

Communicating drought risk in a changing climate



About the DRY (Drought Risk and You) project

The [DRY project](#) was launched in April 2014, with the aim of developing an easy-to-use, evidence-based resource for drought risk management in the UK over a four year period. It brings together a wide range of scientists, social scientists and stakeholders to better understand drought risk in a changing climate.

Climate Outreach brings expertise in communication and engagement around climate impacts - helping the DRY team to overcome the challenges of communicating about drought risks at a time when flooding is so fresh in the public mind.

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About Climate Outreach

[Climate Outreach](#) (formerly COIN) is a charity focused on building cross-societal acceptance of the need to tackle climate change. We have over 10 years of experience helping our partners to talk and think about climate change in ways that reflect their individual values, interests and ways of seeing the world. We work with a wide range of partners including central, regional and local governments, charities, trades unions, business and faith organisations.

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Executive Summary

- UK droughts are projected to become **more severe** and affect larger areas of the country in the coming century
- There is no **'one size fits all'** drought communication strategy
- The effectiveness of any messaging around drought will be affected by its **timing**
- People are more likely to engage with drought messages if they **trust the 'messenger'**
- Scientific facts alone are not sufficient to engage people with drought risk - it is important to provide a **compelling narrative, grounded in people's values**
- There is **majority support** amongst the UK public for investment in climate change **adaptation**
- Focusing on **local climate impacts** can help some audiences engage with narratives about drought risk and climate change more broadly
- Connecting drought risks to **health impacts** can make the issue more personally relevant
- Avoid doom and gloom and **focus on the opportunities** and benefits of taking action

Introduction

This initial briefing paper summarises research and expertise on public communication of drought risks in a changing climate. We explore the difficulties involved in building understanding and engagement with the sometimes complex issues surrounding climate change and drought in the UK. The report outlines how communicators can best respond to these challenges. These lessons are intended to support delivery of more effective public engagement with drought risks.

This is in response to consistent feedback from the national Stakeholder Competency Group of the RCUK Drought and Water Scarcity¹ (DRY) project (and Local Advisory Groups around the seven river catchments which comprise the project's focus for fieldwork). At meetings held during the first year of the DRY project, stakeholders from a wide range of backgrounds identified **communicating more effectively with members of the public and engaging the public around drought risks** as areas where they hoped to develop their expertise via partnership with the DRY team. The ultimate aim of the DRY project is to produce a decision-making resource that integrates drought science and community-based knowledge into a 'tool' or 'utility' for drought risk decision-making. We anticipate that the main outputs of the DRY project will themselves contribute significantly to more effective public engagement with drought risks.

There is majority support amongst the UK public for investment in adaptation planning, regardless of beliefs about climate change

How does the public perceive drought risks?

Many people are aware that climate change could increase the frequency and intensity of droughts.² However, generally there is a **higher level of concern about flooding than drought**, especially following the destructive winter floods of 2013/14. A recent survey reported that, amongst those respondents reporting increased concern about climate change, only 6% referred to rising temperatures or hot/dry weather as a reason for increasing concern, compared to 26% who made reference to flooding and/or heavy rain.³ These findings are backed up by results from a 2013 survey conducted for the Department for Environment, Food and Rural Affairs (Defra) which revealed survey respondents were less concerned about increasingly frequent, severe heat waves than about flooding.⁴



Photo by Mike Rumboll

The role of timing in shaping perceptions of drought risk

People's perceptions are partly shaped by timing.⁵ The research projects cited above were conducted in early 2013, sometime after the last warm summer (2006) and most recent sustained heat wave (2003), but only one year after large scale flooding (2012). Overall the Defra report demonstrated majority support amongst the UK public for investment in climate change adaptations, regardless of respondents' beliefs about the existence and causes of climate change.⁶

Principles for communicating drought risks in a changing climate

It is relatively straightforward to construct a message about drought risk. Ensuring your message is understood and the implications of the message are accepted by your audience is more difficult. Focusing on solutions rather than merely describing the impacts can help people engage with the issue.⁷ In addition, to maximise the chances of success, it is vital that the message reflects and speaks to the values of your audience(s). There is no 'one size fits all' drought communication strategy but it is possible to identify some practices common to all good drought communication.

