

Accessing environmental information relating to climate change: the case of Irish oaks tree rings

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Queen's University Belfast holds an extensive database on tree rings, particularly Irish oaks; information that may be used in the reconstruction of past climate conditions. A request for this information under the United Kingdom's new Freedom of Information legislation was disputed on the basis of intellectual property rights, compliance costs and the usefulness of the information as a proxy for temperature. Costs of compliance were exaggerated by the university, and there was a reluctance to classify information as environmental in order to avoid disclosure. Arguably, copyright subsists in the requested datasets but this, in itself, would not prevent disclosure. The validity of the tree ring data as a proxy for past temperatures would only become a relevant legal consideration under the public interest test for disclosure of ancillary information held by Queen's University Belfast in non-electronic format. However, scientific uncertainties emerge from the analysis under public interest, potentially raising issues for the United Nations' International Panel on Climate Change that has incorporated this data into its influential 2007 assessment report.

Introduction*

Since 1990 the United Nations' Intergovernmental Panel on Climate Change (IPCC) has published four influential reports on anthropogenic global warming (AGW), based in part on scientific research undertaken by institutions in the United Kingdom.

Only since 2005 has the United Kingdom had a legally enforceable Freedom of Information (FoI) regime with the Freedom of Information Act 2000 (FoIA) bestowing a right, described without reference to subject matter, on every person to have disclosed by a public authority all information within the specific request, limited only by specific exemptions. Under this legislation environmental information is treated as a special class of information because of obligations under the European Union's Aarhus Directive on Public Access to Environmental Information 2003/4/EC.

A particularly controversial aspect of the IPCC reports relates to the interpretation of past climate.¹ Requests for

data on which these interpretations are based was central to the 'Climategate' saga involving the unauthorised disclosure of email correspondence from the Climatic Research Unit (CRU), University of East Anglia,² and is central to the ongoing dispute between Queen's University Belfast and a FoI request first made by Douglas J Keenan in April 2007, which is the focus of this article.

Temperature records for Europe from thermometers extend back to 1660 and with a high degree of reliability only to 1850. In order to understand climate over earlier periods extrapolations are made from biological and physical phenomena known as 'proxies'. Annual tree rings are one type of proxy. The growth in the ring of a particular species in a particular location will be affected by many factors, including the biological age of the tree itself, climatic conditions and disturbances such as insect infestations. The science associated with attempting to unravel the climatic signal from tree rings over time is called dendroclimatology.

Queen's University Belfast (QUB) has a tree ring laboratory within the Department of Archaeology and Palaeoecology established in 1968 to construct a long oak tree chronology to provide wood samples for radiocarbon calibration. Ring widths are obtained by examining the individual rings and measuring the width from the start of the spring growth to the end of the summer growth. Measuring the widths is not simply a mechanical process but requires skill, judgment and decision-making. Individual data sets have been measured by academic staff, research assistants and both undergraduate and postgraduate students over a period of 40 years.

Most of the accumulated QUB tree ring data is from Irish oaks. Oaks are a relatively long-lived species, with some trees living more than 500 years. Oaks have been used as a building timber from prehistoric times and have been preserved in bogs and wetland systems over many millennia. A set of oak samples can therefore potentially provide a continuous record over several thousand years. QUB also holds bog pine samples and bog oak samples

* Acknowledgement: This work was funded from the B. Macfie Family Foundation.

1 E Jansen and others 'Palaeoclimate' in S Solomon and others (eds) *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press Cambridge and New York 2007).

2 F Cuterl 'Climate Controversy: Iceberg Ahead: Climate scientists who play fast and loose with the facts are imperiling not just their profession but the planet' *Newsweek* (1 March 2010) 40; J M Broder 'Scientists Taking Steps to Defend Work on Climate' *New York Times* (2 March 2010) available at <http://www.nytimes.com/2010/03/03/science/earth/03climate.html>.

from England and France, as well as samples from wood from houses in Britain, the European mainland and the USA. The tree ring data held at QUB extends back from modern times (present–mid-17th century) through to the medieval period (mid-14th–9th century) and the Iron Age (1st millennium AD–1st millennium BC), with Irish bog oaks dating as far back as 5474 BC.

In April 2007 London-based mathematician Douglas J Keenan requested tree ring data from QUB, specifically concerning widths of the rings of the trees, a list of years in which the tree rings grew (if known) and a description of the precise location of where each tree was found. Mr Keenan pointed out that the information requested was likely to fall under the classification of environmental information and should therefore fall under the Environmental Information Regulations 2004 (EIRs). He requested the information as files in electronic format.

A response was received from the QUB Information Compliance Officer confirming that information relating to dendrochronology research was held by the university but not in the electronic format requested. Furthermore, the response stated that to prepare the data would involve an inordinate effort on the part of staff and would, in any event, exceed the ‘appropriate limit’ provided by the Freedom of Information (FoI) and Data Protection (Appropriate Limit and Fees) Regulations 2004, ie 18 hours of staff time. As such, the request was refused under section 12 of the FoIA.³

Mr Keenan was not satisfied with this response and, after further communications, asked for an internal review of his FoI request.⁴ Following this review,⁵ Mr Keenan made a complaint to the Information Commissioner and this decision, released in March 2010, became the focus of international media interest.⁶

Both FoI and intellectual property are important legal concepts, central to this case, but to some extent misunderstood by media commentators and also by Professor Mike Baillie, a recognised expert in dendrochronology who became the public voice for QUB.

