

The IPCC can't count its "expert scientists": - Author and reviewer numbers are wrong

by
John McLean
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(email: mcleanjoh at mail.com)

UPDATE

SPECIAL NOTE: After the original version of this document was published a reader pointed out that authors and reviewers of the IPCC 4AR Synthesis Report had not been included. This updated version now includes those people, identifies further duplication of names, examines the credentials of some of the authors and raises questions about the credibility of reviewers.

How many times have you heard or read words to the effect that 4000 scientists from the Intergovernmental Panel on Climate change (IPCC) supported the claims about a significant human influence on climate? I think I've seen it on television, radio and the Internet and I know that politicians at national levels have quoted such figures. There's no question whatsoever. It's utterly wrong.

In fact, once the duplicated names are removed that number falls below 2,900 and if we only want those who explicitly supported the claims it falls to only about 60. So how does 4,000 become 60 and were they all qualified and credible scientists? Let's take a closer look at the real numbers.

Consider the statement "The IPCC report concluded that there is a human influence on climate. This was supported by almost 4,000 authors and reviewers." The popular mythology - and one that IPCC never tries to correct - is that those 4,000 supported the findings but this is an exaggeration on a massive scale because all they really supported, by virtue of their work, was the creation of the report. The IPCC is allowing, or perhaps even encouraging, an ambiguity to be misinterpreted, and it's not for the first time either, but I digress.

But how many individuals were involved? Was it 4,000 or some other number?

The IPCC said in its flyer for its Fourth Assessment Report (4AR)

2500+ Scientific Expert Reviewers
800+ Contributing Authors
450+ Lead Authors...[note 1]

so immediately the figure drops from 4,000 to 3,750. But look a little closer and that figure is not correct either.

Each of the three IPCC Working Groups (WGs) assembles its own lists of authors and reviewers, making six lists in all. Based on those lists of reviewers and on a previous list of authors that I had already extracted from the start of each chapter of the report (and each "Summary for Policy makers" and "Technical Summary") the total number of authors and reviewers for each working group is as follows:

WG I - 595 authors, 624 reviewers
WG II - 400 authors, 1169 reviewers
WG III - 251 authors, 469 reviewers

Based on these figures the total number of reviewers was 2262 and the number of authors is 1246. The former is well short of the IPCC's 2500 but the latter is near enough to the claimed 1250.

The IPCC's Synthesis Report is an amalgam of the issues raised by the contributions from the 3 working groups so authoring of this report is rather like making a summary and one would expect that if a reviewer was serious

about examining the draft IPCC documents then he or she would focus on the working group's contributions. Let's put that aside for the moment and include the number of authors given in the annexes to the Synthesis Report - 41 authors and 243 reviewers (one of whom is recorded twice).

That latter figure of 243 is very interesting because the Annex in which they are listed tells us:

Consistent with IPCC Rules and Procedures, the draft SYR was sent for formal review to over 2,400 individual experts as well as to the 193 member governments of the IPCC.

It seems likely that the drafts sent to 193 governments were seen by at least one person and given that no governments are among the list of reviewers we probably should assume that any reviewers acting on behalf of their governments are listed under their own name. This leaves us with the question of why the draft of the Synthesis Report received comments from only 243 reviewers, which is fewer than 10% of the people who were invited to comment.

At this point the total number of reviewers and authors appear to be 2505 and 1287, both of which are very close to the IPCC's stated figures, but all is not what it seems to be.

Looking first at the number of authors we must take into account that an author for one working group can also be an author for another working group. Anil Markandya of the UK was an author of *WG II* chapter 8 and *WG III* chapter 2, and Blair Fitzharris of New Zealand was an author of *WG I* chapter 4 and *WG II* chapter 11 and the *WG II* "summary for policymakers". They, along with 39 other authors contributed to more than one working group. The situation is even worse in the Synthesis Report where 38 of its 41 authors were also authors of the contributions by the working groups. All of these are counted at least twice in the IPCC's total of 1250 authors.

The situation with reviewers is no different because they are not restricted to commenting on the drafts from just one working group, so again we have numerous duplicates.

The roles author and reviewer are likewise not mutually exclusive and there was nothing to prevent authors also being reviewers, even of the chapters that they had contributed to. Take for example Anthony Broccoli of the USA. He was an *author* of *WG I* chapter 8 and a *reviewer* of *WG I* chapter 6. IPCC policies say that each author receives the draft copies of any chapter they contributed to and are implicitly invited to comment, and elsewhere we find that virtually anyone with relevant knowledge can be a reviewer, and of course authors often meet that requirement even for chapters that they did not work on. All up, 383 individuals acted both as reviewers and authors of the contributions from the working groups and in the case of the Synthesis Report one individual is listed both as an author and a reviewer.