Acknowledge different types of drought

Communications should recognise there are different types of drought, which impact populations differently. Some of these are likely to be more readily associated in the public mind with media representations of drought than others.⁸ For example, droughts are normally associated in the UK with summer heat waves, such as the European heat wave of 2003. The longer lasting winter drought across southern England between 2010-2012 received much less media coverage.⁹

What type of drought are you communicating about? Will the audience recognise it as a 'drought'? Make sure you and your audience are on the same page.

In the UK, a meteorological drought means 15 or more consecutive days with less than 0.2 mm of rainfall. An agricultural drought refers to plants showing signs of water stress and slow growth, and starting to wilt.

A hydrological drought occurs when water levels in rivers, ponds, wetlands, lakes and reservoirs decline past a particular level. When recreational activities which rely on water such as fishing and water-sports are affected, the term used is socio-economic drought. At this point, reduced water availability may start to affect people's health, and water companies may introduce water restrictions such as hosepipe bans to help save water.¹⁰ In addition, there is a difference between the slow diffuse nature of droughts and more rapid onset events.

Find a narrative to accommodate alternating floods and droughts

UK droughts are projected to become more severe and affect larger areas of the country in the coming century.¹¹ Climate change projections also indicate that floods will increase in severity and frequency.¹² Though this may seem counter-intuitive, the storms and floods of 2013-2014 were preceded by a record breaking two year drought across southern UK.¹³ Droughts can actually make it more likely that floods will occur. Under drought conditions, the top layer of soil can become impacted. Consequently when it does rain, the water runs off the surface of the soil rather than moving downwards through the ground.

It can be a challenge, however, to communicate about alternating flood and drought risks. Like the idea of a prolonged cold snap during 'global warming', the notion of a drought when flooding is fresh in people's memories is a difficult sell. ***So even though droughts and floods are just two points on a watery continuum, they feel like polar opposites in the public mind: 'we can't have both at the same time'. But with climate change, we can - and we will.***¹⁴

In some ways, it is not the 'climate impacts' themselves but their implications that are important for developing meaningful public narratives. A volatile climate means a

vulnerable tourist industry. Unpredictable seasons produce unreliable harvests. Food and travel (to take two examples), rather than droughts and floods, are more likely to pique the public interest and encourage reflection on the risks of climate impacts across the board. These are the kinds of narratives that can accommodate both flood and drought risks. In the Defra report on public attitudes to climate risk,¹⁵ the need to protect food production was repeatedly identified as a key risk which needed to be prioritised in adaptation planning. This was expressed in terms of the need to direct resources towards ensuring sufficient supplies of water to rural areas, alongside the need for improved irrigation systems and the creation of more reservoirs. Small businesses were also identified as an important area of social activity needing protection from the impacts of drought.

Tell a good story¹⁶

People respond to compelling narratives containing standard components: identifiable characters (or archetypes), a challenge or threat, a struggle, a resolution and a return to stability under a new order. Not all of these components may be present in a credible drought narrative, but communicators should look to employ as many of these elements as possible in any storyline. **Narratives are very important for attitude formation** and are often determined more by the completeness and 'fidelity' of the narrative than its grounding in scientific accuracy. This does not mean that a narrative should not be scientifically accurate - of course it should. But scientific accuracy is not sufficient on its own to propel a powerful narrative about drought risk.

Use visual narratives

Images can be powerful tools for getting a message across but they have to be used carefully.¹⁷ Dramatic and potentially fear-inducing images of extreme weather events

can capture people's attention, and make the risk seem important, but they can also act to distance viewers (both psychologically and geographically) leaving them feeling overwhelmed or helpless.^{18, 19} Images depicting action, mitigation and adaptation, however, tend to make people feel more able to do something about climate change, but at the same time can also reduce people's sense that the issue is an important one.²⁰ Echoing the points made previously about the use of local frames in communicating climate related risks, research into responses to images of local climate change impacts reveal similarly contradictory results. According to Nicholson-Cole,²¹ participants often elaborate that they are more touched by national and local imagery than international or global imagery because it is easier to relate to and consequently more upsetting. However, in research by O'Neill and Hulme four years later, the same reasoning is used by participants to say why local icons are disengaging: "it will only affect locals and it not as much of a global issue".