We outline the issues in this case as they were considered by the Information Commissioner and how they might have been considered if QUB had better defended its potential intellectual property rights. We also contrast obligations created by the relatively new FoIA in the UK with aspects of traditional British university culture. Publicly expressed conflicting views from the main protagonists on legal issues have also drawn attention to uncertainties in the scientific basis for using oak tree data for temperature proxies, with possible implications for IPCC assessments.

We examine first the issue of whether the tree ring data satisfies the requirements of classification as ‘environmental information’ and then, secondly, the four exceptions relied upon by QUB to support non-disclosure⁷ are considered. This leads into a brief discussion of the nature of the tree ring data itself, which would become relevant if engagement of exceptions requires balancing of public interest factors for and against disclosure.

Environmental information

Mr Keenan asked that his initial request should be processed as environmental information.⁸ This issue can be critical, as there are very strict cost limits that a public authority can otherwise rely on to refuse a request under the FoIA. QUB cited this cost limit, and estimated the cost of fulfilling Mr Keenan’s request at ‘12 months of full time work’,⁹ which was ‘vastly in excess’¹⁰ of the prescribed limit under the FoIA. However, public authorities may be required to accept a significantly greater resource burden in providing environmental information than other information, based upon the clear presumption in favour of disclosure provided in the Environmental Information Regulations (EIRs).¹¹ The issue of cost of compliance under the EIRs is addressed in greater depth in a subsequent section where the concept of ‘manifestly unreasonable’ requests is explored. It is noteworthy that QUB offered no reasoned explanation as to why it did not consider the request as environmental. The apparent reluctance of public authorities even to consider requests for information under the EIRs, without comment or explanation, has been an issue in other cases.¹² The status of the requested tree ring information as environmental was not acknowledged by QUB until the intervention of the Information Commissioner, following a specific request from Mr Keenan,¹³ nearly two years after his initial request for information from QUB.

The question of whether the tree ring data sets should be recognised as ‘environmental information’ under the EIRs is comparatively easy to resolve. Regulation 2(1)(a) provides that:

‘[E]nvironmental information’ has the same meaning as in Article 2(1) of the Directive, namely any information in written, visual, aural, electronic or any other material form on (a) the state of the elements

3 Letter from C McVeigh, Information Compliance Officer QUB to D Keenan (21 June 2007).

4 Letter from D Keenan to Professor K D Brown, Pro-Vice-Chancellor Education and Planning (24 May 2007).

5 Letter from Professor K D Brown, Pro-Vice-Chancellor Education and Planning to D Keenan (26 September 2007).

6 M E Baillie *Tree-ring patterns are intellectual property, not climate data* guardian.co.uk (11 May 2010); F Pearce ‘Climate sceptic wins landmark data victory “for price of a stamp”: Belfast ecologist forced to hand over tree-ring data describes order from information commission as a “staggering injustice”’ *The Guardian* (20 April 2010).

7 Information Commission Decision Notice FS50163282 (29 March 2010).

8 FoI Request from D Keenan to QUB (10 April 2007).

9 Letter from C McVeigh, Information Compliance Officer QUB to D Keenan (21 June 2007).

10 Email from Professor K D Brown, Pro-Vice-Chancellor Education and Planning QUB to D Keenan (26 September 2007).

11 Information Tribunal *DBERR v Information Commissioner* (EA/2008/0096) para 39.

12 J Abbot, J Marohasy ‘Accessing environmental information relating to climate change: A case study under UK freedom of information legislation’ (2010) 22 ELM 3–11.

13 Letter from D Keenan to Information Commissioner (29 January 2009).

of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified organisms and the interaction among these elements.

In considering Mr Keenan's request, the Commissioner believed it unnecessary for information to have a direct effect on the environment for it to be environmental. He considered that the phrase 'any information ... on' should be interpreted widely and in line with the purpose expressed in the first recital of the Council Directive 2003/4/EC. This breadth of meaning as applied to the concept of environmental information has been recognised by the European Court of Justice.¹⁴ The Court held that 'information relating to the environment' under Article 2(a) of the directive includes any information on the state of the various aspects of the environment. The Commissioner held that information that would inform the public about the element under consideration and would therefore facilitate effective participation by the public in environmental decision-making is likely to be environmental information.

The information in this case is the tree ring research data comprising measurements of tree rings collected over a 40 year period. The Information Commissioner found that tree ring measurements detail not only the age and growth of the trees but also provide an indication of the climatic conditions in which the growth occurred. As such, this information clearly related to the state of the elements of the environment, including water, soil, land, landscape and natural sites. The Commissioner was therefore satisfied that information regarding tree ring research fell within the definition of environmental information.

Intellectual property rights

Two exceptions relating to intellectual property can potentially be engaged under the EIRs. Regulation 12(5)(c) deals with intellectual property generally, while Regulation 12(5)(e) specifically deals with commercially confidential information.

Intellectual property under Regulation 12(5)(c)

Regulation 12(5)(c) states that a public authority may refuse to disclose information to the extent that the disclosure would adversely affect intellectual property rights. To engage this exception, it would be necessary to demonstrate that QUB held intellectual property rights in respect of the raw tree ring data and that an adverse effect to those rights would arise as a result of disclosure.

Some of the statements made by Professor Baillie in the general media give an indication of how the concept of intellectual property may be perceived by the lay

person, as opposed to a legal interpretation. Professor Baillie made the following comments to *The Guardian*:¹⁵

When a dendrochronologist measures the widths of the growth rings in a sample, he or she has to make multiple decisions with respect to the starts and ends of the rings, problem rings, and so on. Repeated measurement of the same sample, will not give exactly the same measurements. The number of rings must be the same, but the actual measured widths will not be. This means that the ring pattern of a tree-ring sample carries the 'intellectual fingerprint' of the dendrochronologist who measured it, every bit as much as this text carries my intellectual fingerprint. In my opinion, tree-ring patterns are therefore intellectual property and should not be handed out as if they are instrumental climate data.