Determining where the duplication of names has occurred is not easy because the formatting of names is inconsistent in the IPCC's lists. Accents on characters are sometimes included and sometimes omitted for the same name, and the 'u' with an umlaut is sometimes shown as 'ue'. In some cases the order of family name and personal name are reversed between lists, in others a personal name might appear with a hyphen and elsewhere the same name be missing that hyphen. Some names have one spelling in one location and a slightly different spelling in another (e.g. "...eiro" in one list and "...erio" in another) and in some cases a second family name might be used sometimes but elsewhere just one is used for the same person. Only by creating a "comparison name" from the combination of first initial and family name, using computer software to compare those names, visually checking all reported duplicates (for names and other details) was it possible to resolve the number of duplicates with reasonable accuracy.

After the removal of duplicated names the total number of individuals who acted as authors, reviewers or both fell to just 2890, which is a long way short of the reputed 4,000 or even the IPCC's "more than 3750". It's difficult to not see this as just another example of how the IPCC's messages are ambiguous - deliberately so, in my opinion - and how the organization publishes a lobbyist's message rather than a clear presentation of the facts.

But did the 2890 individuals all support the IPCC's principal findings? There's really no proof that any more than about 2% explicitly did so.

The key chapter in the IPCC's Fourth Assessment Report of 2007 is chapter 9 of the Working Group I contribution. No authors prior to that chapter were asked for their opinion, although perhaps we could say that

some authors of chapters 1 and 8 gave it anyway by virtue of the content of those chapters. Authors of chapters 10 and 11 of the WG I contribution assumed the claims made in chapter 9 were correct, and so did the authors of all chapters of the contributions by Working Groups II and III.

Chapter 9 of Working Group I had 53 authors in total but more than 40 were part of a network of people who worked previously together. In direct contradiction to the IPCC's statements that the team of authors should have a wide range of views and experiences, most were climate modellers and in many cases multiple authors were affiliated with the same establishment. In the latter case it was not uncommon for a contributing author to be a subordinate (academic or work) to an author higher in the authoring hierarchy **[note 2]**. For the sake of argument let's ignore these irregularities and assume, despite the absence of confirming evidence, that all 53 authors fully supported the chapter's findings.

The second draft of chapter 9, the last draft available for review by individuals, received comments from just 55 people and 7 governments. Of these 62 only 5 reviewers explicitly endorsed the overall chapter **[note 3]**. When investigated in detail none of these supporting reviewers was particularly credible but let's not quibble.

It can't be denied that other reviewers may have supported the notion of significant man-made warming but failed to explicitly state this. If that's the case then they only have themselves to blame for not being counted with the other "true believers". On the other hand however we can be sure that support among those other IPCC authors and reviewers was not unanimous. The lists of reviewers contain the names of many people who are known to be sceptical of the claim of a significant human influence on temperature, so any implication that they supported the IPCC's findings are totally without merit.

Fifty-three authors and five reviewers are all that might generously be said to have explicitly supported the claim of a significant human influence on climate. Forget any notion that 4,000 scientists supported the claim or even the 3750+ people as mentioned by the IPCC. Also forget any notion that all 2890 individuals who were authors, reviewers or both supported the claim. The only explicit evidence is for support from just less than 60 individuals.

Support for the creation of the report as a whole is a different matter because that can be attributed to anyone who was an author or reviewer, although those reviewers who were sceptical of the hypothesis of a significant human influence on climate would probably say that their involvement was largely their attempts to curb the excesses of the IPCC's authors and that as such they could hardly be said to "support" the report.

The next question is whether these individuals were all scientific experts. In the IPCC statement quoted above it was only the reviewers that were said to be "scientific experts" but the wider interpretation, which in typical fashion the IPCC has allowed to persist, is that all of the individuals connected with IPCC 4AR were in fact experts.

Internet web site "Climate Resistance" **[note 4]** has ascertained the qualifications and fields of expertise for the authors of the contributions from the 3 working groups where those authors are from the USA or United Kingdom. The following table is a condensed version of its findings about the number of authors from each area of expertise:

Working Group I - (303 from the USA or UK)

- 215 climate science (assumption for all authors associated with 2 key climate institutes in each country)
- 24 atmospheric physics
- 27 geophysics or geology
- 4 statistics
- 8 mathematics/physics
- 8 engineering
- 2 biology/ecology
- 1 history of science
- 1 computer science
- 1 economy
- 1 agronomy
- 1 lawyer who claims to also be skilled in oceanography
- 8 unknown

Working Group II - (121)

- 10 geophysics, climate science, hydrology or climate modelling
- 17 earth/atmospheric sciences
- 2 modelling/statistics
- 7 geography
- 6 epidemiology
- 10 biology/ecology
- 5 zoology, entomology or biology
- 5 public health and policy
- 10 engineers or in insurance and risk management
- 12 economics
- 28 social science
- 1 full-time activist (and 1 part time)
- 1 website-design
- 1 network administration
- 2 administrative assistant
- 5 unknown

Working Group III - (66)

- 14 physics, chemistry or engineering
- 2 biochemistry or geochemistry
- 5 forestry ecology, or soil science
- 4 engineering disciplines
- 2 law
- 7 social science
- 20 economics
- 12 unknown

Climate Resistance also points out that various of the above people appear to be graduates, PhD candidates or recent recipients of PhDs, so it's drawing a long bow to claim that they are world experts in their fields. According to Climate Resistance "... across WGI, II and III, we have a very generous 314 contributors among the 510 we sampled who can reasonably be described as scientific experts."