Following new research from Climate Outreach, ***an evidence-based image bank has been produced offering practical guidance for communicators*** (www.climatevisuals.org). It recommends maximising the strong emotional appeal of images of climate 'impacts' (such as drought) by coupling them with images or messages that focus on 'solutions' to the impacts shown.²²



Strike the right balance between 'local' and 'global'

Several studies have suggested that reducing the (perceived) psychological distance of climate change is an effective framing technique for engaging the public.²³ Drought - as a type of climate impact - provides an opportunity to use a 'local' concern as the basis for a 'global' conversation about climate change. Paying attention to specific local examples of how drought manifests (what is unique about the landscape, region, culture and economy interactions, for example) is more likely to engender a strong reaction, and so persuade citizens and their policymakers to act to mitigate further drought risks.²⁴ Focusing on local impacts speaks to citizens in terms they are familiar with, which in turn leads to an elevated level of importance attributed to drought risks.²⁵

Yet research also indicates that communicators should beware of 'over localising', because the way local and place-specific messages are interpreted is to some extent shaped by people's value-orientations. One recent study found that people who identified more with 'self-enhancing' values (the importance of social power, status, material achievements etc.) than self-transcending values (e.g. concern for the broader community and beliefs about justice) reported lower levels of concern about climate change in general as a result of receiving messages about the 'local' impacts of climate change.²⁶ ***The take-home message here is that in overcoming one problem (that many people feel climate change is 'not about me'), localised messaging about drought or other climate impacts can inadvertently introduce another (that people may begin to think climate change is 'only about me').*** Findings like these reinforce the need for communicators to find out as much as they can about the values of their audience, before constructing a drought risk message.

Communicate using a trusted messenger

When people are evaluating complex, challenging or contested information they rely on their evaluation of the messenger as a cognitive shortcut - a heuristic - to lead their attention (do I need to pay attention to this?), their evaluation (do I need to accept this?) and action (what do I need to do about this?). There is an extensive body of research into communicator trust. The dominant qualities are identification (does this person share my identity and values?), familiarity (have I found this person to be reliable in the past?), integrity and accountability (does this person benefit from this information and do they pay a cost if they mislead me?).

After scientists, the most trusted sources of information on climate change are family, friends and work colleagues

Enabling communication at this level requires a focus on the process of communication - identifying means and opportunities for sharing.²⁷ Communicators should therefore look to harness the power of social norms and social networks: representatives from different social communities can communicate with their own groups better than any politician or public figure. Because people respond well when they can see that 'people like them' are also taking climate adaptation seriously, an effective strategy can be to promote positive social norms around actions such as water conservation wherever possible.²⁸ Individual behaviour can make a positive contribution to the effective management of water resources. Shared local expertise about water conservation or how to care for plants and vegetables in drought conditions may offer conversational space to develop broader conversations

about long term trends in weather, the implications of such changes, and how best to flourish under these changing conditions.

A key lesson that has emerged from an Environment Agency project (2014) aimed at building community collaborations to cope with the impacts of a changing climate is that engagement always takes longer than you think - ***building trust, channels of communication and local partnerships is a learning process for all involved*** and it is better to work incrementally and reflectively. A misstep or perceived dishonesty can have long lasting negative impacts on trust.²⁹ There is also a high risk of ill-designed messaging around extreme weather events backfiring, potentially leading to the reinforcement of existing cultural divides, or promoting a backlash against communicators (for example, if it appears the message is being conveyed by environmentalists saying 'I told you so').

Link drought with climate change

The findings from research on how weather events affect perceptions of climate change is mixed, and very little work has been done on how drought shapes concern about climate change. While a sense of personal threat has been linked to increased support for climate policies,³⁰ people in countries like the UK do not often physically experience climate change. A recent research project detailed some historic evidence in the US that drought increased belief in climate change and increased support for water conservation programmes. The researchers' own investigations indicated that drought conditions were associated with an increased concern about both the condition of local water supplies and risks associated with future drought occurrence due to climate change.³¹

Even when climate-related impacts are encountered, it is difficult to establish a direct causal link, making communication around the issue something of a minefield.