In presenting its case under Regulation 12(5)(c), QUB argued to the Commissioner that the requested data had been subject to significant labour, skill and judgment on the part of the individuals who had accumulated it over a period of almost 40 years.¹⁶ QUB further argued that the data was used as a tool for undertaking research into dendrochronology in Ireland and for teaching students, and that this research included 'very significant know-how and confidential information'. QUB was of the view that disclosure of the requested information would adversely affect QUB's ability to protect and maintain this know-how, thereby impacting on its academic research and expertise in this area.

On the basis of these representations, however, the Commissioner was not persuaded that QUB did in fact hold any intellectual property rights in relation to the withheld information. Whilst research undertaken and published by QUB using the data as a tool might well attract intellectual property rights, it was unclear to the Commissioner how the raw tree ring data itself could attract such rights.

The Commissioner offered QUB a number of opportunities to provide detailed arguments in support of the existence of its intellectual property rights. Instead the focus of the argument advanced to support the application of this exception related to the protection of QUB's ability to exploit the data commercially by using it to attract funding for further research.

The Commissioner found that QUB did not establish how the withheld information attracted intellectual property rights nor had QUB provided 'sufficient argument or evidence on the application in the present circumstances of the principles and practice of intellectual property law'. Consequently, there was no requirement to consider any public interest¹⁷ arguments in relation to this exception.

15 Baillie (n 6).

16 See note 7.

17 M Turle 'Freedom of Information Act 2000 – UK: Freedom of information and the public interest test' (2007) 23 Computer Law & Security Report 167–76.

14 *Wilhelm Mecklenburg v Kreis Pinneberg – Der Landrat* ECJ judgement of 17 June 1998 (Sixth Chamber) Case C–321/96 para 19.

Intellectual property rights under Regulation 12(5)(c) of the EIRs have been considered in detail by the Information Commissioner in a number of cases relevant to the QUB tree ring data. The Commissioner's reference to insufficient argument or evidence 'on the application of the principles and practice of intellectual property law' is similar to that in *Veterinary Medicines Directorate*.¹⁸ There, the Commissioner was unable to elicit from the public authority 'the nature of, and legal basis for, the intellectual property right asserted'. Essentially, the Commissioner is requesting evidence for legally recognised intellectual property rights under traditional categories such as copyright, trade mark, patent or database rights. Although confidential information can be considered as a specific form of intellectual property, the Commissioner's view is that this should not be included under Regulation 12(5)(c) because this falls under Regulation 12(5)(e).¹⁹

In cases where specific intellectual property rights have been asserted by a public authority, the Commissioner has proceeded to consider the application of Regulation 12(5)(c) in detail. It is clearly insufficient for a party making a submission to the Commissioner vaguely to assert input of 'significant labour, skill and judgment' or an 'intellectual fingerprint', as QUB did, and then presumably rely on the Commissioner to identify specific intellectual property rights. In *Department of Health v Information Commissioner* it was clearly stated that: 'If a party wishes to rely upon an exemption it is up to them to establish that this is valid'.²⁰

Intellectual property in the QUB tree ring data

In the context of the QUB tree ring data, the intellectual property rights most likely to subsist are database rights and/or copyright. These intellectual property rights have been an issue under Regulation 12(5)(c) before the Information Commissioner, and subsequently the Information Tribunal and the High Court, involving a request under the EIRs for data held by the Office of Communications (Ofcom) in 2006.

The complainant requested that Ofcom disclose information which it held about the location, ownership and technical attributes of mobile phone cellular base stations. The information was originally provided to Ofcom by individual companies operating mobile phone services within the UK, enabling Ofcom to provide information to the public about the location of all base stations in the country through its Sitefinder database. Ofcom argued that the mobile operators owned database rights in the data they provided, and also copyright in the database and table or compilation. The Commissioner undertook an extensive examination of issues relating to both copyright and database rights under Regulation 12(5)(c).

Under section 3A of the Copyright, Designs and Patents Act 1988 (CDPA) a database means:

- (1) . . . a collection of independent works, data or other materials which –
 - (a) are arranged in a systematic or methodical way, and
 - (b) are individually accessible by electronic or other means.
- (2) For the purposes of this Part a literary work consisting of a database is original if, and only if, by reason of the selection or arrangement of the contents of the database the database constitutes the author's own intellectual creation.

Regulation 13 of the Copyright and Rights in Databases Regulations 1997 (CRDR) provides that:

- (1) A property right ('database right') subsists . . . in a database if there has been a substantial investment in obtaining, verifying or presenting the contents of the database.

According to Ofcom, the mobile operators considered the raw data that they supplied for Sitefinder constituted a 'database', being a collection of data arranged in a systematic and methodical way and that the data are individually accessible by electronic or other means. The mobile operators claimed that database rights exist on account of the substantial investment they have made in obtaining, verifying and presenting the contents of the database.

The Commissioner was satisfied that each dataset supplied to Ofcom by the individual mobile operators for Sitefinder constituted a database. These datasets were collections of data arranged in a systematic and methodical way and the data was individually accessible by electronic means. In addition, the Sitefinder database as a whole also fulfilled this requirement. The Commissioner was therefore satisfied that in respect of the individual datasets supplied for Sitefinder the mobile operators are the makers of databases for the purposes of the CRDR. In addition, the mobile operators and Ofcom were joint makers of the Sitefinder database itself.

