



e-law

Better law for the environment

September/October 2016 | Issue 96



Welcome to the September/October edition of e-law.

I am delighted to be supporting UKELA as Acting Editor of e-law, whilst Hayley Tam is on maternity leave. UKELA's work is more important than ever, particularly in the wake of the Brexit vote, and I am pleased to be able to use my environmental law experience to help make a difference.

The theme for this issue is devolution. It follows our last edition on international law and it seems appropriate at this time that we should now be looking at issues a little closer to home, particularly in light of Brexit.

UKELA's Brexit Task Force had its first meeting on 13th September at King's College London. Here, they began the task of highlighting the opportunities and identifying the main areas of exposure for environmental law created by Brexit. Their findings will be provided to the UKELA Trustees and shared with members on the Brexit part of the [UKELA website](#).

As the Brexit conversation continues and the complexity of disentangling from the EU becomes ever clearer, it is vital that we provide a forum to hear as many expert opinions and perspectives from all parts of the United Kingdom. And in this context, as well as more generally, it is important to consider the issues raised by devolution as they emphasise the emerging agendas in the devolved administrations, where we may see Brexit accelerate divergence within regions.

In his piece, an excerpt from his address at the [Northern Citizens Convention](#) on the 20th of June 2015, Bishop James Jones considers the voices of England's regions and sets out how a number of important factors such as identity, infrastructure and investment inform the devolution debate.

Dr Sarah Hendry's article, [Devolution and environmental law in Scotland: a reflection](#), looks at how devolution has enabled Scotland to take different approaches on certain matters, such as water law. Institutional differences and some policy divergence are also evident in other areas, but there is also ongoing cooperation at a technical level.

In his piece, [Warming up: Northern Ireland's developing response to climate change in the context of UK devolution](#), Dr Thomas Muinzer outlines his views on what more Northern Ireland could be doing with its devolved powers to legislate, to implement the Climate Change Act 2008.

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Looking at Wales, we have two contributions:

- [Welsh devolution and the protection of the environment: the story so far and the future challenges](#) – Dr Victoria Jenkins looks at how environmental protection has developed in Wales since devolution, setting out what the Welsh Assembly’s environmental priorities are and also explaining how the Assembly has established a new Committee on External Affairs and Additional Legislation to consider the implications of Brexit for Wales.
- [Overview of the environmental provisions of the emerging Wales Bill](#) – Annabel Graham Paul focuses on the Wales Bill, looking in particular at those areas that will affect environmental matters.

Find out more about Dr Victoria Jenkins in our [60 second interview](#).

In matters in practice, we have the second part of Dr Bahram Ghiasee’s article, [The radioactivity of the hydraulic fracturing \(fracking\) of shale gas](#), and John Goss-Custard’s article on [Mud, birds and poppycock](#). In this piece, John Goss-Custard sets out that any decisions concerning impacts on shorebirds should be based on sound hypothesis-testing science, so that delays to coastal development and restrictions on people’s activities aren’t unjustified.

And finally, wishing Hayley Tam all the best on her maternity leave and congratulations on her very recent arrival!

Best wishes,

Simone Davidson

Simone Davidson
Acting editor
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Words from the Chair

UKELA – International and Interconnected



I write this at the beginning of September in anticipation of one of the most important meetings in UKELA's near thirty-year history.

The inaugural meeting of UKELA's Brexit Task Force has been organised for 13th September at King's College London. It will be

attended by 25 members, largely drawn from our working parties and regional groups. The Task Force will act as a standing committee with a remit to advise UKELA's Trustees on how best to respond to the significant challenges and possible opportunities posed by Brexit.

Brexit does of course mean Brexit, but this does not take us very far. There is no consensus as to what Brexit will mean for the environment. We do know that it will mean a lot of work and hard thinking for lawyers, especially for colleagues working within Government and tasked with implementing Brexit. Indeed, it appears that the Government undertook very little, if any, contingency planning for a pro-Brexit outcome. This means that the scale of the Brexit implementation task for civil servants and advisors is almost daunting. It is little wonder that Article 50 has not yet been triggered.

Sir Paul Jenkins, the former head of the Government's Legal Service, has described the implementation of Brexit as "the biggest legislative and administrative challenge in our nation's peacetime history". During the Radio 4 transmission of 'Leavocrats' on 31st August, he further suggested that the next two to five years are going to be completely dominated by Brexit. Our founding Chair and Patron, Professor Richard Macrory, recently told me that Brexit is going to keep lawyers heavily engaged for a long time. Given that one sixth of our statute book is derived from EU law, excluding some 13,000 regulations, this evaluation would seem to be well founded.

The complexities arising from the interplay of our international treaty obligations, EU laws and the laws applying across our developed administrations are enormous. And yet it is this very complexity that presents UKELA with an opportunity and, I would contend, a special obligation to engage with policymakers and to make a positive contribution to any resulting resettlement of our environment laws. At this time of national need, it is only right that UKELA extends a helping hand to policymakers and ensures that they both understand and draw upon the considerable expert and independent resources that we can muster.

UKELA's [public position statement](#) on Brexit is to help to bring about improvements to the UK's environmental laws and, as a minimum, to ensure that the **level of environmental protection** will not be diminished if EU-derived laws are modified. Whilst we are not saying that every EU-derived law must remain unchanged, we will be primarily focused on achieving desirable environmental outcomes. To keep members informed of our ongoing work on Brexit we have set up a special section on our [website](#). I would encourage members to dip into this from time to time so as to keep informed about our work. Please do let me know if there is anything you think that we could / should / should not be doing.

Moreover, I am most grateful to one of our new Patrons, Bishop James Jones, for pointing out to me that as UKELA engages with policymakers, responds to Brexit related consultations and so forth, we should use the opportunity to promote environmental justice. Bishop Jones highlights the [Prime Minister's speech](#) on the steps of Downing Street in which she said, "When we pass new laws we'll listen not to the mighty but to you". Her speech was about some of the injustices of modern Britain, where if you're born poor you'll die on average nine years earlier than others.

To that end, UKELA's public position statement on Brexit asks policymakers to protect the "ability of our citizens to participate in environmental decisions and take action in the courts where necessary". UKELA can play a part in helping to expound on this vision in terms of environmental justice by developing and improving the jurisprudence that underpins the regulations protecting the environment and our quality of life – such as ameliorating air quality in our busy and growing cities, and ensuring that nature conservation is prioritised. I would be interested to hear members' views about this.

Last but not least, I am pleased to extend my warmest thanks to the 14 members of UKELA who have approached me following my address at Conference and who wish to become UKELA's International Ambassadors. Their role will be to promote UKELA's work internationally and to develop and support like-minded environmental law associations around the world. We will be convening our first meeting shortly. I cannot thank them enough.

Regards,

A handwritten signature in blue ink that reads "Stephen Sykes". The signature is written in a cursive, slightly slanted style.

Stephen Sykes
UKELA Chair

News

International membership update

A reminder! We now offer a special rate for overseas members of £30 per member (with the exception of students, graduates and unwaged members where the rate will remain £15) available from 2017. For new members only, this special rate is available now, so do please spread the word among your international contacts. For further details, see our [website](#).

Membership subscriptions

Our Trustees have agreed that an increase of 4% in annual subscriptions will be implemented across the board from January 2017, with the exception of those on the lowest membership tier currently paying £15.

This increase is the first for 2 years and has been agreed to help with the increasing costs across the organisation. UKELA's subscription rates continue to offer excellent value for money, comparing well with other membership organisations in the sector. Membership benefits continue to be valuable, with reduced entry to our wide range of events including the leading annual conference in the environmental law field; members also benefit from our newly introduced members' only area on the revamped website, which gives exclusive access to speaker presentations and up-to-date editions of e-law.

The increase will be reflected in your January renewal. Details are in the table below:

Membership Tier	2015/2016 rate	2017 rate
Individual	£68	£71
PB individual/retired	£53	£56
Student/unwaged/graduate	£15	No change
Corporate private co	£404	£420
Corporate statutory body	£152	£158
Corporate NGO	£89	£92
Corporate local authority	£68	£71

Direct debits

Have you considered paying your membership subscription by direct debit? It is really straightforward to set up and takes all the hassle out of renewal. It also helps UKELA to save admin costs and time, meaning we can put more effort into other areas to benefit members. If you would like to sign up for a direct debit, please contact [Alison Boyd](#) for a form.

Working party news



Rosie Oliver, UKELA's Working Party Adviser

Brexit continues to be a major focus for UKELA's specialist working parties. A number of Parliamentary inquiries have been launched seeking to understand the consequences and possible

options following the referendum decision. UKELA's climate change and energy working party has prepared written submission for two House of Commons Energy and Climate Change Committee inquiries: one on the implications for climate change policy; the other on the implications for energy policy. Our nature conservation working party helped with written submissions to the House of Commons Environmental Audit Committee's inquiry on the future of the natural environment (with a focus on agri-environment schemes). Details of this and other work on Brexit are available [online](#).

Over the coming months, UKELA's working parties will be mapping out key EU environmental legislation, targets and objectives; how this is reflected in domestic law; and relevant public international law. The work is intended to inform future development of a post-Brexit framework of environmental law; and to guide decisions on how to ensure regulatory stability, continued compliance with international law and protection of the environment in the meantime.

In other news, the Scottish law working party is currently working on a response to the Scottish Government's consultation on transposition of European Directive 2014/52/EU amending the Environmental Impact Assessment Directive.

Working party organised events coming up include the seminar on Housing Growth and the Environment on **6th October** and the Waste Working Party meeting on **12th October**.

Student news

Student Adviser Role offers career development

UKELA is offering a student with the right skills and outlook an opportunity to join our student team as a Student Adviser. UKELA typically has two Student Advisers at any one time who work with the support and supervision of our Trustees and staff.

The role of student adviser involves:

- Advising UKELA's Council on how to make our services relevant and accessible to student members throughout their education and professional development
- Working with student contributors on articles for our members' journal, e-law
- Managing student mailings, maintaining mailing lists and social media posts to keep members up to date
- Maintaining the student section on the website
- Providing practical input on specific initiatives, such as our moot competitions and student bursary scheme

Ideally, the student adviser will attend quarterly Council meetings and be available to discuss ideas with UKELA staff and Trustees responsible for the student programme. The adviser is also expected to attend the annual student careers advice and networking evening (held in November) and the competitions day (typically held in spring or early summer). Student Advisers are volunteers and usually benefit from a free place at UKELA's annual conference. All reasonable travel and subsistence costs are refunded.

If you would like to be considered for this two-year role, please send a CV and succinct covering letter to [Elly-Mae Gadsby](#). The deadline for applications is **midday on Friday 14 October 2016**. UKELA's existing Student Advisers, [Mark Davies](#) and [Emma Lui](#), would be pleased to have an informal discussion in advance of your application.

Telephone interviews will be held on **1 and 2 November 2016** with the Executive Director or Events and Membership Manager. The decision will be made in time to allow the successful candidate to attend the Student Careers Evening in London on Wednesday 23 November 2016.

We look forward to hearing from you!

UKELA events

Noise Working Party – 4 October, London

The Noise Working Party would welcome anyone who could give a short presentation on the impact of Brexit on both noise law and policy in the UK. If you would like to get involved and would like more details, contact the convenor [Francis McManus](#).

Housing Growth and the Environment – 6 October, London

Join us for a joint event with PEBA where expert speakers will consider housing growth issues including balancing the need for housing with environmental constraints; long term planning and what this means for practitioners promoting housing projects. For more information, visit our [website](#).

Waste Working Party meeting – 12 October, London

The Waste Working Party will be meeting from 4pm to 6pm at RPC, Tower Bridge House, St Katharine's Way, London E1W 1AA. We will be focusing on the impact of Brexit. Meeting details to follow. To book, please contact the [convenors](#).

Wales Working Party seminar: Future Generations – 10 November, Cardiff

Join us to hear from the Future Generations Commissioner, Sophie Howe, on her role in Planning for National Infrastructure, at Blake Morgan's offices in Cardiff. For more information, visit our [website](#).

Young UKELA, The Basics Seminar: Habitats Law – 10 November, London

Join us for the latest in 'The Basics' series of seminars aimed at our Young UKELA membership. The seminars aim to explain the fundamentals of environmental law to those in the early years of practice, in a format that encourages the presentations to give way to inclusive debate and networking. This seminar on habitat law will look at the law on appropriate assessment and EU protected areas. For more information, visit our [website](#).

Annual Garner lecture with speaker Pamela Castle OBE – 16 November, London

The theme of Pam's lecture is 'Environmental Science, Law and Policy – challenges and opportunities'. Bishop James Jones, UKELA Patron, is our Chair. Join in via videolink at venues across the UK. For more information, visit our [website](#).

Annual Careers evening – 23 November, London

Calling all students! Join us for our annual careers evening and meet professionals across the sector; from private practice solicitors, barristers, consultants, to government and government agencies, NGOs and more. We have representatives from FTB, Defra, ClientEarth, HG Law, WWF, Freshfields, Waterman and others to be confirmed. This event is free to attend but all places must be booked. For more information, please visit our [website](#).

Non-UKELA events

Landmark Chambers meeting on Air Quality – 14 November, London

This November, there will be a meeting on Air Quality for professionals in the environmental sector from 5pm to 8pm at Landmark Chambers in London. The programme includes an overview of the Air Quality Directive and related litigation, as well as a questions and discussion session, followed by drinks. UKELA members benefit from a 10% discount of the registration fee to reduce the cost to £45 + VAT. Attendance should be booked directly on the [website](#).

