

COMMUNICATING CLIMATE SCIENCE: WHERE DO WE GO FROM HERE?

Outline of presentation:

- Recent media coverage of climate science following CRU e-mail leak and coming to light of IPCC mistakes
- Polling results on public understanding of science
- Reclaiming 'scepticism': it has an honourable place in science
- Certainty and Uncertainty – unpacking the debate
- Risk based approach to climate action

I AM WILLING TO BET THAT MOST OF YOU IN THIS ROOM ARE CONVINCED THAT CLIMATE CHANGE IS REAL. THAT THERE IS A 'CONSENSUS' OF SCIENTISTS WHO ARE CONVINCED OF THE SAME. AND THESE SELF SAME SCIENTISTS CAN PROVIDE AMPLE EVIDENCE FOR THEIR BELIEF. MOST OF US ARE HAPPY TO SIGN UP TO THE IPCC KEY CONCLUSION THAT:

WARMING OF THE CLIMATE SYSTEM IS UNEQUIVOCAL, AS IS NOW EVIDENT FROM OBSERVATIONS OF INCREASES IN GLOBAL AVERAGE AIR AND OCEAN TEMPERATURES,

***WIDESPREAD MELTING OF SNOW AND ICE AND
RISING GLOBAL AVERAGE SEA LEVEL***

**FURTHER THE IPCC IN ITS 4TH ASSESSMENT REPORT
GOES ON TO SAY THAT**

***‘MOST OF THE OBSERVED INCREASE IN GLOBAL
AVERAGE TEMPERATURES SINCE THE MID-
TWENTIETH CENTURY IS VERY LIKELY DUE TO THE
OBSERVED INCREASE IN ANTHROPOGENIC
GREENHOUSE GAS CONCENTRATIONS.’***

**AND YET DESPITE THIS ‘SCIENTIFIC CONSENSUS’ THERE
ARE A LARGE NUMBER OF PEOPLE OUT THERE NOT
ALL OF THEM COMPLETE KNAVES AND FOOLS WHO
JUST DON’T BUY IT. NO DOUBT SOME OF THEM WILL
BE FUNDED BY FOSSIL FUEL INTERESTS. BUT THAT’S
UNLIKELY TO BE THE CASE FOR THE VAST MAJORITY
OF PEOPLE. THE QUESTION THEN IS ARE WE MAKING
PROGRESS IN COMMUNICATING CLIMATE SCIENCE?**

WHAT I WANT TO DO IN THIS TALK IS REFLECT ON WHAT'S HAPPENED OVER THE PAST FEW MONTHS SINCE THE REVELATIONS OF 'CLIMATEGATE' AND 'GLACIERGATE' WHICH FOLLOWED HOT ON ITS HEELS OF. (AND OF COURSE, WE IN DECC HAVE HAD OUR OWN BRUSH WITH THE 'SCEPTICS'. THERE WERE OVER A THOUSAND COMPLAINTS MADE AGAINST OUR ADVERTISING CAMPAIGN. THANKFULLY, ALL EXCEPT ONE OF THE COMPLAINTS WERE REJECTED BY THE ADVERTISING STANDARDS AUTHORITY. HOWEVER, ONE COMPLAINT WAS UPHELD. IF I HAVE TIME, I'LL RETURN TO THAT LATER.)

SINCE THE REVELATION IN THE E-MAILS FROM THE CLIMATIC RESEARCH UNIT AT THE UNIVERSITY OF EAST ANGLIA AT THE END OF NOVEMBER LAST YEAR, THERE HAS BEEN A VERITABLE FIRESTORM THAT HAS

ENGULFED THE CLIMATE SCIENCE COMMUNITY. HOT ON THE HEELS OF THIS EVENT WAS THE FINDING THAT A NUMBER OF REFERENCES IN THE IPCC REPORTS WERE WRONG. IN PARTICULAR, THE REFERENCE TO THE MELTING OF HIMALAYAN GLACIERS BY 2035.

