain involved in the delivery of the initiatives we championed during our hosting of the COPs and seeing that we make real progress in helping improve global climate resilience will be in our interest as well as the world's.

Baroness Brown of Cambridge: Perhaps I could add that as a country we have done some impressive things. We now have a long-standing relationship with the Chinese Academy looking at helping the Chinese with their adaptation planning. That has been funded by the FCDO now for a number of years and has been co-ordinated by Chatham House. Maintaining those sorts of links is hugely important to the UK's influence and its ability to persuade countries that some would perceive as not moving very fast about the importance of moving fast on climate change as well.

Q46 **Claudia Webbe:** There is more I could say in terms of global south countries, but I will not indulge because I know that we are short of time. Let me move to my final question. Professor Belcher, would you say that there is sufficient information available, particularly at the local level, to help make tailored decisions about climate change adaptation?

Professor Belcher: The role of the Met Office is to supply the data and the expertise to help make decisions about impacts and adaptation. Certainly, as Baroness Brown alluded to earlier, one can think of adaptation at a national scale, but it usually gets down to a very local, place-based scale. One of the initiatives the Met Office has led is to provide a data portal to enable access to data of that sort. However, I would repeat my earlier point. At the moment, the Met Office does its best to provide an authoritative voice on this data but there are no kitemarks or standards for this.



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Maybe I could add to that. The World Meteorological Organisation suggests that every nation have a national framework for climate services. Climate services are what we are talking about, using information to provide advice and do the adaptation that you are speaking to. At the moment, the UK does not have a national framework for climate services. Such a thing would provide standards on data, provide convening power to get experts together and possibly even stimulate small businesses to get into this area, particularly on the place-based side of things.

- Q47 **Claudia Webbe:** Can I ask one final question? I started my questions by highlighting the devastating impact in my constituency of Leicester East. One of my constituents died two weeks after having been moved from their home, in their 70s, leaving their wife in her 70s still sofa-surfing. If we had had that resource and that information at a local level, I tend to wonder whether they could have planned or at least we could have helped the local authority to plan better, to help constituents to be better able to respond to such difficulties.

Professor Belcher: What you have illustrated is the way climate change really does touch on people, and sadly there are many stories of that type that we could relate.

Yes, given my role, I would say that everyone having access to the right information and understanding the quality of that data, and indeed the advice that sits behind it, is key to this question.

- Q48 **Clive Lewis:** To the panel—very briefly, if you could, each of you—what foundations do you believe are required to build a co-ordinated cross-government strategy with long-term outcomes for addressing climate security risks? I will start with Richard.

Richard Millar: As part of our recent report we set out what we saw as six key asks for a high-ambition strategy. Many of those have been touched on already.

Vision is the first key one, which we have talked about several times: understanding what we are trying to achieve with adaptation, to be able to set targets against that and to track progress properly against that.

Secondly, ambition: we know that we need more commitments in the UK. Just packaging together existing initiatives is not going to be enough. We want to see more new commitments to tackle the adaptation deficits that the evidence focuses on.

Thirdly, delivery: we have talked about the increase in consideration of adaptation in planning, but we now need to move from considering it in planning to delivering the changes in resilience on the ground.

Fourthly, we need to respond to all the different risks. There are many bits of climate change and many aspects of those risks, several of which



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we are getting into today. We need to make sure that we are casting the net wide in responding to them.

Fifthly, we need to go further than we have to date in being able to monitor and track what we are doing so that we can learn and adjust plans when we figure out what works on the ground. We are not doing enough of that at the moment. We do not quite have the structures in place to do it.

The final one is making this a continual programme, something that we continue to develop, work on and improve over time through the roll-out of adaptation in both the national programme and local delivery. We know that doing this once every five years is not going to be enough to respond to the urgency the evidence highlights for the climate challenge to the UK.

Baroness Brown of Cambridge: We absolutely support all of that. I would like to see, as the previous panel talked about, adaptation to climate change being a consideration that has to be thought of in every policy and every piece of legislation. We need to get everybody thinking about it and embed it right across everything we do.