The e-law 60 second interview

Victoria Jenkins, UKELA Wales Working Party Convenor



About Victoria

I am not Welsh, but I have lived and worked in Wales all my adult life and I probably speak more Welsh than most people who were born here. On completing my degree and PhD at Cardiff University, I came to work in Swansea in 1999. I have spent most of my career working part-time which is unusual for an academic interested in research, but I have enjoyed the work-life balance that this has brought. I moved to a full-time contract in September 2016 and I am now enjoying the opportunity to progress my career. Living in the Swansea valley I am only minutes from the Brecon Beacons National Park and the University has stunning views across Swansea Bay. Swansea is often described as the 'graveyard of man's ambition'; I like to think this is because once you come here you never want to leave.

What is your current role?

Senior Lecturer, College of Law and Criminology, Swansea University

How did you get into environmental law?

I studied environmental law in the final year of my degree at Cardiff University with Lynda Warren. Lynda was a truly inspirational teacher and encouraged me to complete a PhD in the subject.

What are the main challenges in your work?

The main challenge for academics is balancing commitments to research, teaching and administration, as well as engaging with the wider world. Very often it is hard to find the time for reflection which should be the essence of academic endeavour.

What environmental issue keeps you awake at night?

As a middle-aged woman with three children and a full-time job, I must confess there is little that keeps me awake at night. Nevertheless, at the moment, because I am working on a paper on landscape law it would have to be the protection of our national treasures – our National Parks and Areas of Outstanding Natural Beauty.

What's the biggest single thing that would make a difference to environmental protection and well-being?

In the developed world, it has to be simply consuming less. We need to stop and think more carefully before buying new 'things'. It's a very simple idea, but one that few people adhere to – not least my teenage sons.

What's your UKELA working party of choice and why?

I am co-convenor of the Wales Working Party (WWP) which has been working hard in recent years to help develop the ambitious programme for the development of law on planning and environmental protection here. Working in Wales, the WWP is the obvious party for me to join, but has been made all the more interesting by the work of Welsh Government in the last few years.

What's the biggest benefit to you of UKELA membership?

My work with UKELA WWP is important in facilitating my engagement with practitioners and other groups and individuals interested in environmental law outside academia. This experience has enriched my knowledge and understanding of the issues that are significant in the development of Welsh environmental law.

Environmental law headlines

August – September 2016

A selection of recent environmental law news and updates prepared by the teams at [LexisPSL Environment](#) and [Practical Law Environment](#).

Court of Appeal decision on scope of environmental damage under Environmental Liability Directive

Practical Law Environment

On 29 July 2016, in *Seiont, Gwyrfai And Llyfni Anglers' Society v Natural Resources Wales* [2016] EWCA Civ 797, the Court of Appeal considered the meaning of "environmental damage" under the Environmental Liability Directive 2004 (*Directive 2004/35/EC*).

It dismissed an appeal by an anglers' association against a High Court decision that environmental damage is limited to deterioration of the environmental situation from its baseline condition. The court confirmed that environmental damage does not include preventing or decelerating an already-damaged environmental state from achieving an acceptable environmental condition.

The court clarified key concepts of the Environmental Liability Directive 2004, including damage, adverse change and baseline condition.

For more information, see [Legal update, Scope of environmental damage under Environmental Liability Directive \(Court of Appeal\)](#).

Microbeads in cosmetics to be banned

LexisPSL Environment

Plans to ban the sale and manufacture of cosmetics and personal care products containing tiny pieces of plastic known as 'microbeads', which harm the marine environment, have been announced by the Department for Environment, Food and Rural Affairs (Defra). The beads build up in the oceans and can be swallowed by sea life, including fish and crustaceans.

Microbeads are used in a range of products such as face scrubs, toothpastes and shower gels. However, they cause irreversible damage to the environment as they are indigestible and poison marine life.

Twenty-five UK cosmetics and toiletries companies, such as Unilever, have begun to voluntarily phase out microbeads from their products. Waitrose has announced it will stop stocking such products by the end of September 2016.

Manufacturers are exploring natural alternatives, including nut shells, salt and sugar, which have the same exfoliating properties but do not pose a threat to the environment.

Defra has announced that it will consult industry, environmental groups and other relevant parties to establish how and when a ban could be introduced, aiming to change legislation in 2017.

Evidence will also be gathered on the extent of the environmental impacts of microbeads found elsewhere, such as in household and industrial cleaning products, before considering what more can be done in future to tackle other plastics, eg microfibres, which enter the marine environment.

For more information, see LexisNexis: [LNB News 05/09/2016 61](#), and Lexis PSL News Analysis: [Environmental Audit Committee report calls for ban on microbeads](#).

Consultation on changes to exemption for energy-intensive industries from indirect costs of Contracts for Difference (CFD)

Practical Law Environment

On 22 July 2016, the Department for Business, Energy and Industrial Strategy (BEIS) published a consultation on a number of changes to the regime for exemption for energy-intensive industries from the indirect cost of Contracts for Difference (CFD). The changes include:

- A proposed mechanism for recovering over-exemptions from the indirect costs of the CFD, Renewable Obligation and feed-in tariffs.
- A definition of a "new business", to allow new businesses to benefit from the CFD exemption.
- A requirement for businesses to notify BEIS when there are changes that would affect their eligibility for the exemption.

For more information, see [Legal update, Government consults on exemption for energy-intensive industries from indirect costs of Contracts for Difference \(CFD\) and recovery of over-exemptions](#).

Paris Agreement ratified by the US and China

LexisPSL Environment

The top two emitters of greenhouse gases, the US and China, have ratified the Paris Agreement (the Agreement) on climate change. This is a momentous step forward to bringing the Agreement into force.

The Agreement will come into effect on the thirtieth day after the date on which at least 55 UNFCCC parties, collectively accounting for at least 55% of global emissions, have deposited their instruments of ratification, acceptance, approval or accession with the UN. Ratification by the US and China has brought total emissions to 39%, meaning that ratification by a few other major polluters would be enough to give legal force to the Agreement.

The US intends to reduce emissions by 26–28% below 2005 levels by 2025, and will aim for the highest reduction level. This is significant given it has consistently refused to sign up as a party to the Kyoto Protocol or recognise international obligations to reduce its greenhouse gas emissions.

China has pledged to stop the upwards path of its emissions by 2030, but is expected to far exceed that goal.

Parallel announcements were also made by the US and China relating to reducing use of hydrofluorocarbons (HFCs) and action on aviation emissions.

For more information, see LexisPSL News Analysis: [Paris Climate Change Agreement ratified by US and China](#).

European Commission publishes low carbon measures

Practical Law Environment

On 20 July 2016, the European Commission published a package of measures to accelerate the transition of the EU to a low carbon economy. The measures include a:

- Draft EU Regulation setting annual GHG emission reduction targets from 2021-30 for sectors that are not regulated under the EU Emissions Trading Scheme (EU ETS). This draft Effort Sharing Regulation applies to the transport, buildings, agriculture, waste, land-use and forestry sectors.
- Draft EU Regulation including GHG emissions and removals from land use, land use change and forestry (LULUCF) in the EU 2030 Climate and Energy Framework. It requires each member state to comply with the “no-debit rule”. The no-debit rule means that member states must ensure that accounted carbon dioxide emissions from LULUCF are compensated for by an equivalent removal of

carbon dioxide from the atmosphere by other LULUCF activities.

- Strategy on low-emission mobility, setting the course for the development of EU measures on low and zero emission vehicles and alternative low-emissions fuels.

The new measures are part of the EU 2030 Climate and Energy Framework for the period from 2021 to 2030, which includes a binding target to reduce greenhouse gas (GHG) emissions by 40% below 1990 levels by 2030.

For more information, see [Legal update, European Commission publishes draft EU Regulations on 2021-30 GHG emission targets for non-EU ETS sectors and on land use, land use change and forestry \(LULUCF\), and other low carbon measures](#).

Fracking – new £1 billion Shale Wealth Fund to ensure communities benefit from shale projects

LexisPSL Environment

HM Treasury is consulting on the Shale Wealth Fund. The fund is designed to deliver up to £1 billion to shale projects so resources can be developed in ‘a safe, sustainable and timely way’. Moreover, the fund is intended to ensure communities affected by projects can benefit over a 25 year period. The government sets out that this will ensure the benefits of shale developments are shared by communities and regions in which the resource is developed, although the fund will not be available for some time.

For more information, see: [LNB News 08/08/2016 106](#) and LexisPSL News Analysis: [‘Shale Wealth Fund’—will payments generate queues to host fracking?](#)

Government approves Hinkley Point following revised agreement with EDF

LexisPSL Environment

After revising its agreement with French power firm EDF, the government has decided to proceed with the Hinkley Point nuclear power station project. The new agreement prevents EDF from being able to sell its stake in the project without the government’s approval. It has also developed a new legal framework for future foreign investment in British critical infrastructure that will see the government take a ‘special share’ in all future nuclear projects after Hinkley.

The approval of Britain’s first new nuclear power plant in a generation came six weeks after Prime Minister Theresa May was originally supposed to approve the project in July 2016, saying she needed to ‘review all the evidence’.

France’s EDF will pay for two-thirds of the project, with China paying one-third as well as using its designs for additional power stations.

Under the new agreement with EDF:

- The government will be able to prevent the sale of EDF's controlling stake prior to the completion of construction.
- This agreement will be confirmed in an exchange of letters between the government and EDF.
- The government will be able to intervene in the sale of EDF's stake once Hinkley is operational.

Meanwhile, the new legal framework for future foreign investment in British critical infrastructure will mean that after Hinkley:

- The government will take a special share in all future British nuclear new build projects.
- Developers or operators of nuclear sites will be required to give notice of any change of ownership.
- The public interest regime in the Enterprise Act 2002 will be reviewed.
- A national security requirement for approval of the ownership of critical infrastructure will be introduced.

The government expects these changes to bring Britain's policy framework for the ownership and control of critical infrastructure into line with other major economies.

For more information, see [LNB News 15/09/2016 95](#) and LexisPSL News Analyses: [Hinkley Point C nuclear plant deal agreed by UK – the reaction so far](#) and [UK government plans new controls on foreign investment in critical infrastructure](#)

Neighbourhood Planning Bill

LexisPSL Environment

The Neighbourhood Planning Bill was presented to Parliament on Wednesday 7 September 2016. The planning and compulsory purchase provisions aim to help identify and free up more land to build homes on to give communities as much certainty as possible about where and when development will take place and to speed up the delivery of new homes.

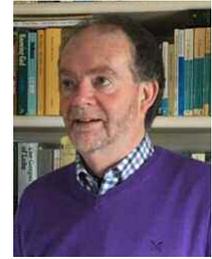
Key provisions include:

- Neighbourhood planning - the Bill intends to strengthen neighbourhood planning by: giving neighbourhood development plans full legal effect at an earlier stage; introducing a 'proportionate process' for modifying neighbourhood development orders and plans; making the duty on local planning authorities (LPAs) to support neighbourhood planning groups more transparent; and improving community involvement in the early stages of plan-making.
- Planning conditions – the Bill will provide that pre-commencement planning conditions are only used by LPAs where they have the written agreement of the developer. The Secretary of State will be able to make regulations which prescribe the circumstances where certain conditions may or may not be imposed and descriptions of such conditions for the purpose of ensuring that conditions meet national policy tests.
- Planning Register - the Bill will allow the Secretary of State to require LPAs to record prior approvals for permitted development rights on the planning register.
- Compulsory Purchase – the Bill will clarify the statutory framework for compensation, introduce a general power to obtain temporary possession of land and require compulsory purchase orders to be brought into operation within a set period of time.

Devolution

The Northern Citizens Convention

Right Reverend James Jones, Patron of UKELA



This article is an edited version of a speech given at the Northern Citizens Convention on the 20th of June 2015 in Huddersfield. Organised by Unlock Democracy (Merseyside & West Cheshire), Unlock Democracy (Greater Manchester), Sheffield for Democracy and the Hannah Mitchell Foundation.

The Convention aimed to promote a conversation about how the people of Northern England wish to be governed in 21st century Britain.

At a glance

- As more power is devolved to Scotland, Wales and Northern Ireland the question will become more persistent, especially in England's regions, as to how you justly balance the interests of all the regions and nations of the United Kingdom.
- Is there a place for a London-style Assembly that allows the people of the regions to speak back to the centre of government with democratic authority in the way that Scotland, Northern Ireland and Wales do?
- The Government's commitment to devolving powers has the opportunity to be more strategic about devolution and to secure a new settlement in which the English also sense that they are represented fairly and equally.
- The seven 'I's of Identity, Image, Investment, Innovation, Infrastructure, Internet and Inclusivity are key to the devolution debate.

For the last 20 years as an émigré from the South of England I have lived and worked in Hull, Liverpool and Yorkshire – 4 years as the bishop of Hull and 15 years as the bishop of Liverpool. I chaired the North West Constitutional Convention from 1999 to 2003. In both Hull and Liverpool I was involved in the regeneration of the cities working symbiotically with business, with local communities and with Government local, regional and national. I've seen the difference between showering communities with resources and irrigating them with money. I know that the best form of welfare is a real job in a vibrant real economy. I've seen the dangers of urban diabetes where the blood and wealth pump around the heart of prestigious projects but fail to reach the outer estates and rural hinterlands. I've listened to the language of regeneration where those in neighbourhoods talk in organic terms about seeds and planting and those who have the power and hold the purse-strings use the mechanical images of buttons, levers, triggers, targets and outputs. I've been involved in building City Academies where education is part of the solution to low self-esteem and low aspiration.

These issues are not exclusive to the North of England. They resonate with every region and nation within the United Kingdom. They suggest the complexity of

renewal. I hope it's not too trivial to say that the image that comes constantly to my mind is the game of pick-a-stick. The moment you touch one stick you dislodge another. But you have to start somewhere and that is why I welcome the Chancellor's initiative. And it's an initiative in the proper sense. A first step. You have to create the wealth before you can share it. You have to put in place the structures that enable people to access the levers of money and power, or to use organic terms you need to plough the furrow before adding nutrients to the soil.