To establish a database right, the maker must be able to show that he has made a substantial investment either in obtaining, verifying or presenting the contents of the database. Ofcom has explained that the data required to populate Sitefinder is held within the internal company datasets of each mobile operator. Collating that data into the agreed format for Sitefinder took up to 50 man hours, as the amount of information to be compiled was substantial. In addition, the mobile operators expended significant time and resources in order to present data for input into the Sitefinder database.

The Commissioner next considered case law developed in *British Horseracing Board v William Hill*.²¹ This

18 Information Commission Decision FER0137609 (10 December 2009).

19 Information Commission Decision Notice FER0072933 (11 September 2006).

20 *Department of Health v Information Commissioner* (EA/2008/0019) at para 98.

21 *British Horseracing Board v William Hill* [2001] EWCA Civ 1268.

dealt with a claim by the British Horseracing Board that it owned database rights in a computerised collection of information about horseracing events. The Court of Appeal referred to a European Court of Justice judgment²² and found that, in determining whether there has been substantial investment in obtaining, verifying or presenting the contents of a database, any investment in the creation of the data within the database is not to be taken into account. However, the Commissioner was satisfied that, in this instance, the mobile operators had demonstrated substantial investment in obtaining and presenting the datasets, distinct from the investment made in creating the data within them. He concluded that each of the mobile operators owned a database right in the individual datasets provided for Sitefinder. Ofcom also had a database right over Sitefinder as a whole.

Contrast these facts with the situation with the QUB tree ring data. Each set of QUB tree ring data is arguably a database, being 'a collection of data which are arranged in a systematic or methodical way, individually accessible by electronic means'. A collection of these datasets is also arguably a database. However, despite identifying the existence of the database, based on the *Ofcom* case, it is doubtful whether recognised database rights apply. This becomes apparent by examination of a typical QUB tree ring dataset,²³ consisting of a list comprising the following fields:

- Line 1 – Site name
- Line 2 – QUB identification number
- Line 3 – The number of measured annual growth rings (typically 50 – 150 integers)
- Line 4 to Line n – A list of the tree ring widths
- Line n+1 (Final line) – A comment

The comparative simplicity of the presentation in the datasets, essentially a list (as opposed to the significant investment of effort in creating the data) argues against database rights under the principles established in *British Horseracing Board v William Hill*. It is more likely that a copyright, rather than a database right exists in the QUB tree ring data. Although the possibility of copyright was suggested by Professor Baillie in an interview following the release of the Information Commissioner's decision,²⁴ it was apparently not specifically raised in evidence presented by QUB. Under the CDPA copyright may subsist in an original literary work,²⁵ including a table or compilation.²⁶

In the *Ofcom* case the Commissioner noted that that the originality required refers to the fact that a work must not be copied, as opposed to any inventive test. Therefore, to satisfy the requirement of originality a copyright holder must demonstrate that some work or effort has gone into

creating the work. Ofcom claimed that the way that the mobile operators have selected and/or arranged the raw data constituted their intellectual creation and thus allowed them to claim copyright in the table/compilation.

The Commissioner was satisfied that copyright existed in the datasets or tables that were provided to Ofcom by the mobile phone companies. Each database was an original work created by the mobile operators that only they were in a position to compile. The Commissioner considered that the judgment and skill expended by the mobile operators in determining where a base station is located was helpful in demonstrating that copyright existed in the data within the datasets supplied to Ofcom.

Each QUB tree ring dataset is essentially a simple list or table of items. There is a long history of cases before the UK courts where copyright in lists has been an issue. Many of these copyright cases relate to information on sporting events being protected under copyright as literary works as, for example, in *Odham's Press Ltd v London and Provincial Sporting News Agency (1929) Ltd*.²⁷ Although the labour and skill involved in generating starting prices and betting odds for horse racing was considerable, the labour and skill in actually presenting it was considered comparatively slight and the court was not prepared to find that the lists were literary works capable of protection by copyright. However, later cases show that skill and labour are not restricted to literary selection, expression and presentation. In *Ladbroke Football v William Hill Football* the House of Lords considered whether copyright subsisted in betting coupons and, in particular, whether preparatory work undertaken prior to actually setting out the information in the coupon should be taken into account.²⁸ Lord Pearce stated:

There may be cases where such a dichotomy might be justified between some preliminary work and the actual transcription of a compilation, if the work was done with no ultimate intention of a compilation. But on the facts of the present case such an argument cannot succeed. The whole of the plaintiff's efforts from the beginning were devoted to arranging a coupon that would attract punters and be the basis of the plaintiffs' business. Types of bets were not considered in vacuo but only in relation to the part which they would play in the coupon.

It is therefore arguable that copyright exists in each of the QUB tree ring datasets, taking into account the labour and skill required to produce the data, even though that required to present it may be comparatively small.

Would disclosure adversely affect intellectual property rights?

If an intellectual property right could be established in QUB tree ring datasets through copyright, then the next

22 *British Horseracing Board v William Hill* ECJ judgment 9 November 2004 Case C-203/02.

23 Queen's University Belfast School of Geography, Archaeology and Palaeoecology, QUB Dendrochronology Raw Data available at http://www.chrono.qub.ac.uk/Resources/dendro_data/dendro.html.

24 See note 7.

25 Copyright Designs and Patents Act 1988 s 1(1).

26 *ibid* s 3(1).

27 *Odham's Press Ltd v London and Provincial Sporting News Agency (1929) Ltd* [1935] 1 Ch 672.

28 *Ladbroke Football v William Hill Football* [1964] 1 WLR 273.

question is whether disclosure through FoI would produce an adverse effect.