The experience and interpretation of extreme weather may act as a strong 'signal' or 'focusing event',³² whereby future climatic events are made more imaginable. However, the question of whether 'encountering' climate change through extreme weather will automatically lead to greater concern about climate change is currently disputed.³³ As ever, with the highly polarised issue of climate change, the 'evidence' of extreme weather can be interpreted in multiple and competing ways.³⁴ The fact that no single extreme weather event can be conclusively linked to climate change means that the argument 'they will become more likely and more severe as a result of climate change' is vulnerable to sceptical attacks. Indeed, the 'victims' of extreme weather events may have strong personal and social reasons for not wishing to accept that these sorts of events will increase in frequency and severity.³⁵

Frame drought messages around health implications

Communication about drought and prolonged periods of hot weather can make the issue seem more personally relevant especially if it connects to health problems which are already familiar and seen as important (such as heat-stroke and asthma).³⁶ One study found that ***portraying climate change in ways that affirmed the health benefits of taking action on climate change made the issue seem more personally significant and relevant to people.***³⁷ Another piece of research³⁸ tested different messages about climate change with a US sample, framed either as an environmental, public health, or national security risk. The public health frame elicited the most positive responses, shifting the climate change debate from one based on environmental values to one based on public health values, which are more widely held, irrespective of ideology and political outlook.

Be smart about communicating uncertainty

Uncertainty is an unavoidable part of communicating about drought, as it is when trying to communicate about any complex phenomenon. There are techniques that communicators can use to limit the extent to which these uncertainties undermine engagement with the drought message.

Firstly, **manage your audience's expectations**.

People expect science to provide definite answers, whereas in reality it is a method for asking questions about the world. So manage people's expectations and use plenty of analogies from everyday life so people can see that uncertainties are everywhere, not just in climate science.

Secondly, **start with what you know**, not what you don't know. Uncertainty at the frontiers of climate science should not prevent focusing on the scientific consensus that humans are causing climate change and the known links to an increased risk of drought.

Thirdly, **focus on 'risk' rather than 'uncertainty'**. Most people are used to dealing with the idea of risk. It is the language of the insurance, health and national security sectors. So for many audiences – politicians, business leaders or the military – talking about the increasing risks of drought in a changing climate is likely to be more effective than talking about the uncertainties.

Fourthly, **talk about the 'when' not 'if'** of increasing drought risk. Rather than trying to link any one specific event to climate change, talk about how such events are more likely in a changing climate. When someone has a weak immune system, they are more susceptible to a range of diseases, and no one asks whether each illness was caused by a weak immune system. The same logic

applies to climate change and some extreme weather events: they are made more likely, and more severe, by climate change.

And finally, **frame uncertainty in a positive way**, for example, using uncertainty to indicate that losses might not happen if preventative action is taken to prevent drought. Emphasise that acting to prevent drought – even under conditions of uncertainty – entails many co-benefits that most people would support, like habitat conservation.³⁹

Rather than trying to link any one specific event to climate change, talk about how such events are more likely in a changing climate

Don't focus on doom and gloom

Many early campaigns to engage the public on climate change used the fear of catastrophic climate impacts to attempt to motivate concern. The use of appeals based on fear or guilt has a long history in the health-behaviour domain, and research has shown the potential for fear-based messages to change attitudes. But while fear of a negative outcome (e.g. lung cancer) can be an effective way of promoting behavioural changes (e.g. giving up smoking), the link between the threat and the behaviour must be personal and direct. Typically, climate change is perceived as neither a direct nor a personal threat – and so deliberate attempts to instil fear or guilt in people carry a considerable risk of backfiring. **Emphasising the benefits of acting, rather than the negative consequences of not acting, is likely to produce more support for climate policies.**⁴⁰

Practical guides from water companies

There are several 'how to' guides available from water companies that provide customers with advice about how to take action to conserve water, and place these communications in the context of a changing climate.

Anglian Water have produced a leaflet called 'Planning for a drought'⁴¹ which provides a very accessible way for customers to understand the water management challenges facing the east of England. This company's drought communication strategy recognises that communication about drought must start well in advance of any restrictions in water use being applied.⁴² *The goal is to ensure that when it does become necessary to introduce restrictions, Anglia Water have created an environment where restrictions are being communicated to an understanding and receptive audience.*⁴³ Whilst the strategy document focuses largely on the channels of communication, it is apparent that a key element of a successful drought communications strategy is an ongoing engagement plan which allows water companies to show leadership and demonstrate that all users and suppliers are working together in partnership to manage the supply and use of water resources.