But these first steps will eventually lead to questions about how people, ordinary citizens, can have access to that power, to influence it, to hold it accountable to themselves. The Powerhouse vision envisages doing it through elected Mayors of city regions and extending the model to towns and other areas. This model recognises the importance of charismatic leadership.

Referring to the Manchester development, the Chancellor differentiates it from London by saying that he has deliberately not set up an Assembly. Obviously, this gives those currently in leadership a degree of freedom to establish themselves and this new model, but it raises the question of democratic accountability in the future.

As in most things context is everything. As power is devolved more and more to Scotland, Wales and Northern Ireland the question will become more persistent especially in England as to how you balance justly the interests of all the regions and nations of the United Kingdom. As power is shared, not just devolved, the aspiration will be for an equitable opportunity for creating and distributing the wealth of the regions and the nations. This calls into question how the English, either as a whole or in their different regions, will give voice to their own hopes politically. Will the individual elected mayors be able to speak with sufficient democratic authority into the debate on behalf of the people in the North of England? The Government is committed to a form of devolution in England in order to stimulate the regional economy. Steve Hilton has given impetus to this vision of decentralisation. But is there not a place for a London-style Assembly that allows the people of the regions to speak back to the centre of Government with

democratic authority in the way that Scotland, Northern Ireland and Wales do?

Those of us who were involved in Constitutional Conventions at the turn of the Century learned some important lessons and hopefully today without harking back to the past we can benefit from them. Our focus must now be on the future. Two things stay in my mind: Animus and Identity.

Any successful bid to establish a democratic voice for the north must be inspired by something more than an anti-Westminster Animus. We can all tell convincing stories about how we have not been properly understood by Westminster and Whitehall – and those stories can certainly whip up popular feelings. We have seen how powerful that reaction has been in Scotland electorally. But Scotland has something which the English of the north need to address which has also been powerful electorally – namely, Identity.

What is it that binds together the England and the English of the North? Until we discover and define that Identity, the voice of the North will not be heard. I hope we in the North will be able to do so – for the sake of the well-being of both the North of England and of the United Kingdom. As a committed Unionist, i.e. one loyal to the United Kingdom (my mother was a Scot, my father Welsh and I have lived and served all my adult life in the Church of England) I believe that the only way to avoid a polarization of Scotland and England is to balance the needs of Scotland with the comparable entities of the regions of England.

Reading Vernon Bogdanor's excellent book on the British Constitution,¹ you realise that Constitutional Reform is an oxymoron when it comes to Great Britain. There is no constitution to reform. The many changes that have taken place in recent years have been done on an ad hoc basis (15 since 1997). The new Government's commitment to devolving powers has the opportunity to be more strategic about that devolution and to secure a new settlement in which the English sense that they are represented equally and fairly within the Union.

I welcome therefore this initiative today and without prejudging the conclusion of the conversation of the Convention believe that this is an important part of the iterative and interactive process to address a new settlement. Any Government that encourages localism must be encouraged by the fact that top-down initiatives such as the Northern Powerhouse are met with bottom-up responses, such as this gathering of the Northern Citizens Convention today.

I hope you will allow me to set out the agenda of what I believe needs to be addressed over the coming months: Identity, Image, Investment, Innovation, Infrastructure, Internet and Inclusivity.

Identity. Is the North of England an identifiable entity? Is its geographical and cultural diversity better expressed by three identities of the Northeast, Yorkshire and the Northwest or by one? Does the characterisation of the North by urban landscapes do justice to the vast swathes of countryside to be found north of the Pennines? Identities are shaped by landscape, language, literature, learning, leisure and industry and commerce and by the way these characteristics relate to each other.

Image. As we clarify our identity in the north of England we have to be mindful of our image and of how we are seen and known by others in the United Kingdom, in Europe and in the rest of the World. Identity addresses the question about what binds us together; Image addresses the question about how others see us. Both are important in establishing political, commercial and cultural relationships.

Investment. Attracting inward investment is vitally important to the future. This is inextricably linked to image. It is the image of a community that will influence the decisions of outsiders to invest. Every year tens of thousands of young people vote with their feet to come to the universities and colleges of the North of England. Some of the best universities in the country attract some of the finest young talent to the North. Our motto for them should be "I came, I saw and I stayed." We already recognise the role of the universities in the northern economy but as yet we have not found ways of turning the asset of young talent to the North's advantage. Too many go south again. They should be starting businesses here generating wealth and irrigating northern communities.

Innovation. In a competitive market the regions of the North, as with all the regions and nations of the UK, will need to be innovative in creating wealth. There's a limit to what can be sustained by social enterprise and public sector investment. Within the Union the regions and nations must be wealth-creators, as well as wealth-sharers. Any devolution of power must embrace that responsibility.

Infrastructure. Decisions about housing, health, transport and education need to be led by the needs of the people who use them locally. At some stage there has to be a new public debate about where responsibility should lie for different public services. That responsibility should include not only the level at which it should be provided, i.e. local, regional or national; but also the level at which it should be paid for.

Internet. Over the last five years I have chaired three Independent Panels – Hillsborough, Forestry and the Gosport W M Hospital. In each instance I have been awed by the way the internet has facilitated and

transformed the involvement of the public in issues about which they care passionately. For Forestry, there was an e-petition of over half a million organised by 38 Degrees and the Panel received over 40,000 substantial submissions. With the publication of the Hillsborough Report there were nearly 40,000 hits on the day and since then a total 315,000 unique users. The internet brings a new dimension to democracy. We are on the cusp of a new age and only just beginning to realise the potential of the internet for democratic processes. Any Convention looking at representative democracy cannot ignore the internet which engages both the young and the old. The Institute of Welsh Affairs have just produced a report on the Constitutional Convention in Wales detailing its methodology and the use of the internet.²

Inclusiveness. The diversity of the North is both an historic and a contemporary feature. Faith plays an important part in the integration of ethnic communities. One of the virtues of the Church of England is the way it has facilitated the integration of faith leaders into the civic leadership of cities and towns across the North of England. This is part of a process to which a Convention such as this could give considerable momentum. Identifying people of diversity through the faith networks could bring into democratic representation ethnic groups previously disenfranchised.

In stimulating the future blueprint for our constitution we must acknowledge and answer the question begged by these seven 'I's: Identity, Image, Investment, Innovation, Infrastructure, Internet and

Inclusivity. In so doing, we must also acknowledge the danger of inadvertently creating an eighth 'I' – Invalid. Any initiative will only be a definite step forward if it encompasses democratic legitimacy. A charismatic mayor is insufficiently authoritative if not rendered accountable through a democratic mechanism.

Of course, it is the form of that democratic mechanism which we will now begin to debate. I think we should be mindful that the public is not sympathetic to creating another level of political and bureaucratic administration. My own view is that the two options which would capture this public mood are for either a number of formal groupings of the democratically elected local authorities that balance the rural and the urban interests or a dissolution of the present democratic structure to form a number of larger authorities that can deliver on the seven 'I's; with both supplemented by creative use of the internet. I look forward very much to the debate.

The Right Reverend James Jones was the Bishop of Liverpool from 1998 to 2013. He chaired the Hillsborough Independent Panel, and the Independent Panel on Forestry that successfully recommended that the Public Forest Estate should remain in trust for the nation.

Endnotes

- 1 Vernon Bognador, *The New British Constitution* (Hart Publishing, 2009).
- 2 Institute of Welsh Affairs, '[Constitutional Convention Report](#)' (Institute of Welsh Affairs, 2015).

Devolution

Devolution and environmental law in Scotland: a reflection



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At a glance

- The Scotland Act 1998 established a new Scottish Parliament, with powers to legislate in the environment and implement relevant EU law.
- This enabled much-needed reform to many areas of Scots law neglected by Westminster, with significant work in water law, both water resources and water services.
- Institutional differences and some policy divergence are also evident in other areas, but there is also ongoing collaboration at a technical level.
- The impacts of Brexit may see more rapid and substantial differences in future.

Introduction

In 1997, there was a referendum in Scotland – one where ‘Yes’ prevailed, and restored a Scottish Parliament for the first time since 1707. On the back of Tony Blair’s second election victory, but more importantly, on the back of the Constitutional Convention – a decade of sustained cross-party, cross-civic endeavour as to what sort of governance structure would best suit a Scotland still part of, but still different from, the UK.² When the Scotland Act 1998 was enacted,³ the opportunity was there to redress decades, maybe centuries, of legislative neglect. Practitioners and academics of my generation remember the days when essential Scottish law reforms were tagged on as schedules to barely-relevant English laws,⁴ or in the ‘Miscellaneous Provisions’ (Scotland) Acts,⁵ where the prior law simply could not be left unreformed any longer.

Every student of law in Scotland knows that the Treaty and Act of Union preserved certain fundamentals of what had been the Scottish state – the Church, local government, education, and the private law. The latter is important in the story of modern environmental law, for again, as every student knows, before there was the environment there was property, and before there was public law, there was private liability. Thus some aspects of modern environmental law, including water law, with its roots in property rights, developed separately from English law. The 19th century saw much bringing together of law across the UK jurisdictions, not just through the courts but in the new areas of statutory law emanating from the industrial revolution – everything from health and

safety to corporate law. The same cause led to early regimes for air pollution and waste, and these were often made uniformly, or, reflected similar principles in different enactments for different local government contexts, for example in public health.⁶ Water remained stubbornly divergent, despite the best endeavours of the 19th century courts.⁷

By the early 20th century, the pressure on Parliamentary time, combined with the effect of a monolithic constitution in homogenising policy, reduced the value of regional differences. Post-war Scottish planning acts were separate from, but similar to, those in England and Wales.⁸ By the late 20th century, an added complexity came with membership of the EEC; around the same time, ‘the environment’ became a thing, as the young might say. Transposition of environmental law was carried out by Whitehall departments, and the civil servants in the Scottish Office implemented rules that were made uniformly.

The Scotland Act and the devolution settlement – water, water everywhere

On 1 July 1999, the new Parliament took responsibility for environmental law, and also for the transposition of EU law within its areas of devolved authority, i.e. everything that was not ‘reserved’. This still left some anomalies, for example energy was reserved, as was competition law, both areas with significant effects on ‘the environment’ and on the implementation of environmental law. Nonetheless the opportunity was there for the Scottish Parliament to take a different approach to environmental matters and in its early days it did so. This was significantly helped by the more varied political composition resulting from a broadly-proportional electoral system. The first Parliament had one Green MSP, the second (the so-called ‘rainbow Parliament’) had seven. The first and second Parliaments were Labour–LibDem coalitions, the third had a minority SNP government supported by the Greens. From the beginning, there was a more consensual style of politics, and one area of consensus was the environment. Tony Blair did much to move the UK state away from being seen as the ‘dirty man’ of Europe, but Scotland still felt there was something to prove – and as we have seen in the EU referendum, there is at least a perception that Scotland is more European than other parts of Britain.

Given that Scottish water law had always maintained a separate legislative structure, and therefore been neglected, it is unsurprising that it was an early focus; this was to be the case for both water resources and water services law. Further, at the same time as the Parliament was being established, the EU Water Framework Directive (2000/60/EC, WFD)⁹ was being implemented. Senior staff from the Scottish Environment Protection Agency (SEPA) were in Brussels working on its lengthy development process, and returned convinced that this was one area where the new Parliament could make its mark. Meantime, on the services side, the decision not to divest to the private sector in Scotland had left us with an economic regulator on the OFWAT model,¹⁰ in charge of three regional authorities with wide variations in service levels and price projections; and a similar backlog of investment need, especially in wastewater, as had been the case in England in 1989. There was a happy confluence of necessity and enthusiasm.

The Scottish Parliament began by instituting a wide ranging inquiry into water and the water industry.¹¹ Although early legislative endeavours were quite properly targeted at some of the property law crying out for reform, including abolishing (most of) the remnants of the feudal system,¹² there was soon water legislation, and the appetite for this does not seem to have diminished, with no less than 5 Acts directly relating to water since 2002.¹³ After decades of drought, a legislative deluge – especially under the second of these, the Water Environment and Water Services (Scotland) ('WEWS') Act 2003. This implemented the WFD, and did so in style, and 9 months before the Directive deadline. Alongside transposition of river basin planning and abstraction controls, there was 'gold plating' (extending the existing 3 mile limit on land based pollution to all new controlled activities in coastal waters, rather than the 1 mile required; including wetlands in the definition of water environment). Perhaps more importantly, the new Controlled Activities Regulations¹⁴ repealed and replaced the existing rules on water pollution with a new, comprehensive approach to managing all water uses – abstractions, discharges, impoundments and river works – under a single, tiered and proportionate system of authorisation that reflected best international practice for water law reform. This work swept away scores of historic rules and remains something of which water folk in Scotland can be justifiably proud.

The current Scottish Government has maintained a keen interest in water, not just legislating regularly (which may or may not be a good thing) but through its 'Hydro Nation' strategy¹⁵, which seeks to maximise the (multiple) values of the resource at home and abroad, including through the governance model offered by Scottish Water, the public service provider. Scottish Water, created under the Water Industry

(Scotland) Act 2002 by merging the three regional water authorities, had a shaky start with substantial price rises, difficulties managing its investment programme and disputes with its regulators. A decade later it is performing as well as the top quartile of English water plcs and is evidence, if such was needed, that the public sector can be regulated into efficiency and that it is indeed regulation, rather than ownership, that matters. This would not have happened without devolution.