THESE HAVE BEEN SEARING TIMES FOR A LOT OF CLIMATE SCIENTISTS AND SCIENTISTS MORE GENERALLY. A CURSORY GLANCE AT THE BLOGOSPHERE WILL SHOW YOU THAT THERE IS A BARE KNUCKLE FIGHT GOING ON. IN THE CRU E-MAILS, IT SEEMS THAT A FEW INAPPROPRIATE WORDS FROM AS LONG AGO AS 1999 TAKEN OUT OF CONTEXT SUCH AS 'TRICK' AND 'HIDE THE DECLINE' FROM THOUSANDS OF HACKED E-MAILS HAVE FORMED THE BASIS FOR ACRES AND ACRES OF SCIENCE NEW STORIES. THIS IS UNPRECEDENTED.

IT WAS RECENTLY REPORTED IN THE SUNDAY TIMES THAT PROFESSOR PHIL JONES, WHO'S BEEN AT THE CENTRE OF THE FIRESTORM, ACTUALLY CONTEMPLATED SUCIDE AFTER HIS EXPERIENCE OF SUSTAINED PILLORY BY THE MEDIA – INDEED, REDACTED REDACTED GEORGE MOMBIOT DEMANDED HIS HEAD ON A PLATE IN THE GUARDIAN. THIS IS A SAD REFLECTION OF THE WAY PROFESSOR JONES HAS BEEN HOUNDED BY THE MEDIA. BUT PERHAPS IT SAYS MORE ABOUT THE WAY THE MEDIA BEHAVE IN THIS COUNTRY THAN ANY THING ELSE. FOR MOST OF THE MEDIA, THIS WAS JUST ANOTHER STORY. I WANT TO COME BACK TO THAT LATER.

THE ACTIONS OF PHIL JONES AND CRU WERE DEEMED TO BE SO BAD THAT A RAFT OF INQUIRIES WERE SET IN TRAIN – OSTENSIBLY TO RESTORE CONFIDENCE IN THE SCIENCE. TWO OF THEM HAVE ALREADY REPORTED

THEIR FINDINGS.// THE FIRST WAS THE HOUSE OF COMMONS SCIENCE AND TECHNOLOGY COMMITTEE, WHICH CAME TO THE CONCLUSION THAT PROFESSOR PHIL JONES HAD NO CASE TO ANSWER BUT UEA NEEDED TO TAKE A GOOD LOOK AT THE SUPPORT IT GAVE ON FREEDOM OF INFORMATION REQUESTS. THE SECOND, CHAIRED BY LORD OXBURGH, ALSO GAVE THE CRU SCIENCE A CLEAN BILL OF HEALTH BUT SAID THAT THE STATISTICS COULD HAVE BEEN BETTER. SIR MUIR RUSSEL, THE LAST OF THE OFFICIAL INQUIRIES, IS EXPECTED TO REPORT IN JUNE.

IT HAS BEEN A SALUTORY LESSON. BUT WHAT PRECISELY IS THE LESSON? WHAT IS THE INSIGHT? CAN WE LEARN FROM THIS EXPERIENCE?

LET ME PUT MY CARDS ON THE TABLE. THIS IS WHAT I THINK. THE CURRENT MODEL OF CLIMATE SCIENCE

COMMUNICATION AND SCIENCE COMMUNICATION MORE GENERALLY IS FUNDAMENTALLY FLAWED. IT IS BASED ON WHAT'S KNOWN AS THE 'DEFICIT MODEL'. THAT IS TO SAY IT IS BASED ON A BELIEF THAT THERE IS INSUFFICIENT INFORMATION OUT THERE AND TO REMEDY IT, ALL ONE NEEDS TO DO IS PUT OUT MORE STUFF, ALBEIT PACKAGED IN AN 'ACCESSIBLE' WAY – WITH IMAGES OF POLAR BEARS AND MELTING ICE OR, FAILING THAT, PICTURES OF POOR BANGLADESHI VILLAGERS WAIST DEEP IN FLOOD WATER – AND THE PUBLIC WILL GET IT. SCIENCE WILL HAVE BEEN COMMUNICATED.

