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Parliamentary Briefing

IPCC Fifth Assessment Report (AR5)

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WWF welcomed and provided evidence to the Energy and Climate Change Committee's inquiry and report on the IPCC Fifth Assessment Report: Review of Working Group I. Since the Committee's report, the IPCC Working Group 2: Impacts, Adaptation and Vulnerability; Working Group 3: Mitigation of Climate Change; and a Synthesis Report have been published. These reports combine the work of 800 scientists worldwide, 3000 pieces of individual research, and are one of, if not the, most cumulative evaluation and presentation of science ever undertaken.

Below is WWF's assessment of the most important findings from the IPCC in its Fifth Assessment Report (AR5). We have identified seven key issues that represent the most powerful findings for UK and global policy makers to address climate change and also the opportunities for deep cuts in greenhouse gas (GHG) emissions.

The seven things we've learnt

1. Assessment Report 4 (AR 4) was too cautious

AR5 moved beyond the conclusions of AR4 with new scientific data, understanding and modelling to draw clearer conclusions about the current impacts of climate change, human carbon emissions' responsibility for this and the impacts we are likely to see in the future. The impact of climate change can be most clearly seen on the extent of Arctic summer sea ice melt, which is already exceeding projections made in AR4. In addition in our oceans, last year's average sea level rise was higher than projected and the projections for future rises in AR5 for all scenarios have also risen.

2. The poorest communities are the most affected by climate change

The report specifies that the world's poorest will be hit hardest by unmitigated climate change, due in part to a lower level of adaptation capacity. Climate change will aggravate poverty for a variety of reasons: fisheries will be affected as sea temperatures rise, climate change will induce population migration and displacement and crop yield reduction will adversely impact food security. Therefore, mitigation and adaptation to climate change must be fundamental to future international development policy if we are to achieve sustainable development and poverty eradication.

3. Climate Change is happening at an unprecedented speed

AR5 utilises more advanced scientific findings than AR4, allowing climate comparisons between the last Ice Age, paleo-period and the modern day to be made. GHG concentrations and emissions are at the highest levels in human history. In the last 10-20 years glacial melting, sea level rise and ocean acidification are all happening at an unprecedented speed compared to what we would have expected from natural climate change.



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It is important to note, in the context of climate change mitigation, that 90% of stored heat from decades of global warming is contained in the ocean surface, and that therefore, even if GHG emissions were cut to zero, we would still experience warming as the atmosphere and oceans reached equilibrium.

4. The importance of adaptation and its limits

The impacts of climate change will not be felt evenly across the Earth's surface. Certain regions and areas face higher risks. Coral reefs, low-lying coastal areas and the Arctic are at great risk of exceeding their adaptation limits. These at risk places have by and large been the least industrialised and poorest areas of our planet, and therefore the least responsible for the climate change we are now seeing.

Looking towards the end of the century, continued unmitigated sea level rise beyond 2100 will inundate entire countries, with untold human consequences. Delaying mitigation increases the burden on future generations and limits the available adaptation responses to emerging impacts. Delaying also increasingly erodes the ability of future generations to develop sustainably.

5. There is a global carbon budget

AR5, for the first time, discusses and identifies various carbon budgets, which contain the amount of CO₂ and GHG emissions permissible by all nations. These are presented on timelines looking at the present to 2050/2100 for various temperature increase scenarios. In order to stay below a 2°C rise, compared to pre-industrial temperatures, the IPCC concludes that the world has less than 1,000 billion tons of CO₂ left to fill the atmospheric space. At the present rate of carbon emission to the atmosphere this would be consumed in 20 years.

6. We must phase out fossil fuel emissions

AR5 concludes that in order to stay below 2°C immediate fossil fuel reductions are required, diminishing to zero carbon emission by 2070. The energy sector is responsible for 70% of all GHG emissions and the IPCC targets this sector specifically with a variety of decarbonisation solutions. WWF believe this transformation should be driven primarily by clean and sustainable renewables and strong energy efficiency in all sectors of society, and a full phase out of fossil fuels by 2050.¹ The IPCC found that investments in renewables would need to at least triple by 2050 compared to current levels, with investments in energy efficiency needing to rise by even greater magnitudes.

7. The earlier we act the lower the costs

AR5 contains a very strong and politically relevant analysis of mitigation costs. The IPCC assesses that the costs of decarbonisation (to stay below 2°C) would only be a fraction more than following a business as usual path. The economic impact would be only 0.06% per annum less in global average consumption compared to a fossil fuel-intensive pathway.² The IPCC stresses that this is a conservative estimate as it does not take into account the benefits brought about by social, developmental and cultural improvements.

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¹ Globally please see WWF International's *The Energy Report*. 2011.

http://wwf.panda.org/what_we_do/footprint/climate_carbon_energy/energy_solutions22/renewable_energy/sustainable_energy_report/

For the UK, please see the WWF-UK's *Positive Energy: how renewable electricity can transform the UK by 2030*. 2011.

http://assets.wwf.org.uk/downloads/positive_energy_final_designed.pdf?_ga=1.36595936.1148943217.1406041501

² For further information of the cost of decarbonisation for the UK economy please see the WWF-UK's *The Economics of Climate Change Policy in the UK*. 2014

http://assets.wwf.org.uk/downloads/wwf_cambridge_report_lr.pdf?_ga=1.49685350.1148943217.1406041501