Explore the Facts

Climate Change: A Super Wicked Problem

Climate Change is real

Scientists have been making us aware of changes to our climate for more than 60 years[i]. For the past 25 years, the countries of the world have met to negotiate and progress action through an international treaty, the United Nations Framework Convention on Climate Change (UNFCCC)[ii]. The scientific evidence is gathered and assessed by a separate body called the International Panel on Climate Change drawing from work of hundreds of scientists from 195 countries. Their 2018[iii] report was the strongest yet: **that global carbon emissions must decline well before 2030**.

The 2018 report's scientists wrote these warnings:

* **Global warming to reach 1.5°C** between 2030 & 2052 if temperature continues to rise at same rate.
* **Increased climate-related risks anticipated** to health, food, livelihoods, water supply, human security, as well as economic growth.
* **We need a massive, rapid and far-reaching transfer to low carbon** in our energy, land, urban living and infrastructure (including transport and buildings), and industrial systems.

"*Temperature anomalies are now well outside the range of natural climate variability, and are explainable only by humankind's CO2 emissions*.

The latest special report to the UN shows we are already seeing the consequences of 1°C of global warming, from powerful effects of more frequent extreme weather to massive reduction in Arctic sea ice."[iv]

Is the world committed to taking action?

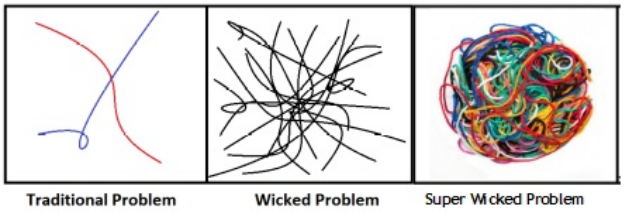
The Paris Agreement 2015, or Accord de Paris, was an historic commitment by 197 countries at the UN to act together to tackle Climate Change. Even as it was signed people understood that when added together, country targets to cut emissions by 2030 simply **would not limit the global temperature increase to 2°C** let alone keep it down to the aspirational increase of 1.5°C. Many countries' Paris targets were not tough but neither are their policies on course to meet them. Climate Action Tracker[v] follows 32 countries and says that there has been no progress at global level, although the policies of some countries are stepping in the right direction.

Why is change so difficult?

Policy makers use the term 'wicked problems'[vi] for big issues that are extremely difficult to solve: where major change is needed but there are lots of different factors, many of which are linked together, with no clear end. There is incomplete knowledge and no 'solutions manual' so different opinions emerge. A further complication is that new solutions may actually create more problems!

The term '**super wicked**'[vii] has been used for Climate Change because how humans relate to our environment, whether locally or world-wide, poses even more challenges:

* Climate Change is a global 'wicked' problem *but* **no single body has overall responsibility**
* Many big industries & businesses contribute *but* **must also lead the solutions**
* We know time is running out *but* without a clear deadline, **we can (and do) put off acting.**



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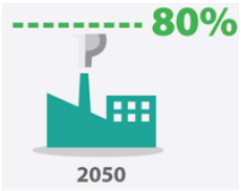
The knottiest part of the super wicked problem of Climate Change is that fossil fuels are causing temperatures to rise but fossil fuels have driven our economy and fuel the way we live.

Change from the top down and bottom up

A mix of approaches is being used by Governments and others to try to influence change ...

* Using Policy changes and regulations



The UK was the first country to set climate commitments into law through the Climate Change Act 2008[viii]. There are now national-level climate change legislation and policies[ix] in 164 countries around the world. By this act of parliament, we are legally bound to reduce our carbon emissions by 80% of 1990 levels by 2050, and this affects every sector of our society.

The independent Committee on Climate Change which advises the UK government believe we can reach an even more ambitious **zero emissions target by 2050**[x] if we significantly ramp up our policies and put serious plans in place right now. Chris Stark, the Committee's CEO says, '*The scale of the change is enormous, and this transition must take place at remarkable (although not unprecedented) speed...we will need to move quickly to decarbonise every sector in unison.*'[xi]

* Financial incentives to encourage change

Market mechanisms are a vital part - the risks of Climate Change need to be taken into account[xii] so it makes good economic as well as environmental sense to move away from fossil fuels:

- In 2016, the G7 countries (including UK, and holding 64% of world's wealth) pledged to end all fossil fuels subsidies[xiii] and in April this year, the UK Government agreed to spend £40 billion so that a third of the UK's electricity will be provided by offshore wind by 2030[xiv]
- Private investors, and this includes anyone who has a pension or savings, are creating pressure on companies and businesses to be sustainable. This has produced a boom in 'Green Bonds'[xv] where money is raised for environmental projects
- New technologies such as wind and solar energy and batteries (eg for electric cars) become cheaper options as they develop as a result of investment and innovation.