WELL I CAN TELL YOU NOW THAT IT WON'T. I WANT TO SUGGEST THAT IT'S NOT ABOUT INFORMATION 'DEFICIT'. CERTAINLY NOT ANY MORE WITH THE VERITABLE AVALANCHE OF BOOKS, ARTICLES, TV PROGRAMMES, BLOGS DEALING WITH THE SUBJECT.

THERE SEEMS TO BE A PARTICULAR PROBLEM WITH CO-OPTING THE MEDIA IN THE UK – PARTICULARLY THE PRINT MEDIA – IN HELPING TO COMMUNICATE CLIMATE SCIENCE. THE HACKING INCIDENT WAS PORTRAYED AS A ‘CRISIS’ AND THE STORY RAN AND RAN. PARTLY THIS WAS BECAUSE IT COINCIDED WITH COPENHAGEN CONFERENCE OF PARTIES – INCIDENTLY,// WHICH THE BRITISH MEDIA PORTRAYED AS A GREAT FAILURE. THE STORY WENT GLOBAL// THE BLOGOSPHERE WENT BALISTIC. PERHAPS NOT SURPRISINGLY THERE HAS BEEN AN IMPACT ON PUBLIC PERCEPTION.

BUT LET’S LOOK AT THE RECENT POLLING DATA MORE CLOSELY. TWO POLLS OF MOST RELEVANCE, COMPARING OPINION BEFORE AND AFTER ‘CLIMATEGATE’ (POPULUS FOR BBC – COMPARED NOV

**09 TO FEB 10; IPSOS MORI FOR GUARDIAN - COMPARED
JAN 09 TO JAN 10)**

**FROM POPULUS (FOR BBC) – COMPARED OPINION IN
NOVEMBER 2009 AND FEBRUARY 2010.**

**IN FEBRUARY, PEOPLE WERE MORE LIKELY TO SAY
CLIMATE CHANGE WAS NOT HAPPENING (25%, ONLY
17% BEFORE).**

**OF THOSE WHO ACCEPTED CLIMATE CHANGE WAS
HAPPENING, FEWER BELIEVED IT WAS MAN MADE. THE
NUMBER SAYING THAT IT'S 'ESTABLISHED FACT' THAT
CLIMATE CHANGE IS MOSTLY MAN MADE DROPPED
FROM 50% TO 34%. MORE WERE LIKELY TO SAY 'IT'S A
WIDESPREAD THEORY, BUT NOT CONCLUSIVELY
PROVEN – THAT'S COLUMN TWO – UP FROM 39% TO
50%) COLUMN THREE IS PEOPLE WHO SAID THIS WAS**

‘ENVIRONMENTALIST PROPAGANDA’ – UP FROM 9% TO 14%)

THE POLL ASKED PEOPLE WHETHER THEY HAD HEARD OF FLAWS IN THE SCIENCE – 57% HAD. BUT MORE PEOPLE HAD HEARD ABOUT THE EXCEPTIONALLY COLD WINTER.

OF THOSE WHO HAD SAID THEY HAD HEARD ABOUT ‘FLAWS OR WEAKNESSES IN THE SCIENCE’ THE VAST MAJORITY SAID IT HAD NOT CHANGED HOW THEY FEEL ABOUT THE RISKS OF CLIMATE CHANGE. 11% SAID THEY WERE LESS CONVINCED OF THE RISKS OF CLIMATE CHANGE AS A RESULT, BUT 16% SAID THEY WERE ACTUALLY MORE CONVINCED OF THE RISKS OF CLIMATE CHANGE AFTERWARDS.

ALL THIS SIGNALS THAT IT'S NOT CLEAR CUT HOW THESE EVENTS HAVE SHAPED PUBLIC PERCEPTION...BUT IT'S CLEAR THERE IS A GREAT DEAL OF CONFUSION AROUND, AND THAT THESE EVENTS HAVE NOT HELPED.

[WE'VE BEEN HERE BEFORE - NUMEROUS TIMES. OVER THE PAST TWENTY YEARS WE'VE HAD SCIENTIFIC CONTROVERSIES OVER MAD COW DISEASE, FOOT AND MOUTH DISEASE, BIRD FLU, MMR, AND GM FOOD TO NAME BUT A FEW.]