In *Ofcom* the Commissioner considered the meaning of 'adverse affect' and the purpose of the intellectual property rights exception in Regulation 12(5)(d). One perspective is that where an intellectual property right has been established, the disclosure under the EIRs without the express permission of the right holder would infringe that right. Such technical infringement could be seen as impairing or undermining the right and therefore could be regarded as an 'adverse' effect on the right. However, the Commissioner's view was that such a broad interpretation of the exception would be inconsistent with the European directive on which the EIRs are based. Recital 16 of the directive provides that disclosure of information should be the general rule and that the exceptions setting out 'grounds for refusal should be interpreted in a restrictive way' so that 'the public interest served by the disclosure should be weighed against the interest served by the refusal'.

In the Commissioner's view, the purpose of intellectual property rights is to protect the commercial and other interests of a right holder with the exception in the EIRs intended to protect those interests rather than the principle of intellectual property rights. Therefore, in order to engage the exception, it is necessary for a public authority to demonstrate that actual harm to the commercial or other interests of the right holder would arise as a result of disclosure. Although disclosure might constitute a technical infringement of an intellectual property right, that was not enough in itself to satisfy the adverse effect test. In *Ofcom* the public authority had not demonstrated that any actual harm to the mobile operators, such as a loss of return on their investment, would arise through the disclosure. Nor had the public authority claimed or demonstrated any actual harm to its own interests.

QUB argued to the Commissioner that the intellectual property rights of the university's dendrochronology research are central to the attraction of external funding and that, although much of the raw tree ring data is available through the International Tree Ring Data Bank, the release of the raw data requested by Mr Keenan would seriously impact on QUB's ability to attract funding to undertake further research or submit publications to peer reviewed journals. However, it is unclear how the simple disclosure of the information to Mr Keenan would, in itself, lead to an adverse effect on QUB's research activities. As discussed below, it is unlikely that intended research activities by Mr Keenan would conflict with, or duplicate, QUB research. The Commissioner noted²⁹ that section 7.5.4 of the Defra guidance on exceptions under the EIRs states that:

[C]opyright does not prevent authorities releasing information they hold. However, where such information is subject to copyright, it should be made clear to applicants that the copyright still exists.

29 Information Commission Decision Notice FER0279668 (15 July 2010).

Further:

[I]f an applicant wishes to use any such information in a way that would infringe copyright...he or she would require a licence from the copyright holder.

In conclusion, it is arguable that copyright exists in the QUB tree ring datasets, but this would not in itself prevent disclosure to Mr Keenan. However, Mr Keenan would in turn be restricted in how he used the disclosed data. For example, he could not freely publish the data without a licence from QUB as that would be an infringement of copyright.

Commercially confidential information

Regulation 12(5)(e) protects confidentiality of commercial or industrial information and states that a public authority may refuse to disclose information:

[T]o the extent that its disclosure would adversely affect the confidentiality of commercial or industrial information where such confidentiality is provided by law to protect a legitimate economic interest.

For this exception to apply, a public authority must prove that the withheld information satisfies the following elements:

1. it is commercial or industrial in nature
2. it is subject to confidentiality provided by law
3. confidentiality is provided to protect a legitimate economic interest and
4. confidentiality would be adversely affected by disclosure.

The Commissioner considers that for information to be commercial or industrial in nature it needs to relate to a commercial activity, either of the public authority or a third party,³⁰ with the activity generally involving the sale or purchase of goods or services for profit. In this instance the Commissioner considers that the raw tree ring data could be viewed as commercial information as it was commercially exploited by the university.

The Commissioner considers that 'provided by law' will include confidentiality imposed on any person under the common law of confidence, contractual obligation or statute.³¹ Under common law, the Commissioner's view³² is that a duty of confidence may arise between two parties when a party in receipt of the confidential information cannot disclose it without the permission of the other party. Disclosure would breach a duty of confidence owed to the confider of the information.

30 Information Commission Decision Notice FER0206320 (30 June 2010).

31 Information Commission Decision Notice FER02567055 (5 August 2010).

32 Information Commission Decision Notice FS50255081 (12 August 2010).

There is no specific requirement for the information to have been obtained from another person under Regulation 12(5)(e), in contrast to section 41 of the FoIA. The exception can therefore also cover information created by the public authority and subsequently provided to another party. However, no confidentiality can attach to information generated by the public authority itself, if it has not been shared with a third party under the common law. For the purposes of this exception, the Commissioner will also accept obligations of confidence imposed by contract.³³

The Commissioner considered how QUB obtained the raw tree ring data. This data related to research undertaken by staff from QUB's Department of Archaeology and Palaeoecology; therefore, QUB collected the data for itself. Consequently, the raw data did not attract a duty of confidence provided by law being information generated by QUB itself and not shared with a third party. Consequently, the exception at Regulation 12(5)(e) was not engaged, with no requirement to consider any adverse effect arising from its disclosure nor any requirement to consider the public interest test.

Unfinished documents or incomplete data

The exception at Regulation 12(4)(d) is a class based exception which provides that a public authority may refuse to disclose information to the extent that: 'the request relates to material which is still in the course of completion, to unfinished documents or to incomplete data'. If an exception is class based and information falls within its scope then this information will be exempt and there is no need for the public authority to demonstrate any adverse affect.

In most cases where this exception has been considered by the Information Commissioner, the issue has been disclosure of draft reports by a public authority, as opposed to a final report.³⁴ This issue was resolved by the Information Tribunal in *Department for Transport v Information Commissioner*³⁵ by observing that '... the Draft Report is, by its very name, and giving the words their logical meaning, an unfinished document'.