Air and waste

Moving briefly to waste and air, the situation was, and is, different. Legislation here had not been made separately for Scotland, though it might be differently enforced – for example under the Alkali Acts,¹⁶ for industrial air pollution. Rather later in the 20th century, for solid waste, Part I of the Control of Pollution Act 1974 made only slight distinctions for waste collection in Scotland.¹⁷ As the European Community became increasingly active in the environmental sphere, implementing legislation for waste and air used essentially the same substantive provision, especially under the Environmental Protection Act 1990,¹⁸ with reference to enforcement by different agencies and courts, and within different local government structures. In 1995, the Environment Act established SEPA along with the Environment Agency (EA), in separate Parts and with a rather narrower remit, reflecting the prior roles of its constituent agencies, but with many similarities.¹⁹ However, the devolution settlement meant there was the potential to move away from a UK approach in both air and waste and make some divergences in the way that EU law was transposed. For the most part, this still involved institutional and regulatory differences – for example, the split between enforcement by SEPA and by the local authorities for air pollution, was (and is) not the same as in England and Wales.²⁰

Many technical aspects emanate from the EU and are not open to negotiation, such as the air quality standards – but again the enforcement, and the surrounding planning processes, may be variable. There have been issues of substance where SEPA has on occasion taken a different view to the EA on the vexed question of the definition of waste. More recently, in a policy context, Scottish Government has been able to move ahead with its Zero Waste Plan, including new requirements on separating waste for business and commercial waste,²¹ as well as introducing charges for plastic bags ahead of similar moves in England (though not as early as in Wales).²² In climate change, which is part of the energy nexus (and hence has been a reserved matter) but also to do with planning, building control, land use and transport (all mostly devolved), the Climate Change Act applies to Scotland,²³ but the Scottish legislation²⁴ sets separate targets and places specific duties on Scottish public bodies.

Institutional capacity, regulatory reform and cross-border collaboration

It is arguable that away from water, activities in Scotland are still reflected in broadly similar initiatives in England (and increasingly different approaches, in Wales) – though certainly the devolved jurisdictions have been able to move more quickly on occasion. In other areas broadly relevant to ‘the environment’, such as land use planning and land use strategy, there were already different institutional contexts and these have expanded as a result of devolution, without any huge shifts or disruptions. In agriculture and fisheries, where the rules are set at EU level, there is only limited room for different approaches to implementation. This is also true in relation to biodiversity and nature conservation, but here the land use and institutional contexts perhaps make more difference and there has been some divergence.

Although Scotland has been able to take initiatives, Scotland is a small jurisdiction – and whilst small may be beautiful, and may allow quick reactions, it can also bring a capacity gap. The Scottish Government, and Scottish agencies, have tiny real numbers of staff, compared to those in their UK or English counterparts (despite the swingeing budget cuts they have suffered). There are similarities, as well as differences, in our institutions and our legal systems, and our approaches to the EU and implementation of EU law. So it is not surprising that at a technical level there is continued collaboration, whatever political capital may be made of the differences. Responses to EU consultations may be much fuller in England, not just because they are giving a UK perspective. Further, in some areas England has taken the lead, though it has not always maintained it – for example, in regulator-led enforcement regimes, only now being developed in Scotland under far-reaching reforms that will bring together regulation of water with waste and air.²⁵ To return briefly to water, it is interesting that despite the much earlier and more pro-active approach to the WFD, when it comes right down to the devilish detail, the technical expression of what is meant by ‘good ecological status’, the standards, conditions and limit values, and the modelling tools, were developed at UK level. The Environment Agency and SEPA will continue to work closely on the management of the Tweed and Solway border rivers, whether or not these become a true ‘international River Basin District’ at some future point.

So looking back, yes, devolution has made a difference. It has enabled a different approach where Scottish governments have chosen to take one, on specific policy matters. More importantly perhaps, it has facilitated much-needed reforms in many areas of Scots law, not just environmental, which were neglected prior to 1998. In a broader political sense it has allowed the development of a Scottish policy

consensus in at least some areas (water being the obvious) and it is quite possible that this will continue incrementally in other areas. Looking forward though, the implementation of Brexit may see more rapid and dramatic shifts. If the UK remains but outwith the EU, then the essential technical coherence under EU laws will start to unravel – in which case we can only hope that Scotland will maintain that enthusiasm for the environment that characterised the early Parliaments. If Scotland seeks independence in order to remain within the EU, then there will be some interesting comparisons with how the rest of what-was-the-UK uses its new-found freedoms.

Endnotes

- 1 The Centre is the only Category 2 UNESCO Water Centre in the UK, looking at water governance and the science-policy-law interface.
- 2 See, for a brief account of key dates, <http://www.gov.scot/About/Factfile/18060/11550>.
- 3 Scotland Act 1998 c.46.
- 4 See, e.g., Schedules 21 and 22 to the Water Act 1989 c.15, which otherwise did not apply in Scotland.
- 5 See, e.g., the Law Reform (Miscellaneous Provisions) (Scotland) Act 1985 c.73, which dealt variously with contract law, remedies for leases, civil procedure, criminal courts, crofting tenure and children’s panels; and still had room for 13 (even more) ‘miscellaneous and general’ provisions at the end.
- 6 See McManus, F. (2007) ‘Victorian Foundations of Environmental Law in Scotland’ in McManus, F. (Ed.) *Environmental Law in Scotland Greens / Sweet & Maxwell*.
- 7 See, e.g., Clark, B (2006) ‘Water Law in Scotland: The Water Environment and Water Services (Scotland) Act 2003 and the European Convention on Human Rights’ *EdinLR Vol 10* 60-101; or recently, Robbie, J. (2015) *Private Water Rights*, Studies in Scots Law.
- 8 Town and Country Planning Act 1947 c. 51; Town and Country Planning (Scotland) Act 1947 c.53.
- 9 Directive 2000/60/EC, establishing a Framework in the field of Water Policy.
- 10 The Water Industry Commissioner had been established under the Water Industry Act 1999 c.9, one of the last pieces of Westminster legislation to apply to Scotland.
- 11 Scottish Parliament Transport and Environment Committee Report No.9 of 2001 *Report on the Inquiry into Water and the Water Industry*.
- 12 Abolition of Feudal Tenure (Scotland) Act 2000 asp.5.
- 13 Water Industry (Scotland) Act 2002 asp.3, Water Environment and Water Services (Scotland) Act 2003 asp.3, Water Services (Scotland) Act 2005 asp.3, Flood Risk Management Scotland Act 2009 asp.6, and the Water Resources Scotland Act 2013 asp.5.

- 14 Water Environment (Controlled Activities) (Scotland) Regulations, then 2005 SSI 2005/348, now SSI 2011/209.
- 15 See, generally, <http://www.gov.scot/Topics/Business-Industry/waterindustryscot/ScotlandtheHydroNation>.
- 16 See e.g. Alkali etc. Works Regulation Act 1906 c.14 s.28.
- 17 Control of Pollution Act 1974 c.40, s.15. Part II, on water, remained in force in Scotland for many years and much amended, until the revision under WEWS and the Controlled Activities Regulations noted above.
- 18 Environment Protection Act 1990 c.43.
- 19 Environment Act 1995 c.25.
- 20 Now, in the Pollution Prevention and Control (Scotland) regulations 2012 SSI 2012/360, as amended.
- 21 Waste (Scotland) Regulations 2012 SSI 2012/148, as amended.
- 22 Single Use Carrier Bags Charge (Scotland) Regulations 2014 SSI 2014/161. Similar rules were made in 2011 in Wales.
- 23 Climate Change Act 2008 c.27.
- 24 Climate Change (Scotland) Act 2009 asp.12.
- 25 Regulatory Reform (Scotland) Act 2014 asp.3.

Devolution

Warming up: Northern Ireland's developing response to climate change in the context of UK devolution



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At a glance

- Northern Ireland has its own devolved parliament and government, and significant Northern Irish developments have been ongoing in the sphere of climate law and governance.
- National Parliament at Westminster has a Climate Change Act 2008 in place, which calls for pronounced action in the area of greenhouse gas emissions reductions to be undertaken across the UK.
- The Northern Irish administration has been reluctant to engage with its obligations under this framework, and Northern Ireland has fallen behind national emissions reduction standards.
- Legal research has shown that Northern Ireland has enjoyed stronger opportunities than the rest of the UK's subnational jurisdictions to legislate and innovate in the sphere of decarbonisation since the arrival of contemporary devolution in 1998.
- It is therefore recommended that Northern Ireland's Devolved Administration listens to Friends of the Earth (NI) and other progressive voices that are presently calling for substantially improved, progressive action to be taken in the jurisdiction.

This article considers certain devolution-related developments that have been taking place in Northern Ireland in the sphere of environmental law. Most particularly, it is concerned with recent and ongoing developments in the sphere of climate law and governance.

Climate law

In the UK, 'climate law' is chiefly understood to refer to the body of our law that pertains to climate change. As such, for the purposes of clarity it is useful to be clear on what exactly we mean when we refer to 'climate change'. The scientific community has ascertained that a stock of greenhouse gases present in the earth's atmosphere serves to trap a portion of the sun's heat, and this stock has been radically increasing as a direct consequence of human activity since the commencement of the industrial revolution, which was driven by the burning of fossil fuels. Our ongoing use of fossil fuels continues to increase the stock, thereby heightening the level of heat being trapped, and the

anthropogenic climate change arising as a consequence of these circumstances poses a significant risk to the life of our species as we know it.

It is worth emphasising that every major scientific institution in the world is agreed that anthropogenic climate change is occurring, although the media does not tend to report this consensus clearly. Lord Krebs, himself a scientist and member of the UK's Climate Change Committee, pointed out earlier this year that '[a]round 97% of climate scientists believe global warming is principally driven by human activity, yet only 16% of the public know the expert consensus to be this strong'.¹

Bearing in mind the importance of the issues that climate law seeks to respond to, where one turns to consider the approach that is being adopted to the matter by those who retain the power and authority to shape and drive the climate governance agenda in Northern Ireland at the present time, the findings prove to be rather interesting. In particular, these matters prove to be especially significant where one approaches them from a constitutional perspective, for Northern Ireland has received extensive decarbonisation-specific devolved powers under the UK devolution arrangements.

Devolution and Northern Ireland

Contemporary devolution was established across Northern Ireland, Scotland and Wales relatively recently in the late 1990s. This was achieved under a series of key Acts, most notably the Northern Ireland Act 1998, the Scotland Act 1998 and the Government of Wales Act 1998. At the outset, the Northern Irish and Scottish arrangements were more developed than the Welsh arrangements; while the Government of Wales Act 1998 did establish a National Assembly for Wales, it was not until the passage of the Government of Wales Act 2006 that a separate Welsh Assembly Government was created, thereby providing Wales with an executive that was separate from and accountable to the legislature.

Although the 1998 Acts and the developments that continue to flow from them remain relatively recent, Northern Ireland, Scotland and Wales nonetheless

retain something of their own distinct constitutional flavor and sense of legal heritage. In Northern Ireland's case, the 1998 arrangements established a Northern Ireland Assembly and Northern Ireland Executive. These institutions are in operation at the time of writing, however devolution has undergone periods of suspension in Northern Ireland due to civil and political disagreement and the legacy of 'the Troubles' (the Assembly has been in continual operation since May 2007).

The Northern Ireland Act 1998 (NIA 1998) devolves particular 'matters' from the national level to Northern Ireland, with the result that the Northern Ireland Assembly can legislate on them.² These are described by the legislation as 'transferred matters'.³ A further category of matters consists of matters that the Assembly can legislate on, where it has received permission to do so from the national level (specifically, from the Secretary of State). These are described as 'reserved matters';⁴ and Northern Ireland does not normally seek to legislate in this area. Reserved matters *may* become transferred matters in the future, although this is by no means a foregone conclusion. A third category, known as 'excepted matters', concerns matters that fall within the exclusive purview of national Parliament, and these are specified at Schedule 2 to the NIA 1998. Reserved matters are specified at Schedule 3. Transferred matters – that is, the powers that have been devolved – differ from excepted and reserved matters in that they are not actually set out in the NIA 1998. The rule applied under the legislation for the identification of devolved matters is that such matters are to be construed as matters that are not expressly excepted or reserved under the terms of the Act.

As was the case with Scotland and Wales, in the years leading up to the devolved settlement in the late 1990s the UK had employed a partially decentralised administrative structure, and functions in Northern Ireland had been overseen by UK Government's Northern Ireland Office. At the point in time where devolution was being set in place there seemed to be little rationale for radically re-centralising powers that had been largely decentralised prior to devolution, and so decentralised competences tended to be transmuted into devolved competences under the 1998 devolutionary process. Further, in a more general sense, social and political-legal circumstances across the UK's subnational jurisdictions tended to exhibit significant variations. Consequently, the devolution of powers under the 1998 arrangements was notably 'asymmetric', that is, the devolved powers differed significantly across each of the subnational jurisdictions.

Since this inception, each of the devolved jurisdictions has continued to 'walk its own constitutional path' to some extent, as witnessed most profoundly in relation

to Scotland over the course of the constitutional changes following in the wake of the 2014 Scottish Independence referendum. In Northern Ireland's case, major changes have included the transfer of policing and justice powers to the Northern Ireland Assembly in 2010, which had been reserved to national Parliament prior to the Hillsborough Castle Agreement. It will be seen below that Northern Ireland's differing capacity for action in the context of the devolved settlement carries particular implications in relation to climate law and governance.