IN AN INTERESTING ARTICLE IN THE WASHINGTON POST, CHRIS MOONEY, AN MIT JOURNALISM PROFESSOR, SUGGESTED THAT THE LEAKED E-MAILS DID NOTHING TO DISPROVE THE SCIENTIFIC CONSENSUS ON GLOBAL WARMING. INSTEAD, PERHAPS IT JUST HIGHLIGHTED THAT IN A WORLD OF

BLOGS, CABLE NEWS AND TALK RADIO, SCIENTISTS ARE POORLY EQUIPED TO COMMUNICATE THEIR KNOWLEDGE AND ESPECIALLY, RESPOND WHEN SCIENCE COMES UNDER ATTACK.

RETRIEVING SCEPTICISM

SCEPTICISM IS THE DEFAULT POSITION IN SCIENCE. ANYONE WITH EVEN A PASSING FAMILIARITY WITH THE SCIENTIFIC METHOD KNOWS THAT TO BE THE CASE. A SCEPTICAL POSITION HAS A HONOURABLE PLACE IN THE HISTORY AND PRACTICE OF SCIENCE.

IT IS WORTH REMINDING OURSELVES OF THIS POINT BECAUSE THE TERM 'SCEPTIC' HAS BECOME A PEJORATIVE TERM OR A BADGE OF HONOUR (TAKE YOUR PICK!) APPLIED TO THOSE DISAGREE WITH THE VIEW OF THE OVERWHELMING MAJORITY OF CLIMATE SCIENTISTS THAT THERE IS COMPELLING EVIDENCE FOR GLOBAL WARMING AND THAT IT IS VERY LIKELY TO

BE CAUSED BY HUMANS – MAINLY THROUGH FOSSIL FUELS. IT IS CRUCIAL TO APPRECIATE THAT THERE IS A CONSENSUS, BUT THAT ARISES FROM CONTINUOUS SCIENTIFIC DEBATE AND CHALLENGE AND IS DYNAMIC NOT STATIC.

IT TURNED OUT IN RETROSPECT THAT IT WAS A MISTAKE TO ASSUME THAT THE SCIENTIFIC CASE FOR CLIMATE CHANGE HAD BEEN MADE. OR AT LEAST, TO ASSUME THAT TO THE LAYMAN, THE ‘CONSENSUS’ OF EXPERTS HAD ANY MEANING AT ALL. THERE ARE INTERESTS THAT DO NOT WANT TO SEE THE TRULY MASSIVE CHANGES THAT WILL BE REQUIRED TO OUR FOSSIL FUELED INFRASTRUCTURE AND CHANGES IN BEHAVIOUR NEEDED FOR ANY MEANINGFUL ACTION ON CLIMATE CHANGE. THIS IS TRUE BOTH IN THE DEVELOPED AND IN THE DEVELOPING WORLD - ALBEIT FOR DIFFERENT REASONS. SO IT SHOULD NOT HAVE

BEEN SURPRISING THAT THERE WAS PUSH BACK ON THE SCIENTIFIC 'CONSENSUS'.

AN URGENT PRIORITY MUST BE TO RECLAIM THE TERM 'SCEPTIC' AND RESTORE IT TO ITS ROLE AS A VITAL ELEMENT OF SCIENTIFIC PROGRESS. IT IS OR SHOULD BE OK TO BE SCEPTICAL ABOUT SOME PROPOSITION OF SCIENCE WHICH ARE HELD OUT AS BEING TRUE (CONTINGENT ONES AT BEST) SO LONG AS YOU KEEP AN OPEN MIND. THAT IS WHERE 'CLIMATE CHANGE SCEPTICS' PART COMPANY WITH GENUINE SCIENTIFIC 'SCEPTICS'. THEY ARE NOT PREPARED TO CHANGE THEIR MINDS IN THE FACE OF NEW EVIDENCE.

SCIENCE IN THE MEDIA

I READ RECENTLY SOMEWHERE THAT ONCE A SCIENCE STORY HITS THE FRONT PAGE, IT'S NO LONGER JUST A SCIENCE ISSUE. PROBABLY TRUE.