We should emphasise, in response to what you said, the very important role of local government. Local government needs to be properly funded because weather is intrinsically local and other conditions are local. Whether it is farmland, whether there are lots of trees, whether it is a very built-up area—these are all local issues that interact with the climate to cause problems. As we heard in the last session, the impacts of climate change are about the severity of the weather but also about the vulnerability of communities or the infrastructure that is impacted. Of course, it is local authorities who know where the care homes are, where the poorer parts are, where the social housing is and where there are people who are likely to need more support. In terms of both the response when there is a problem and deciding how we prioritise investment, for many of the issues that we need to look at it will be local authorities who know best where to make those prioritisation decisions.

Professor Hall: I will not repeat what has been said. From the point of view of infrastructure, I would emphasise that adaptation needs to become embedded within the existing processes and working practices of utility companies: water, energy, telecommunications and so on. We have talked about, and Baroness Brown has talked about, the need for the overarching perspective. That needs to be powerful, but I think it can be quite light. The legwork is done within the delivery organisations, and that needs to be part of the day job. It has to be integrated within the asset management cycle. More emphasis is needed on maintenance, which we are not seeing, for example, in the flood risk management area. The NAO observed that the Environment Agency was underspending on maintenance, and maintenance is so important to adaptation.



The other thing I would emphasise is the importance of stress tests and exercises to think through all the plausible shocks that your systems might be exposed to. Bring people together around the table to war-game them out, scenario them out, then learn lessons and make sure that those lessons are taken up in practice.

Margaret Read: I will just add one thing. We have not yet had a conversation with the public about what they want from their infrastructure in the long term regarding standards of service. That needs the costs that we were talking about earlier as well.

Q49 **Clive Lewis:** That leads to my next set of questions. I think the term “delivery mechanisms” encapsulates this. Listening to you, food, water and land use are three of the key areas. I would like to look at water and land.

On land, we know that 60% of the land that is used for the two biggest carbon sinks, which are forests and deep peat, is owned by 1,200 people. Those people get to decide how those carbon sinks are used. Those 1,200 people have a disproportionate impact on policy, policy delivery and the mechanisms with which we can do that.

On water, we know that we have delivery mechanisms that are broken. Look at Thames Water. We know, for example, that Thames Water in England accrued debts of £64 billion, yet paid out £78 billion in dividends. How has it funded its capital expenditure? It has done that through, basically, the bills that we pay. It has not borrowed anything to invest; it has only borrowed to pay dividends. The mechanisms themselves are broken.

The question I want to ask you is this. In politics we are all very ideological—or we are told that we are ideological—but surely, with an existential threat coming our way, we should be using mechanisms that work, rather than tying ourselves to ideological concepts because that is what is in our political manifesto, or because it was done 30 or 40 years ago because someone said it was a good idea when clearly it is not.

I am interested in water and land. We need to look at the reforms that are required. No one has mentioned this. It is like talking about a football team and saying, “I want my team to win”, but not talking about the players and their form or whether you are going to be using 4-4-2. You are just saying, “I want to win”. What about the actual delivery mechanism? We need to get away from the ideology of this and start looking at what models of delivery actually work. Does anyone want to comment on that?

Baroness Brown of Cambridge: I wondered whether Jim wanted to say something about water and I will say something about land. I am not sure that we have the answers for you, but I would say that in this country we do urgently need a land use strategy. There is a lot of competition for things we want to do with our land. We want to grow more trees to take CO₂ out of the atmosphere, which is going to be a



hugely important thing to do. We also want to preserve our peat so that it does not release more CO₂ into the atmosphere. We want to grow more food so that we have greater food security. We want to build more houses for a growing population and to make sure that young people can afford new homes.

While it is nice to think that you can leave all this to markets to do because they all understand what is needed, I think we need a much more strategic approach to deciding what we are going to do where. It is only then that you are able to put the policy mechanisms in place that can encourage or ensure that this mixed group of owners delivers what we need for the UK. That is probably more idealistic than you are.

