ENVIRONMENTAL AWARENESS

The relative failure of last November's COP30 conference in Brazil provided the background to our March meeting, where we tried to answer the question "Are COP conferences still worth while?".

The COP conferences were set up by the United Nations in 1994 under their programme to reduce greenhouse gas emissions. But they've come under increasing criticism for the cost (and carbon footprint) of flying delegates around the world, merely to agree statements of intent.

Our group broadly agreed with these criticisms, though it was pointed out that there have been some real achievements. Cuts in greenhouse gas emissions agreed at past COPs have already significantly reduced likely global warming. And developed countries have contributed millions of dollars to poorer countries to cope with the effects of climate change. Many from inside the process have called for reforms to the way COP conferences are run. But our group felt that this didn't go far enough. The main problem is lack of accountability – there isn't any mechanism to enforce the promises made at COP conferences.

There are still signs of hope. Although COP30 failed to agree to phase out fossil fuels, a "coalition of the willing" group of nations is going ahead anyway. And most countries are still coming up with national plans to reduce emissions. But what role (if any) the COP conferences themselves have to play in the future is far from certain.

In April, we watched a recorded talk given by Ian Hawker about the effect of climate change on the oceans. Oceans act as a very effective climate regulator, absorbing both heat and carbon dioxide from the atmosphere. Not surprisingly, though, they heat up in the process. The polar oceans are particularly sensitive to global warming. By 2035 the Arctic ice cap is likely to melt completely every summer. At the other end of the world, large chunks of the Antarctic ice cap are likely to melt, which could cause global sea levels to rise by up to 2 metres by 2100, flooding millions of people out of their homes. Unfortunately, the bad news doesn't end there. Acidification caused by increased levels of carbon dioxide will have adverse effects on marine life. Reduced fish stocks will hit coastal communities' food supplies. Deep-sea mining could well make matters worse.

The talk provoked a lively discussion among our members. Is fish farming the answer to diminishing wild fish stocks? Setting up protected areas where all fishing is prohibited seemed to us a better way to halt the decline. The oceans are clearly highly complex ecosystems, and we should do as little as we possibly can to disturb them until we know more about them.

At our May meeting, Malcolm Kimber made a presentation about rare earths and other critical minerals. The rise in modern technology means that rare earth elements are now in massive demand, for applications such as smartphones, MRI scanners, electric vehicles and wind turbines. Their extraction often causes massive pollution; refining them is a very difficult and complex process requiring a lot of energy. Although rare earths are widely distributed around the globe, significant deposits are found only in a few countries, such as China. Demand for minerals such as cobalt, lithium and manganese is also increasing rapidly. China's dominance in both extraction and refining has led to widespread worries about security of supply. Substitutes for rare earths are being developed, and recycling is on the increase, but this is unlikely to affect the situation for a while yet. Supporters of clean energy (or indeed users of smartphones) are thus faced with a conundrum – how do we balance the benefits of rare earth technology with their drawbacks?

Thanks, Malcolm, for a well-researched and preceptive analysis of an increasingly important issue.

John Eakins