IN BEN GOLDACRE'S BOOK 'BAD SCIENCE', WHICH I HEARTILY RECOMMEND TO ALL, HE POSITED A VARIANT OF C. P. SNOW'S TWO CULTURES HYPOTHESIS TO EXPLAIN WHY THE MEDIA – PARTICULARLY THE PRINT MEDIA – DEAL WITH SCIENCE STORIES THE WAY THEY DO. HIS THESIS IS BASICALLY THAT THE PEOPLE WHO RUN THE MEDIA ARE HUMANITIES GRADUATES WITH LITTLE UNDERSTANDING OF SCIENCE, WHO WEAR THEIR IGNORANCE AS A BADGE OF HONOUR. PERHAPS DEEP DOWN THEY RESENT THE FACT THAT THEY HAVE DENIED THEMSELVES ACCESS TO THE MOST SIGNIFICANT DEVELOPMENTS IN THE HISTORY OF WESTERN THOUGHT, BUT THERE IS AN ATTACK IMPLICIT IN ALL MEDIA COVERAGE OF SCIENCE. IN THEIR CHOICE OF STORIES, THE WAY THAT THEY COVER THEM, THE MEDIA CREATE A PARODY OF SCIENCE. ACCORDING TO HIM, THE MEDIA PORTRAYAL OF SCIENCE IS AS A GROUNDLESS, INCOMPREHENSIBLE,

DIDACTIC TRUTH STATEMENTS FROM SCIENTISTS, WHO THEMSELVES ARE SOCIALLY POWERFUL, ARBITRARY, UNELECTED FIGURES. THEY ARE DETACHED FROM REALITY; THEY DO WORK THAT IS EITHER WACKY OR DANGEROUS, BUT EITHER WAY, EVERYTHING IN SCIENCE IS TENUOUS, CONTRADICTORY, PROBABLY GOING TO CHANGE SOON AND... 'HARD TO UNDERSTAND'. HAVING CREATED THE PARODY, THE COMMENTARIAT THEN ATTACK IT, AS IF THEY WERE CRITIQUING WHAT SCIENCE IS ABOUT.

YOU CAN CLEARLY SEE THIS PERSPECTIVE AT WORK IN THE RECENT MEDIA COVERAGE OF CLIMATEGATE AND GLACIERGATE. ALTHOUGH I THINK THAT BEN GOLDACRE IS ESSENTIALLY RIGHT, HE DOES MISS OUT AN IMPORTANT DIMENSION. SCIENTISTS AND ESPECIALLY CLIMATE SCIENTISTS HAVE COLLUDED IN CONSTRUCTING THIS PARODY OF SCIENCE.

I RECENTLY ATTENDED A WORKSHOP ON CLIMATE SCIENCE COMMUNICATION AT THE SCIENCE MEDIA CENTRE. THERE WERE A NUMBER OF SCIENCE JOURNALISTS PRESENT ON THE PANEL FROM THE GUARDIAN, INDEPENDENT, CHANNEL 4 AND BBC. ONE INSIGHT I WASN'T AWARE OF BEFORE, WAS THAT SCIENCE CORRESPONDENTS WERE SIDELINED BY THEIR EDITORS BECAUSE THEY WERE NOT FULFILLING THEIR RESPONSIBILITY AS JOURNALISTS AND REPORTING THE UEA STORY. THEY ADMITTED THAT THEY HAD THEMSELVES DISMISSED THE INCIDENT AS A NON-STORY – WHICH IN ANY CASE HAD BEEN BUBBLING AWAY FOR MONTHS.

THE OTHER THING THAT I LEARNT FROM THAT WORKSHOP WAS THAT DURING DECEMBER AND JANUARY THERE WAS IT SEEMS A COLLECTIVE

FAILURE OF NERVE BY CLIMATE CHANGE SCIENTISTS. THE JOURNALISTS EXPLAINED THAT NOT ONE WORKING CLIMATE SCIENTIST CAME FORWARD TO DO MEDIA. PERHAPS THEY'D SEEN WHAT HAD HAPPENED TO PHIL JONES AND TAKEN FRIGHT. BUT THE UPSHOT WAS THAT CLIMATE CHANGE 'SCEPTICS' HAD THE RUN OF THE FIELD AND MADE THE MOST OF IT.