Q50 Clive Lewis: I agree with you. What you have said makes complete sense. However, a million acres in this country are owned by 24 dukes, and 30% of the land in this country is owned by the aristocracy and landed gentry. I am not being a class warrior here, I am just being a hard-headed pragmatist and thinking to myself that if 60% of those forests and deep peat bogs are on private land where those people get to choose how it is used, then we are leaving ourselves a very small piece of the pie to take up all of the activity that is required to get us into the zone where we have adapted ourselves and given ourselves the ability to be able to weather what is an existential risk, in terms of food security, water security, land use and carbon sinks. We are tying not just one arm behind our back, but one arm and one of our legs and probably the other leg as well. It does not work out so well if you tie both legs behind your back. I am trying not to be ideological here but I know I will sound like a class warrior.

Chair: You would not have total agreement across the Committee either.

Clive Lewis: It feels to me that we are not talking about the delivery mechanisms, and some of them simply are not working. The systems that we have in place in this country for the existential risk that is coming down the path at us simply are not fit for purpose. I just wonder whether there is any understanding from the experts on this panel and whether you feel that is something that you can speak up on to say, "Yes, we do need reform in this country when it comes to some of these issues".

Professor Hall: If I might comment on water, we know how to plan water resources for a changing climate. We know how we should, for example, design urban drainage systems. The water companies are responsible for the underground pipes. The National Infrastructure Commission produced a report on surface water flooding. How you plan for a changing climate and how you design and implement systems that can cope better with a changing climate are all well known, and that can be done by whatever form of entity owns or is responsible for that infrastructure? In that sense, the Commission is agnostic.

The one thing I would say, however, is that within the Commission we look at both public investment infrastructure and privately owned and



privately financed infrastructure, and what happens with companies like Thames Water will have potential impacts in terms of finance of other forms of privately financed infrastructure across the country. Perhaps it is a truism to say that this is a matter of considerable concern.

Q51 **Clive Lewis:** I think we are coming on to water tomorrow and we will delve further into this. I have no further questions, Chair, thank you.

Professor Belcher: May I make a very brief addition to your point? What you have highlighted is the close relationship between the drive to net zero and adaptation to climate change. Land use, as Baroness Brown described, is a very good illustration of that, and keeping adaptation right in the forefront of our minds is clearly very important for that reason.

Q52 **Chair:** Very quickly, I am just going to round off because you did not pick up a question at the end. What is your assessment, particularly the NIC's assessment, of the way in which climate change is going to affect the UK's economic security?

Professor Hall: I am hesitating here because the evidence, on the macro scale, of what climate change is going to do to GDP in this country is quite incomplete. Perhaps you would not be surprised by me saying that we have a big and diversified economy. We have been subject to some very major losses—the Environment Agency estimates that flooding is possibly £1 billion a year on average—but within the overall scale of GDP that has not come up in the figures.

However, if we look ahead at the possibility of shocks that, as we have discussed, cascade through infrastructure and through supply chains, then there is the possibility of much more significant impacts. There needs to be more evidence and analysis of the scale of those impacts. In the previous session there was more talk about vulnerable countries around the world, and in those places we are seeing more significant macroeconomic impacts from climate change. In a sense we have been fortunate in this country up until now, notwithstanding all of the extremely harmful impacts that we have heard about from this Committee.

Q53 **Chair:** Baroness Brown, any final thoughts from you on this?

Baroness Brown of Cambridge: I was going to say, "Could I add a few thoughts on that?" We have, on a number of occasions, attempted to look at this on the Adaptation Committee but the data, evidence and analysis are not yet there for this.

The work we did for CCRA3 suggests that the number of individual risks that are going to have very high annual damages—things in the order of billions per annum—were likely to something like triple if we reached 2 degrees of warming. We are well on the way to that, sadly, at the moment.



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It is also important to recognise that not all of the impacts are obviously visible. I was talking to an expert on food security the other day and she said that for some of our fresh foods something like 40% of the recent food inflation has been climate-related, not necessarily in this country but overseas. The climate is impacting all sorts of things. Of course, food inflation has been an enormous driver of our current economic situation.

Some of these things, as Jim was saying, are extremely hard to analyse at the moment, even to understand where we need to be gathering all the data from, but it is undoubtedly becoming more and more clear that it is having significant economic impacts.

Chair: Thank you. We need to draw things to a close now, but thank you very much to all five of you for your very helpful contributions and for your time. It is much appreciated. Thank you to the Committee. I declare the meeting closed.