A shorter leaflet addressing all water regions of the country has been produced by Waterwise.⁴⁴ And in June this year, the Environment Agency produced a report titled 'Drought response: our framework for England'.⁴⁵ This includes details about the Environment Agency's strategies for communicating with the public, business and other water users during periods of drought.

Conclusions

Though drought itself does not appear to be a major concern for the UK public, there is strong public support for taking steps to prevent important economic functions, such as food production, from the impacts of a changing climate. The low salience of drought risk presents additional communication challenges over and above those associated with building awareness of risks from extreme weather events. However, the core principles of good climate communication summarised in this report are as applicable to drought risk as other extreme weather events.

- Identify the best time to be engaging in communications
- Know your audience (there is no 'one size fits' all message)
- Think about who will be the best messenger (who will your audience trust and listen to)
- Use narrative and stories to engage your audience - not just facts
- Use images, but think about how people respond to different types of imagery
- Bring in a local angle, but don't 'over-localise' at the expense of the bigger picture
- Focus on communicating what we do know (rather than foregrounding the uncertainties)
- If possible, highlight actions the audience can take to ameliorate the risks

Endnotes

¹ See project website: www.dryproject.co.uk

² Dessai, S. and Sims, C. (2010). Public perception of drought and climate change in southeast England. *Environmental Hazards*, 9: 340-357

³ Capstick et al. (2015). Public perceptions of climate change in Britain following the winter 2013/2014 flooding. p. 23. <http://c3wales.org/wp-content/uploads/2015/01/URG-15-01-Flood-Climate-reportfinal2.pdf>

⁴ Ipsos MORI Research Institute, (2013) PREPARE - Climate risk acceptability: Findings from a series of deliberative workshops and online survey. Part of the PREPARE Programme of research on preparedness, adaptation and risk. Final Report for project ERG1211 by Ricardo-AEA for Defra. Report reference Ricardo-AEA/R/ED58163/PREPARE R3/Issue 1.0. p: iii

⁵ *ibid*

⁶ *ibid* p. ii

⁷ Pidgeon, N. & Spence, A. (2010). Framing and communicating climate change: The effects of distance and outcome frame manipulations. *Global Environmental Change*, 20(4): 656-667

⁸ <http://dryproject.co.uk/drought-science/drought-means-different-things-to-different-people>

⁹ <http://www.metoffice.gov.uk/climate/uk/interesting/2012-drought>

¹⁰ *ibid*

¹¹ Rahiz, M. & New, M. (2013). 21st Century Drought Scenarios for the UK. *Water Resources Management*, doi: 10.007/s11269-012-0183-1

¹² <http://www.climateprediction.net/weatherathome/weatherhome-2014/results/>

¹³ <http://www.metoffice.gov.uk/climate/uk/interesting/2012-drought>

¹⁴ Corner, A. (2015). Engaging the public on drought risks: Stories about security. Blog post. Oxford: Climate Outreach. <http://climateoutreach.org/engaging-the-public-on-drought-risks-stories-about-security/>

¹⁵ Ipsos MORI Research Institute, (2013) PREPARE - Climate risk acceptability. Report reference Ricardo-AEA/R/ED58163/PREPARE R3/Issue 1.0

¹⁶ Marshall, G. (2014). *Don't even think about it. Why our brains are wired to ignore climate change.* New York: Bloomsbury

¹⁷ Corner, A., Webster, R. & Teriete, C. (2016). *Climate Visuals: Seven principles for visual climate change communication (based on international social research).* Oxford: Climate Outreach

¹⁸ O'Neill, S.J. et al. (2013). On the use of imagery for climate change engagement. *Global Environmental Change*, 2: 413-421

¹⁹ O'Neill, S.J. & Nicholson-Cole, S. (2009). 'Fear won't do it': promoting positive engagement with climate change through visual and iconic representations. *Science Communication*, 30: 355-379