CERTAINTY AND UNCERTAINTY: UNPACKING THE ISSUES

I SAID EARLIER THAT SCIENTISTS AND PARTICULARLY CLIMATE SCIENTISTS HAD COLLUDED, WHETHER CONSOUSLY OR UNCONSCIOUSLY, IN CONSTRUCTING THE PARODY OF SCIENCE THAT'S REPRESENTED IN THE MEDIA.

I SAY THIS PARTLY BECAUSE THE ARGUMENT ONE SEES FROM SOME CLIMATE SCIENTISTS TAKES THE FORM:

IF 'X', THEN YOU MUST DO 'Y'

SO THE CRITICAL QUESTION BECOMES WHETHER YOU 'BELIEVE IN CLIMATE CHANGE'.

THIS KIND OF REASONING ASSUMES THAT THERE IS A THING OUT THERE CALLED 'CLIMATE CHANGE' AND ONE HAS TO COMMIT TO THAT BELIEF. IT BECOMES A QUESTION OF ONTOLOGY. (MUCH LIKE THE ONTOLOGICAL ARGUMENTS FOR THE EXISTENCE OF GOD!)

IN SOME WAYS THAT IS THE WAY THAT THE IPCC FOURTH ASSESSMENT REPORT HAS BEEN PUBLICLY PRESENTED. ALMOST AS IF IT WERE A TABLET OF

STONE. THE 'TRUTH' AS SPOKEN BY INTERNATIONAL SCIENTISTS. WINING THE NOBEL PRIZE WAS, I THINK A MIXED BLESSING. AS A RESULT, 'WE'/'YOU' HAVE TO CHANGE YOUR WAYS AND DO IT QUICKLY. OF COURSE, TAKING THIS LINE POSITIVELY INVITES BEING ATTACKED AND UNDERMINED.

IN MY VIEW, THIS KIND OF APPROACH MISCONCEIVES THE PRACTICE OF SCIENCE. THE IMPORTANT QUESTION IS 'HOW DO WE KNOW WHAT WE KNOW?' A QUESTION OF EPISTEMOLOGY. IT IS TRUE THAT THERE IS A CONSENSUS AMONGST CLIMATE SCIENTISTS ON GLOBAL WARMING AND RISING SEA LEVELS. HOWEVER, THERE IS DISAGREEMENT AND UNCERTAINTY ABOUT THE DETAILS. THIS IS SCIENCE AT THE CUTTING EDGE. AS MORE KNOWLEDGE IS AQUURED, EXPLANATIONS ARE AND HAVE TO BE REVISED.

LET'S TAKE A CLOSER LOOK AT THE TEMPERATURE RECORD THAT WAS AT THE HEART OF THE E-MAIL HACKING INCIDENT. THIS CHART REPRESENTS THE GLOBAL MEAN TEMPERATURE SINCE 1850 UNTIL THE PRESENT TIME AND IT SHOWS THAT THE GLOBAL MEAN TEMPERATURE HAS RISEN BY 0.75 DEGREES. IT'S NOT AN EXAGGERATION TO SAY THAT THIS IS THE EVIDENCE FOR GLOBAL WARMING. OBVIOUSLY IT IS NOT A GIVEN. IT'S NOT A MEASUREMENT. IT IS CONSTRUCTED. INDEED WHEN YOU THINK ABOUT HOW IT IS CONSTRUCTED ONE CAN ONLY MARVEL AT THE PAINSTAKING WORK DONE BY CLIMATIC RESEARCH UNIT.

IT IS COMPILED FROM LITERATELY MANY THOUSANDS OF TEMPERATURE RECORDS FROM ALL AROUND THE WORLD. OF COURSE SOME AREAS OF THE WORLD DID NOT HAVE PEOPLE WITH A THERMOMETER MEASURING

TEMPERATURE IN 1850. SO RESULTS FOR SOME AREAS HAVE HAD TO BE INTERPOLATED. THESE GRAPHS ARE THE CULMINATION OF MANY YEARS OF PAINSTAKING WORK AND DETAILED STATISTICAL ANALYSES TO ENSURE THAT TRENDS ARE REAL.