The scenario with the QUB tree ring information is distinct, in that it refers to a collection of data accumulated over a long period of time. The tree ring data held electronically by QUB was used in ongoing research, including development of new tree ring chronologies, potentially leading to future publications. QUB provided arguments as to why it considered disclosure of the raw data would have a 'significant and adverse effect on the viability of the University's Dendrochronology research programme'.

The Commissioner, however, did not accept that the exception under Regulation 12(4)(d) was engaged because while the raw data, collected over a 40 year period, was now being used by QUB for research, this did not indicate that the tree ring data itself was unfinished or incomplete. Although the research utilising the data was ongoing, the data itself had already been collected and was therefore not unfinished or incomplete.

Request manifestly unreasonable

Regulation 12(4)(b) states that a public authority may refuse to disclose information to the extent that the request for information is manifestly unreasonable. There is no definition of the term 'manifestly unreasonable' but the Commissioner's view is that the word 'manifestly' implies that a request should be obviously or clearly unreasonable.³⁶ This may apply where it is demonstrated that a request is either vexatious or that compliance would incur unreasonable costs for the public authority or an unreasonable diversion of public resources.³⁷

The Commissioner has outlined a list of criteria to consider when determining whether a request for information is vexatious.³⁸ In the QUB case, there was no suggestion that Mr Keenan's request was vexatious. However, QUB argued it was manifestly unreasonable on the grounds of the excessive cost of compliance. There is no single test to identify which requests may be considered unreasonable in terms of compliance costs: each individual case is judged on its own merits taking into account all of the circumstances.

In determining whether the cost of complying with a request would be manifestly unreasonable the Commissioner uses the Act as a starting point to ascertain what costs or diversion of resources would be involved in answering a request.³⁹ The Appropriate Limit and Fees Regulations 2004 set a limit of £600 for central government departments, the equivalent to 24 hours at a rate of £25 per person per hour. In estimating the cost of complying, a public authority can take the following into account:⁴⁰

[D]etermining whether it holds the information requested, locating the information or documents containing the information, retrieving such information or documents, and extracting the information from the document containing it.

However, this does not mean that a request exceeding the appropriate limit will automatically be manifestly unreasonable under Regulation 12(4)(b). The Information

33 *ibid.*

34 Information Commission Decision Notice FER0210838 (24 June 2010); Information Commission Decision Notice FER0202121 (27 April 2010); Information Commission Notice Decision FER0184525 (3 November 2009).

35 *Department for Transport v Information Commissioner* (EA/2008/0052) at para 82.

36 Information Commission Decision Notice FER0285305 (5 July 2010).

37 Information Commission Decision Notice FER0233834 (11 May 2010).

38 Awareness Guidance No 22 'Vexatious and repeated requests' (3 December 2008).

39 Information Commission Decision Notice FS50210328 (17 June 2010).

40 Information Commission Decision Notice FS50187763 (30 March 2009).

Tribunal has stated:

Regulation 12(4)(b) is quite different. There is no 'appropriate limit' to act as a cut-off point. It is the request that must be 'manifestly unreasonable', not just the time required to comply with it, nor indeed any single aspect of it. In our view, this means that Regulation 12(4)(b) requires the public authority to consider the request more broadly. This does not mean that the time required to comply with a request is irrelevant. Rather, it is one factor to be considered along with others when assessing whether a request is 'manifestly unreasonable'.⁴¹

And:

We note that recital 9 of the Directive calls for disclosure of environmental information to be 'to the widest extent possible'. Whatever the reasons may be, the effect is that public authorities may be required to accept a greater burden in providing environmental information than other information.⁴²

QUB argued that Mr Keenan's request was manifestly unreasonable because of the time it would take to extract, copy, collate and prepare the information for release.⁴³ To justify this, QUB initially claimed there were approximately 150 disks of data, but at the site inspection in February 2009 the Commissioner established that there were only 67 disks, containing 150 folders of relevant data. Examination of a sample of the disks showed that the raw data, comprising approximately 11,000 tree ring datasets, was held electronically in an average of 20 to 60 folders per floppy disk. QUB had argued that copying and transferring this information would be extremely time-consuming. However, during the inspection the Commissioner established that on average it would take approximately five minutes to transfer each data folder. Accordingly, the Commissioner estimated that it would take approximately 12.5 hours to copy the relevant information, and this would not constitute a significant burden on QUB. Initial estimates of the compliance cost had therefore been greatly exaggerated by QUB.

QUB also emphasised that even if a copy of the raw data was provided for Mr Keenan, it could not be put to any meaningful purpose. Yet this is not a valid consideration when assessing information disclosure under the EIRs. There is no requirement for an applicant to explain the proposed use any information provided unless public interest becomes a relevant consideration.

The Commissioner was not satisfied that compliance with the request would impose a significant burden on QUB, and the university had failed to demonstrate that the request was manifestly unreasonable. Therefore the Commissioner's decision was that the exception at Regulation 12(4)(b) was

not engaged, and consequently there was no requirement to consider the public interest test.

Following the Information Commissioner's decision,⁴⁴ QUB released the electronic information.⁴⁵ The university only needed to disclose the information to Mr Keenan, but chose to make it public via the internet.⁴⁶

Mr Keenan, however, still does not have access to the ancillary information relating to locations of trees from which these measurements were taken as this information was not in electronic format.

