Rotary Meeting 18th August 2020

Climate Change

Prof. Brian Hoskins, Reading University

Prof Hoskins is a mathematician by training, born in Bristol, PhD from Cambridge, nearly 50 years at Reading Uni. Research essentially based on how the atmosphere works.

1st public talk on climate change was in 1985 for Clean Air Society in Scarborough – “Will We Freeze or Fry?”. Back then any audience needed a lot of persuading that climate change was on the agenda.

Over the years has been engaged in public tussles over climate change eg with Lord Lawson on Today Programme who denied the impact of climate change. However, Lawson said privately to Prof that he agreed but wouldn’t say so publicly as it would ruin the economy (!!!)

Greenhouse effect has been known about since mid-C19 when 1st CO2 experiments were carried out. Certain gases let the sun’s rays through freely but stop heat / thermals escaping. These gaswa are important .. up to a point, but can get too much of a good thing, Pre-industrial levels of CO2 were 280 parts per million, as first measured in 1957 they were 315 and now are nearly 420 ie an increase of c50%. Other gases add another 20% more, especially methane and nitrous oxide.

Impact of CO2 introduced now will influence atmosphere for c 1,000 years ie influence is long-lived.

Not just a question of warming …

* Rainfall – a warmer atmosphere holds more water
* Melting of ice is adding to sea level rise. 3.6mm pa ie 36cm per century of which c ¼ due to melting of Greenland and Antarctica.

If we carry on as at present the warming would be c 4 degrees by end of century which is pretty severe. Over land (as compared with the sea) , more like to be 5 degrees which will take the tropics to a level it hasn’t been for millions of years, to temperatures where people have real problems doing anything . Towards north pole in winter, warming will be more like 12 degrees.

Changes in weather will have a huge impact for agriculture, availability of water, human life in general. Major problems with migration. Eg with a 1m sea level rise in Bangladesh with rising temperatures the country will become uninhabitable.

First we have to adapt the way we live – our housing, managing flooding, crops we grow etc

And we have to try to stop the problem getting much worse. Two approaches to this:

* Geo-engineering solution , solar management – putting particles in the higher atmosphere which might help to stop sun’s energy, but this approach could cause other problems and is not a viable solution.
* Reduce emission of greenhouse gases, aiming for limiting to a 2 degree rise.

Paris accord involved every country volunteering what they would do, which would have limited the rise to 3 degrees with further measures to follow. Follow up global conference delayed to 2021 as Glasgow postponed due to Covid.

UK by law would reduce by 80% by 2050 from a bottom up calculation. Prof was on the Parliamentary committee which recommended that. Much clamour since about reducing to zero greenhouse gases (eg Extinction Rebellion) and we’re UK government is trying to do this.

Development of technologies important – eg wind power and solar energy.

Batteries have changed - electric vehicles. Most exciting cars on the road are electric.

Covid has come along and made life more difficult. Has made it obvious that we need to transform society. Need to get back to a “new economy” . Recognised by industry eg BP. A tremendous challenge. Are we going to take this up?

It’s on local and national agendas.

Questions:

Tim – how many trees for each cow?

A – Planting trees is a way to partially off-set, but not a panacea. Need to reduce production of methane. Globally we cannot aspire to a western diet with expanded meat-eating. We should aim for good quality meat but eat less of it.

John O – Trump?

A -Need US leadership but Trump is becoming irrelevant.

Nigel – remove existing greenhouse gases?

A – Yes. As hard as we try, it’s not going to be possible this century to solve problem by reduced emissions alone. We need to find some ways to take CO2 out. First step is by putting things on chimneys to suck the CO2 out. Can also develop technologies to take CO2 out of atmosphere – no shortage of solar energy to drive this in Sahara, etc.

Richard – ground and air pumps?

A - Yes, important. Our housing is so poor in its energy use compared with rest of Europe, it’s off the bottom of the scale. We need to make housing more miserly in use of energy. We need to move away from gas boilers.