IF IT WERE JUST CRU ANALYSES, THEN ONE WOULD BE ENTITLED TO BE A BIT SCEPTICAL. HOWEVER, WE HAVE AT LEAST TWO OTHER INDEPENDENT ANALYSES CARRIED OUT BY NASA AND NOAA. IN ADDITION, ON VARIOUS BLOGS INDIVIDUALS HAVE CARRIED OUT THEIR OWN ANALYSES CONFIRMING THESE RESULTS. THESE ARE OF COURSE A LAND TEMPERATURE DATA SET. THERE ARE ALSO SEA TEMPERATURE DATA SETS WHICH CONFIRM THESE RESULTS (WHICH AREN'T OBVIOUSLY AFFECTED BY 'URBAN HEAT ISLAND EFFECTS'). FINALLY, THERE ARE SATTELITE SEA AND

LAND TEMPERATURE DATA SETS SINCE 1980 ALSO CONFIRMING THESE.

SO I THINK WE CAN AGREE THAT THE HEADLINE STATEMENT IPCC 4TH ASSESSMENT REPORT SEEMS PRETTY FIRMLY BASED.

MOVING FROM GLOBAL WARMING TO ATTRIBUTION OF IT TO GHG EMISSIONS; FROM EMISSIONS TO ATMOSPHERIC CONCENTRATIONS; FROM ATMOSPHERIC CONCENTRATIONS TO TEMPERATURE RISE; FROM TEMPERATURE RISE TO CLIMATE CHANGE; AND FROM CLIMATE CHANGE TO CLIMATE CHANGE IMPACTS IS A COMPLEX SCIENTIFIC STORY. EACH STEP HAS AN ASSOCIATED UNCERTAINTY. THERE IS A CASCADE OF UNCERTAINTY. THE WAY WE CAN GET A HANDLE ON THIS UNCERTAINTY IS THROUGH BETTER UNDERSTANDING OF THE PHYSICS OF THE CLIMATE,

Comment [m1]: ELEVEN PPT

SYSTEMATIC OBSERVATIONS AND MODELLING FUTURE STATES OF THE CLIMATE.

THIS CASCADE OF UNCERTAINTY IS NOT THE SAME AS SAYING WE DON'T KNOW ANYTHING. SCIENCE DOES NOT AND CANNOT PROVIDE ABSOLUTE CERTAINTY. THE PROCESS OF SCIENCE IS ABOUT REDUCING THIS UNCERTAINTY.

HOWEVER, WE NEED TO RECOGNISE THAT SOME OF THIS UNCERTAINTY IS IRREDUCIBLE. OUR MODELS MAY BE INCOMPLETE. OUR UNDERSTANDING OF NATURAL SYSTEMS MAY BE INCOMPLETE. OUR UNDERSTANDING OF SOCIAL RESPONSES ARE DEFINITELY INCOMPLETE.

HOWEVER, INCOMPLETE KNOWLEDGE IS THE NORMAL STATE OF AFFAIRS WHEN WE MAKE DECISIONS ABOUT THE FUTURE. WE DO IT ALL THE TIME.

AT THIS POINT, CLIMATE CHANGE CEASES TO BE A SCIENTIFIC PROBLEM. CLAIMS OF SCIENTIFIC KNOWLEDGE DO NOT AUTOMATICALLY LEAD TO PRESCRIPTIONS FOR ACTION. THEREFORE, WE SHOULD BE CAREFUL NOT TO FALL INTO THE HABIT OF SAYING

IF 'X', THEN YOU MUST DO 'Y'.

HOWEVER, WE CAN MANAGE UNCERTAINTY THROUGH A RISK FRAMEWORK WHERE RISK, IN THIS CASE, IS A COMBINATION OF PROBABILITY AND CONSEQUENCE OF CLIMATE CHANGE IMPACTS. THIS IS WHERE THE RUBBER HITS THE ROAD AND THE SCIENCE OF CLIMATE CHANGE STOPS BEING INTANGIBLE AND BECOMES REAL FOR PEOPLE.