If the findings of Climate Resistance are accurate it would mean that much of the report was written by people with dubious qualifications in the relevant fields. Maybe the IPCC's "2500+ scientific expert reviewers" restore the credibility of the report but it's difficult to see how that could be because my earlier document [see note 3] showed that the number of reviewers for the second draft of any WG I chapter did not exceed 100 and that many reviewers' comments were rejected. It would seem that the views of those "experts" were often rejected in favour of the views of authors who may have been less than expert in the subjects they discussed.

It is all very well to claim that the reviewers were experts but can we have faith in the credibility of those reviewers or were they biased in some way?

Even a quick read of the lists of reviewers shows that many of the 2890 individuals had clear vested interests for commenting on the IPCC report. If the IPCC report was a recommendation related to financial matters its authors and reviewers would be expected to declare any pecuniary interest but apparently the IPCC thinks it's okay not to mention these interests despite its authors and reviewers potentially benefiting from government policies that are made in light of the IPCC's findings.

Among the authors and reviewers of each component of the IPCC 4AR there were an assortment of universities that might be receiving funding for research that assumes a human influence on climate, and of course government and semi-government authorities that are driven by government policies. There were also representatives from an assortment of other organizations with a strong self-interest in this subject.

The Synthesis Report provides an example of the diversity of partisanship among its reviewers. Some of these people are clearly associated with specific industries, such as oil (*OMV Exploration and Production* and *Saudi Aramco*) and the international airline industry (*ICAO*), and perhaps both industries were cautious of the potential detrimental impacts on their businesses.

In other cases the organizations are commercial and could easily benefit from supporting the IPCC's opinion. Into this category fall a re-insurance company (*Aon RE*), renewable energy consultants (*Ecofys*), and three organizations that are involved with the methodology of the geosequestration of carbon dioxide or undertake research into it (*Research Institute of Innovative Technology for the Earth*, *GeoSeq International LLC* and *RTI International*). Two organizations are involved in renewable energy (*European Wind Energy Association* and *Global Wind Energy Council*). Like the other 7 organizations mentioned above in this paragraph a company with links to the European Emissions Trading Scheme (*Utility Support Group*) is hardly likely to be highly critical of the IPCC.

Because the IPCC was a joint project of the United Nations and the World Meteorological Organization (WMO), we cannot also expect the reviewer from *UNEP* (United Nations Environment Program) or the two from the *WMO* to dispute the claims either.

The organizations mentioned above all have a commercial or business-related aspect to their interest in reviewing the IPCC's Synthesis Report but others seem to lean more towards eco-politics (*Climate Institute*, *Germanwatch*, *Umweltbundesamt GmbH*, *Greenhouse Ireland Action Network*, *WWF International* and *CEEDATA*) although the last mentioned is perhaps more linked to the European Green Movement than directly involved.

I am led to believe that anyone can apply to be a reviewer of the IPCC Assessment Reports but it seems that this care-free approach has led to the involvement of a company that operates a website specialising in ad hominem attacks on sceptics of the hypothesis of significant man-made warming and has produced a television program along the same lines (*DeSmogBlog*).

By accepting reviewers from an extremist group, eco-political groups and the many self-interested or biased businesses the IPCC may have boosted the number of probably favourable reviewers but it seriously undermined the credibility of the review process and of all of the "expert scientific reviewers", not only of the Synthesis Report but also of the contributions by all working groups.

The evidence shows that the claim of "4000 scientific experts supported the IPCC's claims" is dishonest in almost every word. There were not 4000 people, but just under 2900; they were not all scientists; and it seems that they were not all experts. There is only evidence that about 60 people explicitly supported the claim, although that might not mean much given the vested interests and lack of impartiality of many authors and reviewers. As mentioned at the start of this document the "support" can only be said to apply to the document as a whole and is by virtue of the input of authors and reviewers.

Perhaps the claim of 4000 scientific experts supporting the IPCC is a popular but false interpretation of the IPCC's statements, but if that is the case then the IPCC's failure to correct that error only serves to tarnish its reputation even further.

NOTES

1 - <http://www.ipcc.ch/pdf/press-ar4/ipcc-flyer-low.pdf> (IPCC flyer for 4AR)

2 - "Prejudiced Authors, Prejudiced Findings", at http://scienceandpublicpolicy.org/images/stories/papers/originals/McLean_IPCC_bias.pdf

3 - "An Analysis of the Review of the IPCC 4AR WG I Report" at http://mclean.ch/climate/docs/IPCC_review_updated_analysis.pdf

4 - "Climate Resistance" at <http://www.climate-resistance.org/2007/12/physician-heal-thyself.html>