Information on tree rings not in electronic format

Mr Keenan submitted another request under the EIRs⁴⁷ for details of the locations of trees, including latitude, longitude and elevation. In response QUB acknowledged that, under the EIRs, although there was no time limit on the amount of time to process a request, the estimated 220 hours required to provide the information sought was viewed as unreasonable.⁴⁸ The university also extended an invitation to Mr Keenan to visit the university to extract the relevant information in person.⁴⁹

This time estimate of 220 hours is significantly greater than the estimated 12.5 hours for QUB to comply with the request for data in electronic format. The question arises: at what point would a request for information from a public authority become manifestly unreasonable on the grounds of placing an unreasonable burden?

The Information Commissioner has stated that, in order to demonstrate that Regulation 12(4)(b) is engaged, a public authority should be able to show how a request – not just the time required or costs involved in complying with it – is manifestly unreasonable.⁵⁰ This requires public authorities to consider a request for environmental information more broadly, with the time to respond to the request as one factor to be considered along with others, such as the interference with the normal conduct of the public authority's activities, or whether compliance entails a significant diversion of resources from other functions. Relevant factors to consider⁵¹ include the proportionality of the burden on the public authority's workload, taking into consideration the size of the public authority.

Although the time taken to comply is not the only determinant, as each public authority will differ in terms of the impact on its workload, some guidance can be obtained from the Commissioner's view in other cases. An estimated time of 33 hours required by a public authority to search manually through the files was not

41 *DBERR v The Information Commissioner and Platform* (EA/2008/0096) para 36.

42 *ibid* para 39.

43 Information Commission Decision Notice FS163282 (26 March 2010).

44 *ibid*.

45 Email from C Jamison, Head of Registrar's Office QUB to D Keenan (4 May 2010).

46 http://chrono.qub.ac.uk/Resources/dendro_data/dendro.html.

47 Fol request from D Keenan to QUB (11 May 2010).

48 Letter from D Troy, Registrar's Office, QUB to D Keenan (23 June 2010).

49 *ibid*.

50 Information Commission Decision Notice FER0204414 (11 February 2010).

51 *ibid*.

found to be ‘manifestly or “obviously” unreasonable.’⁵² A time estimate of 54 hours has been found to be manifestly unreasonable,⁵³ while an estimated time of 260 hours was considered unreasonably costly and compliance would have taken an unreasonable amount of time.⁵⁴

On the basis of these decisions, if the time estimate from QUB of 220 hours to comply with Mr Keenan’s request for information relating to tree locations is accurate, it is likely that this would be held to be manifestly unreasonable. The next step would be to consider the public interest test. This requires a balancing of factors for and against disclosure. Factors supporting non-disclosure would be the financial burden placed on QUB. The case supporting disclosure would need to examine the benefit of disclosure of the ancillary tree ring information. This in turn depends on the nature of the information requested. It is arguable that the stronger the proposition that the complete information set can reveal past climate for Ireland, particularly through accurate temperature reconstructions, the more convincing the public interest case for disclosure becomes.

Nature, relevance and purpose of the information requested

Much of the tree ring data requested by Mr Keenan specifically related to Irish oaks. According to Mr Keenan, this data is extremely valuable for global warming studies for reconstructing temperatures over past millennia.⁵⁵ Professor Baillie, however, disputes this, claiming that the oak data is not relevant to temperature reconstruction records.⁵⁶

Although ancient oaks could give an indication of on-off dramatic climatic events, such as droughts, they were not useful as a temperature proxy because they were highly sensitive to water availability as well as past temperatures. In my view it would be dangerous to try and make interpretations about the temperature from this data. It’s been dressed up as though we are suppressing climate data, but we have never produced climate records from our tree rings.

Dr Rob Wilson from the University of St Andrews tree ring laboratory has concurred, stating that ‘oaks were virtually useless as a temperature proxy.’⁵⁷

In 1982 Professor Baillie and co-workers did in fact publish a study using oaks from 13 sites in Britain including some from Ireland, reporting temperature and rainfall reconstructions. In more recent technical publications

Baillie and co-workers,⁵⁸ however, explain that 20 years ago dendroclimatic studies using Irish oaks were discontinued because trees growing in the British Isles are less sensitive to temperature than trees in Scandinavia and Siberia.

Our review of the literature indicates that oak tree rings can give a useful climate signal but this may depend in complex ways on both temperature and precipitation.⁵⁹ Pilcher and Gray⁶⁰ studied the relationships between oak tree growth and climate in Britain and found that high rainfall, particularly in the growing season, and high temperatures in early summer favour growth. High temperatures in the previous winter, however, are detrimental to growth in the following season. Radial growth of young oaks in Spain was limited by the temperatures in June of the year the ring was formed, while mature and old-growth oaks showed a negative response to winter and summer temperatures, and a positive one to summer precipitation.⁶¹ Other European studies based on oaks have also concluded that both temperature and precipitation have an important influence on tree ring widths: for example, tree ring series from both living oak trees and historic oak timbers in southeastern Slovenia.⁶²

Our present view, on the available evidence, is that there are indeed uncertainties in the use of Irish oaks as temperature proxies and application of the public interest tests may, on balance, favour non-disclosure.

In light of these reservations that the temperature signal from oak trees may be difficult to determine, it is relevant to note that a multi-proxy study incorporating 47 data series, of which 37 were based on tree ring widths, with 7 from oaks, including 1 from Northern Ireland spanning the period 1001–1970, was cited in the 2007 IPCC report.^{63,64,65} More recently, Professor Michael Mann and co-workers have incorporated tree ring data from oaks, including Irish oak data from QUB, in multi-proxy temperature reconstructions of the last millennium in support of their famous ‘hockey stick’ temperature proxies which featured prominently in the 2001 IPCC reports, which later came under intense scrutiny for its statistical validity.^{66,67} In this technical paper more than 110 datasets

52 Information Commission Decision Notice FS50200310 (15 February 2010).

53 Information Commission Decision Notice FS50154310 (2 September 2008).

54 Information Commission Decision Notice FER0196026 (26 January 2010).

55 H Devlin ‘Climate sceptics force Queen’s University to hand over data’ *Times Online* (20 April 2010) available at <http://www.timesonline.co.uk/tol/news/environment/article7102743.ece>.