UK climate law and Northern Ireland

UK Parliament has set in place a Climate Change Act 2008 (CCA 2008), which has been in full force since early 2009. This substantial legal framework is designed to drive down national greenhouse gas emissions, and as such it is binding across all of the UK's subnational jurisdictions; in its own words, the Act 'extends to the whole of the United Kingdom'.⁵ The CCA 2008 commits the UK to a 34% reduction in greenhouse gas emissions for 2020 based on 1990 baseline emissions levels,⁶ and increases this reduction target to 80% for the milestone date of 2050.⁷

Bearing these cumulative national standards in mind, one can proceed to draw useful observations as to how the UK's subnational regions have responded to their obligation to meet the national targets. England and Wales have been rumbling on slowly towards the 2020 milestone target, and at present are more or less on track to make their necessary reduction contributions. Scotland has gone one better, with the Scottish Parliament legislating a pioneering subnational Act of its own, the Climate Change (Scotland) Act 2009 (CC(S)A 2009). Here the Scottish Parliament has applied to Scotland more rigorous reduction standards than those required by the national thresholds, most notably a 42% target for 2020 based on 1990 emissions levels.⁸ Progress towards Scotland's 2020 reductions has been so successful that the Scottish government presently intends to propose a new climate change bill, which it has indicated will include 'a new and more testing target for 2020'.⁹

Thus far, there is at least some positive sense of the UK's subnational jurisdictions pulling together towards a shared goal. Then one turns to Northern Ireland, and finds that the situation is rather different.

Those holding the levers of power in Northern Ireland seem to want different things. Climate-related discourse in Northern Ireland remains marginalised, and a discernible sense of urgency arising from the dangers of unchecked anthropogenic climate change is not broadly present amongst governance actors who are in a strong position to drive change. Indeed, on occasion this discernible lack of awareness or urgency can develop into an astonishing level of active resistance to progressive action. Such was the

case, for instance, at the point in which progressive cross-party forces were guiding the Bill that would become the CCA 2008 through national Parliament.¹⁰

It was in this period that Northern Ireland's largest political party, the Democratic Unionist Party (DUP) succeeded in installing Sammy Wilson MLA as Minister for the Environment (2008). Although the Northern Ireland Assembly at Stormont did formally accept the terms of the CCA 2008, Wilson used his newfound Ministerial platform to resist the CCA 2008 framework on an individual level and to launch a series of verbal attacks on the scientific consensus on climate change. He argued that climate change was a 'hysterical pseudo-religion' that was 'beyond our control',¹¹ denouncing man-made climate change as a 'con'.¹² In 2009 he used his Ministerial position to block the broadcast of UK Government climate awareness advertisements on Northern Irish television; branding the advertisement campaign 'insidious propaganda', he wrote to UK Government's Department for Energy and Climate Change to insist that the national government's campaign was 'not welcome' in Northern Ireland, asserting that 'I do not wish for climate change messages to be promoted by ... Whitehall departments here.'¹³ Consequently the awareness-raising commercials were broadcast across the UK with the exception of Northern Ireland (and with the Scottish administration producing its own specially designed advertisements in Scotland). Wilson warned that 'future ecological messages could only be promoted in Northern Ireland with his permission.'¹⁴

While it remains the case that the sort of rigid climate skeptic position exhibited by Wilson presently features amongst a significant number of senior politicians and other politically influential cohorts in Northern Ireland, it is also the case that this sort of perspective embodies a radically unrepresentative distortion of the views of the general Northern Irish population. Targeted research has shown that a significant majority of Northern Irish people accept the existence of anthropogenic climate change, with the Northern Irish government's most recent major survey (conducted in 2012, by the Department of the Environment) finding that 61% believe that the main cause of climate change is a combination of human activity and natural processes, whilst a further 17% of the population attribute the problem to human activity *alone*¹⁵; this renders a combined total of 78% of the population.

Projected Northern Irish climate action

In spite of the points raised above, some progressive movement towards societal decarbonisation is both occurring and ongoing in Northern Ireland. Although the Northern Ireland Assembly has not used its constitutional space under the devolved arrangements to convert its binding CCA 2008 obligations into 'hard' law in the way that Scotland has under the terms of the CC(S)A 2009, a decarbonisation target commitment statement for Northern Ireland does appear in the Northern Ireland Executive's *Programme for Government* (that is, the crucial strategic document that sets out the Northern Ireland Executive's major policy intentions and actions). Here the devolved government states that it is seeking to reduce Northern Ireland's greenhouse gas emissions quota by 35% on 1990 levels by 2025.¹⁶ While this is certainly better than nothing, this soft policy target is some way off the national pace for 2020. This leaves the rest of the UK jurisdictions to pick up the slack by absorbing the Northern Irish shortfall into their 2020 emissions reduction performance.

On one hand, it is true that Northern Ireland is possessed of a comparatively small population (the last major census in 2011 recorded 1,810,863 persons).¹⁷ As such, Northern Ireland contributes only a modest amount of emissions to the UK's aggregate share. On the other hand – and here is the crucial point in the express context of devolution – it is also true that the energy sector accounts for the greatest share of UK emissions, and energy powers have been more extensively devolved to Northern Ireland than to any of the UK's other subnational jurisdictions under the terms of the 1998 devolved settlement. This means that in spite of being the UK's emissions reduction laggard, Northern Ireland in fact enjoys a greater facility to legislate and innovate in this crucial area than the rest of the UK.

In the face of governmental apathy, Friends of the Earth (NI), Trocaire, and others have endeavoured to pressure the Northern Irish administration into action. Northern Ireland's subnational government has as yet failed to legislate in this area, and remains the UK jurisdiction actively committed to doing the least, yet doctrinal legal research has shown that Northern Ireland has long retained the broadest legal facility to act and innovate in the area of climate governance since the devolutionary arrangements were set in place in 1998.¹⁸

As such, if the issue of climate change is to be treated with the seriousness it deserves, it is to be hoped that Northern Ireland's Devolved Administration listens to Friends of the Earth (NI) and others, and proceeds to employ its wide-ranging devolved powers as a means of taking more progressive action.

Endnotes

- 1 John Krebs, [‘Scientists must Challenge poor Media Reporting on Climate Change’](#), *The Conversation*, 3 May 2016.
- 2 NIA 1998, s.6.
- 3 NIA 1998, s.4(1).
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- 5 CCA 2008, s.99(1).
- 6 CCA 2008, s.5(1)(a).
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- 9 [‘Scotland “Leads UK” on Climate Change’](#), *BBC News*, 13 September 2016.
- 10 What would eventually become the CCA 2008 was initially galvanized by a ‘Big Ask’ campaign led by *Friends of the Earth*, and was further bolstered by three politicians – a Conservative, a Labour and a Liberal Democrat MP – who came together in a significant display of cross-party cohesion to present a draft climate bill to Parliament (respectively, John Gummer, Michael Meacher and Norman Baker).
- 11 George Monbiot, [‘Top 10 Climate Change Deniers’](#) *The Guardian*, 9 March 2009.
- 12 [‘Sammy Wilson: I still think Man-Made Climate Change is a Con’](#) *Belfast Telegraph*, 31 December 2008.
- 13 [‘Quit Call over Blocked Green Ad’](#), *BBC News*, 9 February 2009.
- 14 Henry McDonald, [‘Calls for Stormont Environment Minister to Quit over CO2 Ad Ban’](#) *The Guardian*, 10 February 2009.
- 15 Department of the Environment, *Public Perceptions on Climate Change in Northern Ireland 2012* (DOE 2012), 5.
- 16 Northern Ireland Executive, *Programme for Government 2011-15* (NIE 2011), 9 (and see also ‘Key Commitments’, 44). A subsequent 2016-2021 Programme for Government is presently in draft form, which currently re-iterates the 2011-2015 intentions.
- 17 See further the Northern Ireland Statistics and Research Agency’s *Census 2011*, [Key Statistics for Northern Ireland](#).
- 18 Thomas L Muinzer, *The UK’s Energy Decarbonisation Process and the Challenges of Devolution* (Doctoral Thesis) (QUB 2015); targeted research funded by the devolved government’s Department for Employment and Learning.

Devolution

Welsh devolution and the protection of the environment: the story so far and the future challenges



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At a glance

- Environmental protection has been a devolved matter in Wales since the inception of the Welsh Assembly, but it is only since 2011 that this government has enjoyed primary legislative powers.
- The Assembly's environmental priorities include a focus on sustainable development, woodland development and waste.
- Some key legislation in respect of these priorities includes the Well-being of Future Generations (Wales) Act 2015, the Planning (Wales) Act 2015, the Environment (Wales) Act 2016 and Heritage (Wales) Act 2016.
- Brexit is high on the political agenda for the Assembly which has set up a new Committee on External Affairs and Additional Legislation to consider the implications for Wales, where Dr Victoria Jenkins will be providing evidence on 31st October 2016.

The Welsh environment has strong ties with its social, political and cultural history. Historically, economic development in Wales was once rooted in mining natural resources, but promoting Welsh landscapes in the tourism industry continues to bring significant economic benefits which are vital in a country that suffers from high levels of poverty.¹ Environmental protection has been a devolved matter in Wales since the inception of the Welsh Assembly, but it is only since 2011 that this Government has enjoyed primary legislative powers; and then only under a conferred powers model.² Nevertheless, the inclusion of a constitutional duty to create a sustainable development scheme in the original Government of Wales Act 1998 was enthusiastically supported by the Assembly. Aside from the Assembly's focus on sustainable development, its specific environmental priorities have been woodland development and waste; policy areas in which Wales had been identified as lagging behind other European countries.³ However, it was not until its second term that the Assembly introduced a comprehensive environmental strategy setting out its strategic direction for the next 20 years.⁴

Significant strides in developing environmental policy

in Wales were made during the third term of the Assembly. It produced new strategies in key sectoral areas i.e., woodlands, waste and climate change;⁵ and published what proved to be its last sustainable development scheme – One Wales, One Planet.⁶ This focused on the achievement of five headline indicators that included reducing its ecological footprint to the global average within a generation and increasing the percentage of Biodiversity Action Plan habitats and species recorded as stable or increasing.⁷ These headline indicators were supplemented by a much longer list of outcomes subject to an annual system of reporting under the Environmental Strategy.⁸

In 2011, the annual report on the Environmental Strategy welcomed improvement on several aspects of pollution and progress on recycling, fly-tipping, sustainable use of water resources and flood risk measures.⁹ However, key indicators in decline included access to green and open spaces; the percentage of the population living in air quality management areas and the number of tranquil areas.¹⁰ Perhaps most importantly, it also recorded a declining long term trend in Wales's ecological footprint.¹¹ At the same time, the Assembly's Sustainability Committee reported on the problems in meeting international targets for biodiversity.¹² Thus, evidently there was more progress to be made in protecting Wales's environment.

Following the landmark referendum providing primary law making powers for the Assembly, its first legislative programme included an ambitious agenda for the development of planning and environmental legislation for Wales. In light of the work of the Assembly with respect to sustainable development the centre piece became the Well-being of Future Generations (Wales) Act 2015 (The Future Generations Act). This was followed by the Planning (Wales) Act 2015, Environment (Wales) Act 2016 and Heritage (Wales) Act 2016.

There is insufficient room in this article to discuss this legislation in-depth and there is already some detailed discussion in the legal literature.¹³ However, there are a number of general observations that can be made about the legislative process. First, a great deal of

research and evidence was provided by the Welsh Government in preparing this legislation which was helpful in understanding the thought processes that went into its creation. Secondly, given that the Assembly is a unicameral chamber of only 60 members the scrutiny provided by the Environment and Sustainability Committee also proved significant and a large number of stakeholders, including UKELA, contributed to this.¹⁴ This task was not however, made easy by the extent of the legislation and the speed with which it was passed. Another important issue is the framework nature of much of this legislation which leaves significant detail to be provided by secondary legislation;¹⁵ and most stakeholders agreed that the Environment and Sustainability Committee should play a central part in scrutinising the implementation of the new legislation.¹⁶

The National Assembly for Wales held elections for its Fifth Term on the 1st March 2016 which failed to return a Labour majority. Leading a minority government, and with only one Liberal Democrat AM to work with, the Labour Administration has been forced to consider the demands of Plaid Cymru, its only other possible ally, more seriously. The make-up of the newly entitled Climate Change, Environment and Rural Affairs Committee of the Assembly has changed considerably and is now chaired by Mark Reckless, UKIP AM.¹⁷ One of the first tests for this new government and the new legislative framework for environmental protection and planning will be the way in which it addresses the decision M4 relief road.¹⁸ The Government remains committed to their preferred route despite criticism from the Future Generations Commissioner of the sustainable development report that accompanied the application.¹⁹ There will therefore, be much to discuss at the planning inquiry which opens on 1st November 2016.

Another important challenge facing the Assembly is in shaping and responding to the Wales Bill currently before Parliament. This will provide a 'reserved powers' model for the Assembly and includes reservations and specific conferrals of power that will affect planning and environmental protection in Wales. The Bill makes changes to the nature of 'nationally significant infrastructure' projects covered by the Planning Act 2008 and therefore subject to decision making by the UK Government. This includes ports and raising the threshold for electricity generation project in Wales (or offshore) to 350 MW.²⁰ The latter addresses the long running battle between the UK and Welsh Government on who should have power over energy projects, particularly wind farm projects, in Wales. Another point of contention has been fracking and the Bill will provide the Welsh Government with the relevant powers over onshore petroleum licencing in this respect.²¹ However, the Bill controversially includes the Community Infrastructure Levy as a reservation.²²

Brexit is also, of course, high on the political agenda for the Assembly which has set up a new Committee on External Affairs and Additional Legislation to consider the implications for Wales.²³ This will begin taking evidence from stakeholders in Wales in the autumn of 2016. The Welsh Government is obviously keen to have a voice in the negotiations on Brexit and understanding the specific consequences for this devolved state of the repatriation of powers to the UK presents a major challenge.