²⁰ *ibid*

²¹ Nicholson-Cole, S. (2005). Representing climate change futures: A critique on the use of images for visual communication. *Computers, Environment and Urban Systems*, 29: 255-273

²² O'Neill, S.J. & Hulme, M. (2009). An iconic approach for representing climate change. *Global Environmental Change*, 19: 402-410

²³ Pike et al. (2015). The PreParaTion Frame. A guide to building understanding of climate impacts and engagement in solutions. <http://www.climateaccess.org>

- ²⁴ Schoenefeld, J. & McCauley, M. (2015). Local is not always better: The impact of climate information on values, behaviour and policy support. *Journal of Environmental Studies and Sciences*, doi: 10.1007/s13412-015-0288-y
- ²⁵ Eaton, A. & Visser, P. (2008). Attitude importance: Understanding the causes and consequences of passionately held views. *Society and Personality Psychology Compass*, 2:1719-1736
- ²⁶ Schoenefeld, J. & McCauley, M. (2015). Ibid
- ²⁷ Marshall, G. (2014). *After the Floods. Communicating climate change around extreme weather.* Oxford: Climate Outreach. <http://climateoutreach.org/resources/communicating-climate-change-around-recent-extreme-weather-events/>
- ²⁸ Corner, A. & Clarke, J. (2014). *Communicating climate change adaptation. A practical guide to values-based communication.* Edinburgh: Sniffer. <http://climateoutreach.org/resources/communicating-climate-change-adaptation-a-practical-guide-to-values-based-communication/>
- ²⁹ King, M. (2014). *Engaging communities in coastal and climate change: Lessons learnt from the coastal communities 21 50 Project.* p. 9. <http://www.r4c.org.uk/images/user/CC2150%20Lessons%20Learnt%20report%20-%20Final%20February%202014.pdf>
- ³⁰ Scannell, L. and Gifford, R. (2013). Personally relevant climate change: the role of place attachment and local versus global message framing in engagement. *Environment and Behaviour*, 45: 60-85
- ³¹ Evans et al. (2015). Effects of local drought condition on public opinions about water supply and future climate change. *Climatic Change*, doi 10.1007/s10584-015-1425-z
- ³² Reser, J. P., Bradley, G.L. & Ellul, M.C. (2014). Encountering climate change: 'seeing' is more than 'believing'. *WIREs Climate Change*, 5: 521-537. doi: 10.1002/wcc.286
- ³³ Marshall, G. (2014). Ibid
- ³⁴ ibid
- ³⁵ ibid
- ³⁶ Nisbet, M.C. (2009). *Communicating climate change. Why frames matter for public engagement.* *Environment Magazine.* <http://www.environmentmagazine.org/Archives/Back%20Issues/March-April%202009/Nisbet-full.html>
- ³⁷ Maibach et. al. (2010). Reframing climate change as a public health issue: An exploratory study of public relations. *Public Health*, 10: 299
- ³⁸ Myers, T.A., Nisbet, M.C., Maibach, E.W., & Leiserowitz, A.A. (2012). A public health frame arouses hopeful emotions about climate change. *Climatic Change*, 113(3-4):1105-1112
- ³⁹ Corner, A. (2015). Twelve tools for for communicating climate change more effectively. *The Guardian.* <https://www.theguardian.com/sustainable-business/2015/jul/06/12-tools-for-communicating-climate-change-more-effectively>
- Corner, A., Lewandowsky, S., Phillips, M. & Roberts, O. (2015). *The Uncertainty Handbook.* Bristol: University of Bristol. <http://climateoutreach.org/resources/uncertainty-handbook/>
- ⁴⁰ Pidgeon, N. & Spence, A. (2010). Framing and communicating climate change: The effects of distance and outcome frame manipulations. *Global Environmental Change*, 20(4): 656-667
- ⁴¹ http://www.anglianwater.co.uk/_assets/media/Overview_of_the_Drought_Plan_2014.pdf
- ⁴² http://www.anglianwater.co.uk/_assets/media/2014_Drought_Plan_App_9.pdf
- ⁴³ ibid: p. 2
- ⁴⁴ http://www.waterwise.org.uk/data/resources/25/Water_factsheet_2012.pdf
- ⁴⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440728/National_Drought_Framework.pdf