56 *ibid.*

57 Pearce (n 6).

58 A M García-Suárez, C J Butler and M G L Baillie ‘Climate signal in tree-ring chronologies in a temperate climate: A multi-species approach’ (2009) 27(3) *Dendrochronologia* 183–98.

59 M K Hughes and others ‘Climate signals in the British Isles tree-ring chronologies’ (1978) 272 *Nature* 606.

60 J R Pilcher, B Gray ‘The relationships between oak tree growth and climate in Britain’ (1982) 70 *J Ecol* 297–304.

61 V Rozas ‘Dendrochronology of pedunculate oak (*Quercus robur* L.) in an old-growth pollarded woodland in northern Spain: tree-ring growth responses to climate’ (2005) *Ann. For. Sci.* 209–218.

62 K Cufar and others ‘A 548-Year Tree-Ring Chronology of Oak (*Quercus Spp.*) for Southeast Slovenia and its Significance as a Dating Tool and Climate Archive’ (2008) 64(1) *Tree-Ring Research* 3–15.

63 J Guiot and others ‘Last-millennium summer-temperature variations in western Europe based on proxy data’ (2005) 15(4) *The Holocene* 489–500.

64 M G L Baillie ‘The Belfast, Northern Ireland, UK, oak chronology to AD 1001’ (1977) 37 *Tree-Ring Bulletin* 1–12.

65 See note 1.

66 S McIntyre, R McKittrick ‘Hockey Sticks, Principal Components, and Spurious Significance’ (2005) 32 *Geophysical Research Letters* 1.

67 M E Mann and others ‘Proxy-based reconstructions of hemispheric and global surface temperature variations over the past two millennia’ (2008) 105(36) *Proc Natl Acad Sci USA* 13252.

from oaks were included in a primary set of 926 tree rings from the International Tree Ring Data Bank. For some multi-proxy reconstructions this primary dataset was reduced to 484 by statistical screening, but it is unclear to what extent the oak data was retained.

The QUB case suggests a degree of misunderstanding with respect to some of the legal issues, which is not entirely surprising. The case also reveals confusion amongst the dendroclimatology community as to exactly which trees are useful to reconstruct past temperatures, arguably a more significant finding given the reliance on these interpretations in formulating public policy.

Conclusions

Freedom of information legislation was enacted in the UK to increase transparency of government and consequently public confidence in the decisions of government. In our case study, after a benign application for tree ring data by Mr Keenan, three years of dispute followed, including official reviews and a detailed decision from the Information Commissioner. If the FoI legislation is to operate as intended, there needs to be a better understanding of compliance obligations and cultural change within universities.

This case illustrates a situation where at least one senior academic scientist responsible for accumulation of large datasets relating to the environment obviously felt a deep sense of personal ownership of information gathered during his career. Professor Baillie, from QUB, described the Commissioner's decision to release the electronic data as a 'staggering injustice', lamenting that:⁶⁸

We are the ones who trudged miles over bogs and fields carrying chain saws. We prepared the samples and – using quite a lot of expertise and judgment – we measured the ring patterns. Each ring pattern therefore has strong claims to be our copyright. Now, for the price of a stamp, Keenan feels he is entitled to be given all this data.

This sentiment is echoed in the infamous Climategate emails, where Professor Phil Jones from the University of East Anglia refused to provide information on the basis he has '25 or so years invested in the work' and the request for the data is by someone who will 'try and find something wrong with it'.⁶⁹

Many researchers at British universities have traditionally been in a privileged position with freedom to follow their intellectual curiosity for entire careers. Indeed, self-funded scientists were once relatively common, certainly in England up to the Victorian era, before large-scale government funding became available with many fellows of the *Royal Society* in London described as 'gentleman scientists'. However, while no

doubt passionate and dedicated, Professors Baillie and Jones are not gentlemen scientists independently funding their hobbies. As stated in the Muir Russell Review,⁷⁰ a major shift in thinking is required on the part of those who are merely custodians of the data for the public good.

The Muir Russell Review recognised that there is 'extensive confusion and unease within the academic community as to exactly how FoIA/EIRs should be applied in terms of the materials developed during a research process', and recommended that an approach similar to that taken in the US be adopted in the UK.⁷¹ This would require that all data produced by publicly funded research be made available under FoIA. Under the US Freedom of Information Act research data is defined as:

[T]he recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, or communications with colleagues.

If the public is to have confidence in the decisions of government it is also important that scientists are consistent in their policy advice. When the dispute over the QUB tree ring data requested by Mr Keenan found its way into the media Professor Baillie made comment that oak trees should not be used as a proxy for temperature. Yet previously Professor Baillie had been silent on this issue, in particular on the influential conclusions drawn by Professor Mann to support IPCC conclusions that recent global warming is unprecedented.⁷²

68 Pearce (n 6).

69 M Russell 'The Independent Climate Change E-mails Review' (July 2010) at 37 available at <http://www.scribd.com/doc/34003747/Muir-Russell-Final>.

70 *ibid.*

71 Federal Register Vol 65(52) 14406 (16 March 2000) available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=00-5674-filed.

72 Mann and others (n 67) 13252–57.