* Raising awareness of the urgent need to change

- Strikes inspired by Greta Thonberg have spread around the world as students press their governments to act now on Climate Change.
- Groups like Extinction Rebellion use direct action to tell people that we are in a climate crisis. Some go on to say that the world's existing economic system cannot bring about real change, and instead the capitalist system itself needs to change.
- National and local government, charities and the media want us to be informed so that we make changes ourselves[xvi]. For example, there are television adverts for energy-saving, council leaflets on food waste, and much more information available on eco-products.

Questions to explore *(All the references above are shown overleaf for more research)*

1. Why must carbon emissions fall by 2030?
2. Which countries are implementing effective climate change policies?
3. Why is climate change being described as a 'super-wicked' problem?
4. Why is a combination of approaches necessary to try to bring about change?
5. Does your own school have an Environmental policy or use incentives or awareness-raising to help increase sustainability?

[i] See this film from 1958 https://youtu.be/0lgzz-L7GFg

[ii] See the United Nations Framework Convention on Climate Change website also for details on The Paris Agreement 2015: https://unfccc.int/

[iii] For more on the Intergovernmental Panel on Climate Change (IPPC) and their Special Report 2018, go to: https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/

[iv] Professor Paul D Williams is Professor of Atmospheric Science at the Department of Meteorology, Univ of Reading, UK and was the keynote speaker at ICN's Reading Climate Conference 2018 http://www.met.reading.ac.uk/~williams/

[v] Climate Action Tracker (work of three scientific research institutes) provides regular updates on countries' progress towards their climate targets: https://climateactiontracker.org/countries/

[vi] See Wikipedia for definition and links of Wicked Problem and Super Wicked https://en.wikipedia.org/wiki/Wicked_problem

[vii] These papers provide background reading for Super Wicked: https://link.springer.com/article/10.1007%2Fs11077-012-9151-0 *and* https://www.mdpi.com/2071-1050/8/12/1312/pdf

The first part of this interview describes why Climate Change is a 'super-wicked problem' and then raises the additional difficulties it brings for developing countries: https://www.coursera.org/lecture/climate-change-mitigation/climate-change-a-super-wicked-problem-h1JJq

[viii] Wikipedia has an entry on the Climate Change Act 2008 and useful links such as to the Committee on Climate Change: https://en.wikipedia.org/wiki/Climate_Change_Act_2008

[ix] The Grantham Research Institute on Climate Change and the Environment at London School of Economics has a useful interactive tool to track policies around the world: http://www.lse.ac.uk/GranthamInstitute/countries/

[x] The Committee on Climate Change released its report Net Zero - The UK's contribution to stopping global warming on 2 May 2019: https://www.theccc.org.uk/2019/05/02/phase-out-greenhouse-gas-emissions-by-2050-to-end-uk-contribution-to-global-warming/

[xi] This recent speech by Chris Stark, Chief Executive of the Committee for Climate Change gives an excellent overview of the UK, our targets and policy changes needed right now https://www.theccc.org.uk/2019/03/19/chris-stark-towards-net-zero/

[xii] Read this speech by the Bank of England about the far-reaching risks of Climate Change: https://www.bankofengland.co.uk/speech/2019/sarah-breeden-omfif

[xiii] Listen to this podcast interview with Bill McKibben, a US journalist and author who since the 1980s has been tracking Climate Change and the role of oil companies: https://www.theguardian.com/environment/audio/2019/jun/19/what-oil-companies-knew-the-great-climate-cover-up-podcast

[xiv] See this recent government announcement: https://www.gov.uk/government/news/offshore-wind-energy-revolution-to-provide-a-third-of-all-uk-electricity-by-2030

[xv] For more about 'green bonds', see this Bloomberg article: https://www.bloomberg.com/news/articles/2019-03-24/what-are-green-bonds-and-how-green-is-green-quicktake

[xvi] Read this BBC article outlining 10 simple ways to act on climate change: http://www.bbc.com/future/story/20181102-what-can-i-do-about-climate-change