UKELA's Wales Working Party (WWP) will continue to respond to the developing agenda for environmental protection in Wales and the challenges presented by further devolution and Brexit. Our recent event on Planning in Wales heard from Huw Williams (Geldards) on the implementation of the Planning (Wales) Act 2015 and Charles Mynor on the Law Commission's Scoping Paper on this issue. On the 10th November 2016 we will welcome the Future Generations Commissioner who will be providing her account of her role in National Infrastructure Planning; and Victoria Jenkins, co-convenor of the WWP will also be taking part in a break out session at the Legal Wales Conference on 7th October 2016 on the implementation of the Well-Being of Future Generations (Wales) Act 2015. We also continue to engage with Welsh Government on these issues and Victoria will be providing evidence on Brexit and issues for environmental law and policy to the Assembly's Committee on External Affairs and Additional Legislation on 31st October 2016. If anyone is interested in getting involved in the work of the UKELA WWP, please don't hesitate to get in touch.

Endnotes

- 1 Overall the environment is relatively more important to the Welsh economy than it is to the other UK nations. UK National Ecosystem Assessment Technical Report (Status and Changes in Ecosystems and their Services to Society – Wales) (2011). The designated landscapes of Wales are particularly important in these respect. Wales has three National Parks and five Areas of Outstanding Natural Beauty which together cover 24% of the land in Wales.
- 2 On environmental protection in the early days of the Assembly see V Jenkins, 'Environmental Law in Wales' (2005) *Journal of Environmental Law* 17(2) 207-227.
- 3 See further Woodlands for Wales: The Welsh Assembly Government's Strategy for Woodlands and Trees (Forestry Commission Wales, 2001) and Wise About Waste (Welsh Government, 2003).
- 4 Environment Strategy for Wales (Welsh Assembly Government, 2006). The strategy was also accompanied by a system of action planning to ensure its success. Environment Strategy Action Plan 2008-2011 (Welsh Assembly Government, 2008). A system of reporting on the outcomes of this strategy was introduced in 2009.
- 5 Woodlands for Wales: The Welsh Assembly Government's Strategy for Woodlands and Trees (Forestry Commission Wales, 2009), Towards Zero Waste (Welsh Government, 2010) and Climate Change Strategy for Wales (Welsh Government, 2010).
- 6 One Wales, One Planet (Welsh Government, 2009).
- 7 Ibid.
- 8 This provided an update on progress in achieving the 39 outcomes and 101 indicators identified in the strategy.
- 9 Environment Strategy Annual Report 2010-2011 (Welsh Assembly Government, 2011) p.11.
- 10 Ibid, p.12.
- 11 Ibid. This was included as a matter of clear improvement in the SD indicators which reviewed progress over a shorter time period.
- 12 National Assembly for Wales Sustainability Committee Inquiry into Biodiversity (NAW, 2011).
- 13 E.g. V Jenkins, 'The Environment (Wales) Bill: Adopting an Ecosystems Approach in the Protection of the Welsh Environment' *E-law* (Issue 90, October 2015) p. 41; H. Williams & V. Jenkins, 'The Planning (Wales) Act 2015: a Case Study in Evidence-Based Planning Reform under Devolution', *Journal of Planning and Environmental Law*, 2016, p. 637; H Williams and V Jenkins, 'The Planning (Wales) Act 2015: Part 2 Lessons in Law Making under Devolution' *Journal of Planning Law* 2016', p.860; H. Davies, 'The Well-being of Future Generations (Wales) Act 2015: duties or aspirations?' (2016) *Environmental Law Review*, p. 41 and N. Barry, 'The Wales Working Party and the Well-being of Future Generations Bill' *E-law* (Issue 86, February 2015) p. 31.
- 14 See discussion on the Planning (Wales) Act 2015 in H. Williams & V. Jenkins, *ibid.*
- 15 See [comments of the Constitutional and Legislative Affairs Committee](#).
- 16 Fourth Assembly Legacy Report (National Assembly for Wales, Environment and Sustainability Committee, 2016).
- 17 See [Climate Change, Environment and Rural Affairs Committee details here](#).
- 18 See [details on the M4 relief road here](#).
- 19 '[Welsh government told that M4 Relief Road falls short of vital mark](#)', Wales Online, 19th July 2016.
- 20 Wales Bill 2016, clause 36. It also removes 132kV electric lines out of the Planning Act 2008 regime in Wales if they are associated with a sub-350MW electricity generation project (Clause 38) and harbour projects (clause 32). However, any associated development for these electricity generation projects and electric lines will also now be included (clause 39).
- 21 Ibid. Clauses 22-24.
- 22 Ibid. Section M4.
- 23 See [Committee on External Affairs and Additional Legislation details here](#).

Devolution

Overview of the environmental provisions of the emerging Wales Bill



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At a glance

- The Wales Bill will result in increasing divergence with English law, giving the Welsh Assembly more power.
- Certain parts of the Wales Bill affect environmental matters, including changes to the regime involving certain Nationally Significant Infrastructure Projects, onshore petroleum, marine licensing and water and sewerage.

The Wales Bill is currently making its way through the Parliamentary process and is the latest in a line of legislative changes, both at UK Parliament and Welsh Assembly level, resulting in increasing divergence with English law.

On 27 February 2015, the then Coalition Government announced the St David's Day Agreement which set out proposals to further devolve powers to Wales, most notably the power to raise income tax. The Bill will implement those elements of the agreement which require legislative changes. The majority of its provisions transfer further powers to the National Assembly for Wales and/or the Welsh Ministers from Parliament. The most significant change is the move to a 'reserved powers' model akin to Scotland whereby the Assembly may legislate on any subject except those specifically reserved to the UK Parliament.

The Bill returned to Parliament on Monday, 12 September, for its final debate in the House of Commons. The Secretary of State for Wales, Alun Cairns, commented that the Bill "delivers an historic package of powers to the National Assembly that will transform the Assembly into a fully-fledged Welsh legislature".¹

There are a number of features of the Bill which will touch on the environment. It is not specifically an environmental Bill. However, there are certain environmental matters within the Bill which practitioners ought to be alive to. This article examines the changes.

NSIP Regime

Under the Planning Act 2008, certain Nationally Significant Infrastructure Projects (NSIPs) are determined at UK government level. The Bill proposes changes to this so that Welsh harbour projects are removed from the NSIP regime with the exception of a

'reserved trust port' (which means in practice Milford Haven).² The threshold for electricity generation projects in Wales or offshore to be determined under the NSIP regime is raised to 350MW.³ In practice, the larger offshore windfarms and the proposed Wylfa Newydd nuclear power station on Anglesey will still be determined at DECC level. Consideration of 132 kV electric lines will also be devolved to Wales where they are associated with a sub-350MW electricity generation project.⁴

One area which has been a bone of contention in practice is resolved so that development which is associated with a NSIP for electricity generation projects and electric lines can form part of a Development Consent Order. The present arrangements whereby no 'associated development' can be included in an application for development consent in Wales will continue to apply for all other Welsh projects.

Onshore Petroleum

Powers are devolved to the Welsh Ministers in respect of onshore petroleum including licencing and the right to use deep-level land in Wales.⁵

Marine Licensing

Clause 42 implements the recommendation of the Commission on Devolution in Wales (also known as the Silk Commission) that the existing responsibilities for marine licensing in the Welsh inshore region should be extended to the Welsh offshore region. The amendments made by cl. 26 provide for the Welsh Ministers to exercise functions relating to marine licensing in the Welsh offshore region.

The Welsh Ministers are made the 'appropriate authority' in the Welsh offshore region, allowing them to designate areas as marine conservation zones in that region pursuant to Part 5 (Nature Conservation) of the Marine and Coastal Access Act 2009 (see cl. 43).

Water and Sewerage

Under ss. 6 and 7 of the Water Industry Act 1991, water and sewerage undertakers⁶ are appointed to every area of England and Wales, including areas that cross the national boundary. At present, the Assembly may only legislate in respect of those undertakers wholly in Wales and, in the case of boundary-straddling areas, in relation to the Welsh parts of those areas. The Bill reserves the appointment and regulation of water and

sewerage undertakers whose areas of appointment are wholly or mainly in England.

Further reserved is the regulation and licensing of water supply and sewerage licensees. Water supply and sewerage licensees are licensed to use the water supply and sewerage system of undertakers in order to provide services. The Assembly can legislate for the regulation of the licensed activities of water supply and sewerage licensees using the water supply and sewerage systems of undertakers whose appointment areas are wholly in Wales. In respect of licensees using the water supply or sewerage systems of undertakers whose appointment areas are partly in England but mainly in Wales, the Assembly may only legislate for the regulation of those licensees' activities in the Welsh parts of those areas. The Assembly may not legislate in respect of licensing.

In relation to these wider powers, it is worth noting that there is a new intervention power over the competence of the Assembly to pass an Act of the Assembly relating to sewerage. The power enables the Secretary of State to make an order prohibiting the Presiding Officer from submitting a Bill for Royal Assent where the Secretary of State has reasonable grounds to believe that the Bill, if it became an Act of the Assembly in that form, might have a serious adverse impact on sewerage services in England or sewerage systems in England. It is a similar power to the one already held by the Secretary of State in relation to the devolution of matters relating to water (see cl. 44).

Conclusion

The Bill is an enabling piece of legislation which will ensure yet further devolution of environmental matters to Wales. It of course remains to be seen how the Welsh Ministers will make use of these new powers in practice, once the Bill makes its way onto the statute book. However, the WG will need to ensure that the new powers are exercised in accordance with the seven wellbeing goals in Well-being of Future Generations (Wales) Act 2015 which, it is to be hoped, will further the sustainability of the new environmental legislation.

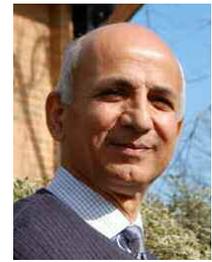
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Endnotes

- 1 See Wales Office Press Release dated 13 September 2016.
- 2 Cl. 32.
- 3 Cl. 36.
- 4 Cl. 38.
- 5 Cl. 22-24.
- 6 The private companies that carry out the primary function of providing drinking water and treating sewerage.

Matters in practice

The radioactivity of the hydraulic fracturing (fracking) of shale gas (Part II)



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At a glance

- Radioactivity associated with the Hydraulic Fracturing (Fracking) of Shale gas.
- Release of radionuclides of Naturally Occurring Radioactive Materials (NORM) into atmospheric, aquatic and terrestrial media.
- Radioactive waste streams – solid, liquid and gaseous – containing radionuclides of Technically Enhanced NORM (TENORM) generated by the Fracking operations.
- The Radiological and radio-ecological risks associated with the Fracking of Shale gas operations.

This article reflects the relevant policies and legal instruments as of 1 January 2016.

Introduction

This Paper constitutes the second of a two-part series on the Radioactivity of the Hydraulic Fracturing (Fracking) of Shale Gas and is specifically concerned with the radioactivity associated with the hydraulic fracturing (fracking) of shale gas, i.e. the release of radionuclides into the air, water and soil (atmospheric, aquatic, and terrestrial media) as the result of fracking operations. It aims to inform policy formulation and the development of legislative and regulatory frameworks at international, European, and national (domestic) levels.

In Part I, the author examined the international and European Union (EU) legal instruments governing Naturally Occurring Radioactive Materials (NORM) emanating from, inter alia, the Hydraulic Fracturing (Fracking) of Shale Gas. In that context, the UK regulatory framework governing NORM waste was also addressed.

The environmental and public health impacts of fracking – both potential and actual – have been the subject of scrutiny at international, regional and national levels, and a multitude of studies have been published in recent years.¹

In the US, where more than 52,000 shale gas wells

have been drilled, extensive data has been collated indicating potential environmental risk at every stage of the development of shale gas extraction.²

This article focuses on the radioactivity of the fracking process and associated activities which may give rise to the release of radionuclides of NORM to the environment. Such activities include: drilling; fracturing; production; storage, treatment and disposal of effluents (wastewaters); and disposal of solid wastes.

The term Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) is also used in the literature, in particular in the US, denoting enhancement in concentration of NORM radionuclides, or increased risk of exposure to radiation, as the result of human activity.

NORM and TENORM associated with fracking

All geological formations contain NORM, to a varying degree, due to the presence of uranium (U) and thorium (Th), and the radioactive decay products of these two elements in the earth's crust. These radioactive decay processes have been ongoing for the past 3.5 billion years, and form part of the natural background radiation to which all biological species are exposed.

All conventional oils and gas formations [contain NORM](#), and the extraction of these fossil fuels is currently releasing NORM radionuclides into the aquatic (water) and terrestrial (soil) environments across the globe, with limited regulatory oversight. NORM radionuclides may, thus, [be present in](#), inter alia, sludge, mineral scales inside pipes and equipment, and wastewaters ("Formation" water and "Produced" water).

Shale formations (rocks), which are [considered a major source](#) of unconventional oil and gas, also contain NORM, and often at [relatively higher](#) concentrations than other formations. Being fine-grained sedimentary rocks and relatively impermeable, hydraulic fracturing is used to break up, release and

recover the natural gas (or oil) embedded in these formations. A number of NORM radionuclides [have been identified](#) as contributing to the total radioactivity of hydraulic fracturing operations and waste streams.

In the UK, the fracking of shale gas is [classified as a NORM](#) industrial activity at exploration, development, and exploitation stages, with the exclusion of the drilling stage, where no gas is generated.