AT THIS POINT, CLIMATE SCIENTISTS HAVE TO ENTER A DIALOGUE WITH OTHER DISCIPLINES AND - MOST IMPORTANTLY WITH THE COMMUNITY. UNTIL THAT HAPPENS THERE IS A REAL DANGER THAT TALK ABOUT CLIMATE CHANGE REMAINS AN ELITE DISCOURSE. IF PEOPLE ARE GOING TO CHANGE THEIR BEHAVIOUR, THEY ARE GOING TO HAVE TO ENGAGE ON A PRACTICAL LEVEL. IF, HOWEVER, IT REMAINS AT A RARERIFIED LEVEL, I WOULD SUBMIT THAT NO AMOUNT OF ABSTRACT 'CLIMATE SCIENCE COMMUNICATION' WILL CHANGE ANYTHING.

I'VE SEEN THIS IN PRACTICE WHEN I VISITED AN ACTIONAID PROJECT IN BANGLADESH RECENTLY AS PART OF UKCDS PROJECT ON CLIMATE CHANGE ADAPTATION. IN THIS PROJECT, ACTIONAID WORKERS HELPED VILLAGE WOMEN TO UNDERSTAND HOW

CLIMATE CHANGE WAS AFFECTING THEIR LIVES AND HELPED THEM TO USE SCIENTIFIC INFORMATION TOGETHER WITH INDIGENOUS KNOWLEDGE TO REDUCE THEIR VULNERABILITY AND ADAPT TO THE NEW CONDITIONS.

IN THE UK, NEXT YEAR WILL SEE THE PREPARATION OF A NATIONAL CLIMATE RISK ASSESSMENT. IN THIS EXERCISE, IT WILL BE ESSENTIAL THAT THERE IS A GRASS ROOTS ENGAGEMENT IN THE PROCESS.

CONCLUSION

SO, WHERE DO WE GO FROM HERE?

FIRST, WE NEED TO MOVE AWAY FROM PROMOTING THE IDEA OF CLIMATE SCIENCE AS A BODY OF UNIVERSAL 'FACTS' DELIVERED FROM UPON HIGH BY

REMOTE AUTHORITY FIGURES. THE 'DEFICIT MODEL' DOESN'T WORK.

SECOND, WHERE SCIENCE HAS A PUBLIC POLICY ROLE, THEN, EXPECT THE SCIENTIFIC EVIDENCE TO BE CHALLENGED. IT'S NORMAL. WHEN THIS HAPPENS, THEN THE BEST POLICY IS TO BE OPEN AND TRANSPARENT BUT SCIENTISTS NEED TO BE PREPARED TO DEFEND THEIR FINDINGS.

THIRD, CLIMATE SCIENTISTS NEED TO GET OUT MORE. SPEAK TO PEOPLE AND SPEAK TO THE MEDIA ABOUT THEIR WORK. SCIENTISTS ARE STILL GENERALLY MORE TRUSTED THAN OTHER PROFESSIONS. THEY SHOULD USE IT. IN THIS AREA, WE ARE WORKING CLOSELY WITH THE SCIENCE MEDIA CENTRE TO TRAIN CLIMATE SCIENTISTS TO WORK WITH THE MEDIA. THE NATURAL ENVIRONMENT RESEARCH COUNCIL ARE

ALSO SETTING UP PUBLIC ENGAGEMENT PROJECTS AS WELL AS ESTABLISHING A NUMBER OF SCIENCE COMMUNICATION FELLOWS.

FOURTHLY, THE MEDIA HAVE TO BEHAVE MORE RESPONSIBLY IN COVERING SCIENCE STORIES – OR MAY BE THAT’S TOO MUCH TO HOPE FOR.

FINALLY, THE UK’S NATIONAL CLIMATE RISK ASSESSMENT OFFERS A REAL OPPORTUNITY TO ENGAGE PEOPLE ON CLIMATE CHANGE IN THE CONTEXT OF THEIR LIVED EXPERIENCE.

THANK YOU