Key characteristics of fracking giving rise to increased radiological risks

Compared to conventional oil and gas operations, a number of factors increase the radiological risks associated with the fracking of shale gas, and the resultant release of NORM into the environment:

- 1 Shale formations are reported to have higher concentrations of NORM radionuclides than conventional oil and gas formations, with concentrations differing from one shale formation to another. As an example, the Marcellus Shale Formations in the US are reported to contain 10–100 parts per million (ppm) uranium, compared to the average US crustal concentration of 3ppm;³
- 2 Very large quantities of water, at high pressures, are used in the fracking process, which dissolve and mobilise the NORM radionuclides in fractured shale rocks, and transport them to the surface.⁴ This may pose radiological risks to the workers and the public, and harm to the environment, in particular, where there is poor management of solid and liquid waste streams, or limited regulatory oversight;
- 3 Large volumes of wastewater—comprising the “Flowback” fluid, “Formation” water, and “Produced” water—are generated in the fracking process. These may contain elevated levels of NORM (i.e. TENORM). Subsequent storage in open pits, re-use, re-injection into abandoned oil and gas wells, discharge into water streams, or treatment at wastewater treatment plants may pose further potential radiological risks;
- 4 Significant quantities of solid residues (e.g. drill-cuttings) and solid waste from wastewater treatment plants, containing TENORM, is generated which needs effective management to mitigate radiological and environmental risks; and
- 5 In the past two decades, shale gas has become an increasingly important source of natural gas. In the US, it accounted for 14 per cent of the total natural gas production in 1998 and is forecasted to increase to 45 per cent by 2035. In the UK, where large reserves have been identified, the [government energy policy](#) is to promote and facilitate the exploration and extraction of shale gas.¹⁰ Hence, correspondingly large volumes of liquid and solid waste, containing NORM radionuclides, will be generated in the US, Europe

and other parts of the globe, with potential impact on terrestrial and aquatic environments and public health. The rapid rise⁵ in exploration and extraction of shale gas may also result in an increase in the frequency of accidents, and breaches of regulatory requirements.

According to the UK NORM Waste Strategy,⁶ where fracking is currently at the exploratory stage:

“It is likely that NORM waste will arise as a result of shale gas extraction activities, which will be predominately in liquid form, but, also, some solid and gaseous NORM waste.”

Other [review studies](#) in the UK have also noted that there are, indeed, potential environmental and health impacts associated with fracking of shale gas. A review study by Public Health England (2013) has concluded that potential radiological risks would be limited, provided that an effective regulatory framework is in place and operational best practices are instituted.

Mobilisation of natural contaminants present in the shale formations (rocks), e.g. NORM, by the fracking fluid and their subsequent transfer to the surface (well-head) by the flowback fluid (water) are considered to be the main source and pathway associated with the risk of contamination of the environment. The mobilisation and transport of NORM to the surface result in both the enhancement of the concentration of NORM radionuclides and the likely increase in the risk of exposure to radiation (radiological risk). Most NORM radionuclides, in addition to radiotoxicity, are also chemically toxic, being similar to other heavy metals.

A major study commissioned by Pennsylvania Dept for Environmental Protection⁷ on TENORM associated with oil and gas operations in Pennsylvania, including fracking, offers extensive data from radiological surveys carried out at well sites, wastewater treatment plants, landfill sites, gas distribution stations and end-use. The study – which encompasses operations, waste disposal and product use – has characterised and measured the radionuclides in solids, liquids, ambient air and natural gas. It has identified radium (Ra) as one of the key TENORM radionuclides, which needs to be monitored in aquatic media, soil and other solid media to mitigate potential radiological risks. Release of TENORM radionuclides into the aquatic environment, terrestrial media (soil, solids and land) and the atmosphere (air) are further discussed below.

Release of TENORM into the aquatic environment

A number of fluids, containing TENORM radionuclides, are brought to the surface during the development and operation of wells for the fracking of shale, viz

drilling mud, “flowback” fluid (water), “produced” water and “formation” water. Leachates (fluids) from landfill sites, where drill-cuttings, treated sludge, filter cakes and other solid residues from the fracking operations have been disposed of, may also contain TENORM, the scope of which may contaminate groundwater.

Fracking is a water-intensive industrial activity, where up to 35,000m³ of water may be required depending on the size and depth of the well, together with the geological characteristics of the shale formation.⁸ Following the completion of the hydraulic fracturing stage and release of hydraulic pressure, the fracking fluid reverses direction and flows back to the surface via the wellbore. It is thus referred to as “flowback” fluid (water). Up to 75 per cent of the injected fracturing fluid flows back to the surface following depressurisation.⁹

As noted previously, fracking fluid mobilises naturally occurring substances, e.g. salts, trace elements (mercury, lead, arsenic etc) and NORM (Ra, Th, U), present in the shale rock and transports them to the surface (well-head). [According to the Environment Agency](#) (England), flowback fluid is “Fracturing fluid contaminated with minerals and NORM returned to the surface during and following high volume hydraulic fracturing”. Flowback fluid also carries with it the “formation” water, which also contains NORM and other naturally occurring substances.

In England, operators are required to obtain an environmental permit for the temporary storage and subsequent treatment/disposal of the flowback fluid, in addition to scales and sediments that may deposit or accumulate in pipes and process vessels as they are likely to contain sufficient levels of NORM (or TENORM) to be classified as radioactive waste.¹⁰

Analysis of the “flowback” water from exploratory drilling at Preese Hall in Lancashire, UK, has detected a [number of NORM radionuclides](#), including Pb-212, Pb-214, Ac-228 and also Ra-226, with activity levels of up to 200Bq/L.¹⁹ For Ra-226, where activity levels exceed 0.5Bq/g (or 1Bq/L), [a permit is required](#) under the Environmental Permitting Regulations 2010, Sch.23.

TENORM (Ra, Th and U) are also present in the “produced” water,¹¹ the fluid which returns to the surface during the production stage of a well and contains the shale gas, fracking fluid and the saline formation water.¹² Measurements of Ra-226 in “produced” water from Marcellus Fracking Wells have indicated radioactivity concentrations some 20 higher than those from conventional oil and gas operations, indicating higher levels of uranium in shale formations.¹³

“Formation” fluid – small quantities of fluids retained naturally within the pores of shale rocks – [consists](#)

[primarily of water](#), with varying concentrations of total dissolved solids and may contain oil or gas. Formation fluid, which contains NORM radionuclides, as part of the dissolved solids, mixes with the fracking fluid and the “produced” water and is transported to the surface.

Flowback water (fluid), “produced” water and “formation” water – collectively referred to as “wastewaters” – pose both environmental and radiological risks and therefore need to be managed effectively. As noted by UNEP (2012), “flowback” contains the fluids that were initially injected into the well, in addition to naturally occurring substances within the fractured rock formations such as minerals, salt, weakly radioactive material and potentially toxic substances, e.g. arsenic, benzene, methane or mercury. It also notes that, due to high concentrations of such contaminants, proper collection, treatment and disposal must be instituted.

According to the [Chartered Institution of Water and Environment Management](#), the returned waters from fracking “require treatment as they may be highly saline and include naturally occurring radioactive materials”. Moreover, as noted by the UK NORM Waste Strategy,¹⁴ environmental risks from the presence of NORM radionuclides in “flowback” relate to the treatment and subsequent disposal of the water, process residues and process equipment.

Use of wastewaters to make up the fracturing fluid, as practised in some fracking operations in the US, reduces the water requirement, but increases the radionuclide concentrations (TENORM) and the corresponding risk of contamination in the event of spills, leakage or well failure.¹⁵

Gross alpha radioactivity levels of up to 18,950pCi/L in the flowback fluid have been reported by a [study undertaken](#) by New York State. This may be compared to the radioactivity level of 5pCi/L (0.185Bq/L) for drinking water set by the US Environmental Protection Agency.¹⁶

Spills and leaks of flowback fluid, together with other wastewaters form open pits, storage tanks and during transport, may occur, resulting in release of radionuclides into the environment and the possible risk of contamination of surface waters, aquifers and direct radiological exposure to workers and members of the public. In relation to Marcellus Shale Gas Fracking Operations, 1,435 violations over the period 2008–2010 [have been cited](#).

Elevated concentrations of radium in landfill leachates have been reported,¹⁷ the scope of which may result in contamination of groundwater, posing radiological and environmental risks.

Release of TENORM into soil and other solids

NORM radionuclides (TENORM) have been characterised and measured in soil, drill-cuttings, core samples, proppant sand, scales, sludge, filter cake, etc.¹⁸

Soil [may become contaminated](#) as a result of run-off, spills, leaks and other accidents.

Drill-cuttings from shale gas development at Marcellus Shale Formation (Pennsylvania), disposed of by spreading over land, are reported to have radiation levels 25 times higher than background levels due to the presence of NORM radionuclides.¹⁹

Scales, which are accumulation of deposits on the surfaces of pipes, tanks and other process equipment, may also contain radium (both Ra-226 and Ra-228). Scales consist of insoluble barium, calcium and strontium compounds. Radium being chemically similar is therefore incorporated in the scales.²⁰ This [may result](#) in an external radiation exposure risk to workers who work with such equipment.

Sludge, which is generated in the course of fracking operations, is composed mostly of dissolved solids which precipitate from wastewaters (flowback fluid and produced water), due to changes in temperature and pressure, once the fluid reaches the surface.

High activity levels at 1329pCi/g due to the presence radionuclides (TENORM) have been measured in sludge from “reserve pits”.²¹

The potential for accumulation of NORM in sewage sludge has, in the case of municipal sewage treatment plants, also been reported.²²

Disposal of solids generated at wastewater treatment plants in municipal landfills, which may not be designed for the expected high levels of radioactivity, may also pose potential groundwater contamination problems in the future.²³

A recent study in relation to a treatment facility site in Western Pennsylvania receiving fracking wastewaters has found Ra-226 levels in stream sediments to be in the range 544–8759Bq/kg at the point of discharge, some 200 times greater than upstream and background sediments (22–44Bq/kg), thus exceeding the radioactive waste disposal threshold regulations. According to the study, these high levels pose potential environmental risks of radium bio-accumulation in localised areas of shale gas wastewater disposal.²⁴

It is noteworthy that Ra-226 has a long decay rate (half-life of 1,602 years) and the potential radiological risks will persist over a prolonged period.

Elevated levels of Ra-226 and Ra-228 in filter cake from wastewater treatment plants in Pennsylvania, at maximum values of 307pCi/g and 177pCi/g, respectively, have been reported, posing potential radiological environmental impacts from spills and also long-term disposal.²⁵

A few of the samples exceeded the US Department of Transport Radium threshold for labelling as radioactive material.²⁶

Elevated levels were also detected in “sediment-impacted soil” at the effluent discharge points, up to a maximum of 508pCi/g for total Ra, with potential environmental impact.²⁷

It is reported that a steady increase in the volume of waste containing TENORM, generated by the oil and gas (O&G) industry, was being disposed in Pennsylvania landfill sites during the expansion of the Marcellus Shale Gas Industry.²⁸

The decay products of radon may deposit as a thin film (scale) on the inner surfaces of storage tanks, pipes, pumps, valves, etc, giving rise to increased radiological risk to workers who handle contaminated equipment and pipes.²⁹

Release of TENORM (radon) into the atmosphere (air)

The notable naturally occurring radionuclide (NORM) in natural gas (shale gas or conventional gas) is Radon-222. It is radioactive, and emits alpha particles which are most hazardous to lung tissue. Due to its very short half-life (3.8 days), it decays at a high rate.³⁰

It decays to Po-210, an alpha emitting radioactive solid, which may deposit as a thin film on the inner surfaces of gas pipes and storage tanks.

Radon is transported to the surface as a constituent of shale gas. It also reaches the surface as dissolved gas in both the “flowback” fluid (water) and “produced” water (wastewaters), where it is degassed and released into the air. In addition, it is released from solid residues and waste associated with fracking operations as trapped gas and as the result of decay of radium, present in the solid residues, to radon.

The average radon levels in the US is reported as 48Bq/m³, which can be compared to the average radon levels of 326Bq/m³ in the basement of 210 homes sitting on the Marcellus Shale Formation.³¹ According to the WHO (2014), the risk of lung cancer increases by 16 per cent per 100Bq/m³ increase in radon concentrations and increases proportionally (linearly) with increasing radon exposure. The WHO (2014) recommends a national annual average concentration reference level of 100Bq/m³ for indoor radon and, where this cannot be reached under

country-specific conditions, the level should not exceed 300Bq/m³.

However, according to a recent study for Marcellus Shale Gas Operations, measured radon levels in ambient air during the flowback phase were found to correspond to the background concentration range in the US, therefore meaning limited potential for additional Rn exposure to site workers and the public.³² The Rn concentrations on or near well sites were also found to be within the background levels.³³

The gas reaching the end-users contains radon (Rn-222) and, being an inert (noble) gas, it can neither be separated nor combusted. The potential increase in radiological exposure to the occupants from use of shale gas is very limited.³⁴

It is now established that soil is the major contributor to indoor radon concentrations and other sources such as groundwater, consumer products (e.g. granite) and natural gas are not considered significant contributors.³⁵

Concluding remarks

Hydraulic fracturing (fracking) of shale gas has the potential to impact negatively on the natural environment, ecological systems and public health. As noted by the IEA,³⁶ unconventional gas production is an intensive industrial process, generally imposing a larger environmental footprint compared to conventional gas development.

Experience from the US indicates that best operating practices are not always followed, resulting in numerous accidents therefore posing risks to water resources, terrestrial ecosystems and public health. The recent history of fracking operations in the US is also indicative of the limitations of regulatory control where breaches of legal requirements have been recorded for some 2 per cent of all drilling permits issued.³⁷

According to the [Task Force on Shale Gas](#), barrier integrity failure in 320 wells in the period 2010–2012 in Pennsylvania suggests that the US operators were not adhering to best operating practices or that regulations were not being adequately enforced.

Heavy metals and NORM radionuclides in wastewaters, together with flowback fluid, in particular, may pose a significant cumulative risk to the environment and public health due to mobilisation and accumulation of these substances in the terrestrial environment (soil, sediments and land), the aquatic environment and biota. Hence, treatment of wastewaters at water treatment plants is considered best practice.

However, the subsequent disposal of solid materials

from treatment plants at landfill sites, or dispersal on land, needs to be managed effectively. It needs to be monitored by both the operators and the regulatory bodies, with a view to being subject to a robust regulatory regime. The same applies to the discharge of effluents from treatment plants into surface waters or reuse as hydraulic fluid. Open pit storage of flowback fluids, as practiced in the US, has resulted in environmental contamination due to overflow of the fracking fluid and the rupture of impermeable lining,³⁸ again not constituting best operating practice.

Environmental Risk Assessments (ERA) of TENORM, covering the entire life cycle of the shale gas operation (including the treatment and disposal of liquid and solid waste), should be made mandatory. As noted by the [DECC](#):

“ERAs are intended to provide a systematic and prioritised review of the environmental risks attending on the operations proposed, and a demonstration of the safe and environmentally responsible management of these operations.”

TENORM is being recognised as a major contaminant of concern and sound strategies for the management of both solid and liquid waste streams containing TENORM need to be instituted to mitigate potential risks to the environment, biota and public health. To this end, it is imperative that, in addition to removing Ra, the decay products of Ra – namely, Bi, Pb, Po radioisotopes – are also removed.³⁹

A detailed understanding of the accumulation of NORM radionuclides in the environment and biota is also needed to inform risk assessment studies and to assist in developing effective regulations and regulatory frameworks.

A robust and effective regulatory framework that incorporates the tenets of sustainable development, i.e. environmental protection, social well-being of community members and economic growth, needs to be instituted to ensure that public concerns are addressed/allayed, energy resources are exploited and ecological systems are preserved.

There are significant uncertainties in the scientific knowledge regarding the adverse environmental and health impacts of hydraulic fracturing, the probability of their occurrence and the efficacy of the measures available in mitigating or preventing such impacts.⁴⁰ As noted by the [Environmental Audit Committee](#) of the House of Commons:

“an extensive range of uncertainties remains over particular hazards—to groundwater quality and water supplies, from waste and air emissions, to our health and to biodiversity, to the geological integrity of the areas involved, and from noise and disruption”

It is thus imperative that development of policies, legislation and regulatory regimes in relation to exploration and exploitation of shale gas across the globe is informed and guided by the precautionary principle”.

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Mud, birds and poppycock

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The title was inspired by *MUD, BLOOD AND POPPYCOCK* by Gordon Corrigan, with permission from The Orion Publishing Group.

At a glance

- Perhaps encouraged by the precautionary principle, many shorebird conservationists believe that human activities on the coast must harm birds.
- This is by no means always the case.
- The result can be costly delays to development and unjustified restrictions on people's activities.
- Decisions should be based on sound, hypothesis-testing science and an assessment of risk set against the magnitude of potential loss.
- The present culture risks reducing public support for the good cause of shorebird conservation.

Shorebird conservationists insist correctly that our coastal flats are vital to the survival of hundreds of thousands of shorebirds and the UK, again quite rightly, is committed to their protection by EU directives and national legislation. Unfortunately, the regulations are sometimes applied in a way that suggests that many shorebird conservationists have come to believe that any human activity on the coast is *bound* to be detrimental. Although anthropogenic activities *can* indeed degrade shorebird feeding grounds, this does not mean that *all* human activities necessarily do so, every time and everywhere.

Most shorebirds occur in the UK from August to April when on migration or over-wintering. When exposed by the receding tide, intertidal flats provide food: most eat invertebrates but some wildfowl are herbivorous. Perhaps the best environmental management issue with which to illustrate the culture that underpins the approach of many shorebird conservationists is disturbance from people due to dog-walking, kite-surfing, bait-digging *etc.* These activities are often viewed as self-evidently damaging to shorebirds. As a result, Environmental Impact Assessments (EIAs) seem more often designed to collect enough information to support a preconceived concern than rigorously to test the hypothesis that disturbance actually harms shorebirds, which is what good ecological science should do.

This is the biology of the issue. Shorebirds must survive until spring with sufficient body reserves to migrate to often distant breeding grounds. Birds that fail to do so may not even survive the journey let

alone breed successfully when they arrive. Disturbance could reduce survival and body condition on the wintering grounds in these ways. Flying uses lots of energy, so being disturbed into flight increases birds' daily demand for food. As a shorebird cannot feed while flying, disturbance reduces the time available for feeding. Disturbance concentrates birds in disturbance-free areas – often of poorer quality than the ones vacated – where the increased density may intensify competition. Disturbance therefore increases the birds' energy requirements while making it harder for birds to meet them.

Acknowledging that disturbance *affects* the birds does not mean, however, that it necessarily has a significant *impact*, defined as follows. The directives aim to maintain shorebird numbers. Disturbance could impact on numbers by reducing the birds' chances of surviving the winter and/or preventing them from achieving good enough body condition to migrate and breed successfully in spring. But all depends on the severity of the disturbance. One occasional dog-walk lasting five minutes may momentarily *affect* the behaviour of nearby birds but it would be too trivial to have a significant *impact* on their survival and body condition, and thus on population size. But if dogs (improbably) occurred continuously in all areas, night and day, it almost certainly would. Whether there is an impact will depend on the amount of disturbance, its frequency, intensity and duration, as indeed the directives themselves make clear. And if there is no impact, the so-called and much-debated notion of the 'integrity' of the site – invoked to protect the site's features of interest (e.g. shorebirds) – will not be affected either.

The main challenge for the objective shorebird ecologist is to identify the threshold at which increasing disturbance (or other environmental change, for that matter) begins to have an impact rather than merely an insignificant effect. This approach is by no means always adopted in EIAs. Often, only eye-catching behavioural effects are measured, like the distance birds take flight as people approach and how far they then fly. Frequently disturbed patches of mud are shown to have fewer birds than undisturbed ones without any attempt being made to assess whether this re-distribution has a significant impact on the birds. Maps show that one

kite-surfer may range over a large area, the untested implication being that much foraging space is thereby denied the birds for significant amounts of time. Observations show that flocks of shorebirds may make a major disturbance flight about once every daylight hour without testing whether this causes the average bird to lose significant amounts of time and energy. The inference from all these observations is that the natural activities of the birds are so badly affected by disturbance that there simply *must* be an impact on the birds' survival and body condition.

This approach can give a badly distorted impression of the magnitude of the disturbance experienced by shorebirds. It focuses research attention on the places and times where people and birds do occur together, while overlooking the sometimes many other circumstances where they do not. In fact, most shorebirds feed for most of the time in places and at times where the risk of being disturbed is low. Most people occur on estuaries during the warmer months whereas shorebirds are most vulnerable, and usually most numerous, during the coldest. Most shorebirds feed in the muddy areas that most people avoid. Over high tide when most water sports are carried out, most shorebirds are feeding or roosting elsewhere because the tide covers the flats where they feed. Very few people visit intertidal flats at night when most shorebirds also feed – some by preference. Disturbance often makes a bird bring forward a flight it would have done later anyway – to reach, for example, better feeding areas downshore as these low-lying places become exposed on the receding tide. Once birds have been disturbed from an area by the first few people to arrive, there are few, if any, left to be disturbed subsequently, however many more people arrive. A false impression is often given that shorebirds and people are not as segregated in time and space as actually they often are.

How has such questionable research come to be accepted as sufficient for devising policies to 'manage' recreation disturbance in coastal areas? I believe that there are three reasons: (i) the beliefs, or culture, of many conservationists and their supporting ecologists; (ii) the ecological and scientific naivety of some decision-makers and (iii) the over-enthusiastic and un-balanced application of the directives' precautionary principle.

(i) Culture

Perhaps exacerbated by the assertions of powerful, single-issue pressure groups, the constant repetition of the mantra that shorebirds are 'sensitive' and live in 'fragile' habitats has fostered the belief that anything people do simply *must* harm the birds. The evidence shows that this is by no means always the case: indeed, human activities on estuaries can sometimes benefit shorebirds and can even be managed to do so, as the farming of intertidal mussel beds in the Menai

Strait has demonstrated. Yet many shorebird ecologists seem to feel that their research should support the preconceived and widely-held concerns of shorebird conservationists. Conservation is the good cause that provides a shared *raison d'être* for many shorebird ecologists and conservationists.

An anecdote illustrates the expectation some conservationists seem to have of their scientific colleagues. I advised that the removal of Cardiff Bay mudflats under a fresh-water lake created by a barrage across the mouth of the River Taff would put at risk the shorebirds that fed there, even though they could feed on the adjacent Severn estuary. I was asked whether anything could be done to mitigate this impact. I presented my solution at a public meeting. The idea was to puncture a nearby seawall alongside the main Severn estuary to convert the adjacent field into a mudflat. This 'lagoon' would have remained accessible to the birds for some 30-40 minutes after the estuary itself had been covered at high water on Spring tides because the narrow entrance culvert would have delayed the ingress of the tide. This would have extended the birds' intertidal feeding time, probably to their great benefit. After the meeting, I was berated long, hard and very publicly by three enraged conservationists. According to them, I should never have proposed anything that might have undermined their case against the barrage. Surely, as a scientist, I had no right to attempt to distort public decision-making by selective use of knowledge that had been largely acquired at public expense?

(ii) Decision-makers

The second reason that this doctrine has taken hold is the naivety of some of those charged with making decisions on matters that actually demand a good grasp of the science. It is not difficult to raise doubts in their minds that the 'science' is uncertain when some of them seem to know rather little about the scientific method in general and shorebird ecology and population dynamics in particular. See, for instance, some case histories in Jones (ed.), *The Habitats Directive: A Developer's Obstacle Course?* (Hart Publishing, 2012)

(iii) Precautionary principle

The last and, I suspect, over-riding reason lies with the EU directives themselves, and in particular, the precautionary principle. This loads the dice heavily in favour of those who view human activities on estuaries as inevitably damaging to shorebirds. In scientific research, of course, conclusions are presented in probabilistic terms. Scientists know that new ideas or new data may at any time challenge their current understanding. In such an open, self-critical and self-effacing intellectual climate, it really is not difficult to raise enough doubt for the precautionary principle to be invoked.

This is the fundamental contradiction: the directives require that science be used to evaluate an impact but don't encourage the use of a fundamental concept of scientific judgement – probability. A very strong scientific case that there is minimal risk of significant damage to the birds can be ignored simply because someone says: 'We hear what you say but we have to be precautionary. Sorry!'

The precautionary principle is all well and good when there is uncertainty about impacts, when the risk, though low, is not negligible and the potential cost to conservation is high. But to apply the principle without a careful balancing of the magnitude of the risk, against the magnitude of the consequences, is an abuse of the principle – and it is not what it is meant to achieve. Its use is supposed to be 'proportionate' whereas, in practice, its use can seem absolutist instead. To demand, in effect, zero risk simply demands impossible science.

In fact, it sometimes feels as if just enough research is done to raise sufficient doubt to enable the precautionary principle to be invoked. On these occasions, contrary scientific evidence appears to be something to get around rather than to be used to assess risk. The approach of the objective scientist, however, should be rigorously to test the hypothesis that bird survival and body condition are likely to be decreased by disturbance and, importantly, to evaluate the risk that this will happen. But too often, discussion descends into a legalistic concocting of just believable scenarios rather than an objective appraisal of the evidence. This is made possible by the exaggerated implementation of the precautionary principle. The process seems often to be more of an exercise in absolutism than an objective assessment of the magnitude of the risk.

An example: On the Exe estuary, a levy is being charged on every new dwelling built within 10km of the estuary to provide 'mitigation' – of questionable and (to a scientist, disgracefully) untested effectiveness – for the impact that additional disturbance from the new householders may have on shorebirds. This has caused extra costs and delays in the provision of much-needed dwellings. What worries me most is that it also increases the frustration with shorebird conservation.

My own independent and self-funded research has thrown overwhelming doubt on whether any mitigation is necessary because so little shorebird feeding is done in places and at times when there is a risk of disturbance. Additionally, Bournemouth University's (rightly cautious) model of shorebird disturbance in a Southampton Water – in terms of shorebirds, very similar to the Exe – showed that it would require huge numbers of people for there to be a significant impact on the shorebirds of the Exe

estuary. It would take 15,000-30,000 people to visit the Exe estuary regularly to reduce shorebird survival, or approximately 10-20% of the entire population of the region. Needless to say, nothing like this number has, or ever will, occur there. Instead of employing an over-precautionary approach, the *risk* to shorebirds should have been assessed as being so minute as to be, for all practical purposes, non-existent.

Ecologists should have no tolerance for this culture of blinkered eco-negativism. It infringes the civil rights of people if they are prevented without good reason from carrying out otherwise perfectly legitimate activities on the coast. Objective, hypothesis-testing, ecological science should always be done to make intelligent risk-assessments of where mitigations really are both necessary and effective. Members of the public are becoming increasingly sceptical that mitigation funded by an enforced levy and restrictions on their activities are justified by the evidence: 'Why are birds more important than people' I often hear said. Such mounting anger threatens long-term support for a good cause. Shorebird conservation needs to be protected from the effect that the directives have had on the culture of many shorebird conservationists!

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<http://www.amazon.co.uk/dp/B00JMCBBQO/>. After his retirement, he became Visiting Professor in the School of Applied Sciences at Bournemouth University, where the models are continuing to be developed and applied to a much wider range of animals and issues by the research team led by Professor R A Stillman.

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The editorial team is looking for quality articles, news and views for the next edition due out in November 2016. If you would like to make a contribution, please email elaw@ukela.org by 16 November 2016.

Letters to the editor will be published, space permitting.

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