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ELECTRONIC VERSIONS OF IPCC REPORTS

(Submitted the Co-Chair of the IPCC Working Group II with the support of the Secretariat)

ELECTRONIC VERSIONS OF IPCC REPORTS

Proposal for making the electronic version of the AR5 the document of record

Executive Summary

This is a proposal to make the electronic version of the AR5 the document of record. If this decision is taken, the officially approved or accepted IPCC products will be archival electronic documents instead of printed documents. A decision to move forward with this will not alter the current range of IPCC products. There will still be printed and electronic versions. Making an electronic document of record will have three beneficial effects. These are:

- 1) The approved or accepted documents can include a number of electronic enhancements to make them clearer, simpler to understand, accessible to a wider audience, and more transparent.
- 2) IPCC will avoid the current challenges that come from providing html versions online that include enhancements that go beyond the documents approved or accepted by the panel.
- 3) IPCC will need to produce and provide access to only one version of each report, in contrast to the PDF and html versions currently served.

Background

We are in the midst of a revolution in scientific communication. Technology is making it possible to add value to scientific communication in ways that extend beyond the boundaries of what can be captured on the printed page. This proposal is about taking advantage, for the AR5, of the opportunities presented by electronic publishing. This would not mean dropping the print version of the report. As with past reports, it is important that the AR5 be published in printed and electronic versions. A commitment to meeting the needs of the widest range of stakeholders must remain a top priority for the IPCC.

With all previous IPCC reports, the printed version was the document of record (the material approved and accepted by the panel). For the AR5, we have the option of including several kinds of enhancements in the electronic version (candidates described below). If the electronic version is the document of record, then these enhancements will be part of the approved or accepted report. For the past several reports, the IPCC Secretariat has produced and provided access to html versions with some of these enhancements. With a printed document of record, the enhancements in the html versions have an unclear status. The html versions have tested some aspects of the concepts, but at the cost of not providing the exact document of record.

None of the candidate enhancements in an electronic document of record would involve changes to the text. It is critical that the printed and electronic versions of reports contain identical text. All of the candidate enhancements in the electronic document would involve links. Some of these might be links to other parts of the report (e.g. to the glossary, boxes, references, or sections of other chapters). Other links might be to enhanced graphics (e.g. to high-resolution graphics, or separate figures for individual regions) or to equivalent but complementary presentations of information (e.g., switching between graphical and tabular data).

It is essential that IPCC reports be unchangeable, with the contents locked at the time of approval and acceptance (except for any problems that need to be addressed with errata). There are well established options for electronic archival publications, but standards for features like video (not recommended for the AR5) are still evolving. In selecting features to include in an electronic document of record, it will be important to evaluate options for ensuring durability, so that the Panel and the global community can have confidence that the contents of the report remain as they were approved or accepted.

Many users will access electronic versions of the report over the internet. For users in locations with slow internet connections, reading on a CD or other digital medium might provide the best user experience. All of the features of PDF/A are equally compatible with internet and CD/memory stick access. Of course, the printed version and copies printed from the online version will contain identical text but without the enhancements, for users who prefer accessing the report on paper.

Proposal

The recommended option for archival electronic documents is PDF/A, an ISO-managed set of standards developed by Adobe® for the archival preservation of electronic documents (<http://www.adobe.com/enterprise/standards/pdfa/>). PDF/A assures not only that documents are archival, but also that they look and function the same across all viewing hardware. PDF/A is intended primarily for documents that need to be audited. It supports internal links but not, in its current stage of development, embedded audio, video, or external links. As the PDF/A standard develops, it may support additional features. For the IPCC, the emphasis should be on the archival features as a top priority and on enhancements only where they are consistent with robust archiving. PDF/A is widely used. It is mandatory in several organizations that require electronic archives, including the Government of the Netherlands and the federal courts in the USA.

Recommended features (all of these features are compatible with PDF/A)

- 1) Links to boxes: Boxes are an integral component of IPCC reports, featuring offset material within chapter text. This featured material may be relevant to a single chapter or to multiple chapters. With an electronic document, relevant boxes occur exactly where they are referenced. That is, a box with links can be equally accessible from 10 or 100 locations, providing increased visibility as compared to a single printed location.
- 2) Links to figures: As with boxes, figures provide important material that is perhaps most relevant to one passage but may add value or clarity to many passages, even passages spread across chapters or Working Group reports. With an electronic document, links to figures can make them occur exactly where they are referenced and as many times as they are referenced, providing increased visibility and utility as compared to a single printed location.
- 3) Links to sections of other chapters and WG reports: The utility of IPCC reports is enhanced when the reader can easily navigate related discussions of a given topic. With an electronic document, readers can use links to instantaneously jump among locations. Links can make the Synthesis Report or an SPM a particularly powerful window to the report as a whole, as readers can move immediately to the text and other documentation that provide the traceable accounts of SPM findings. In addition to facilitating easy leaps from the SPM to underlying text, links can bridge sections of a chapter, chapters in a Working Group report, or reports of separate Working Groups.
- 4) Links to glossary terms: Links to the glossary, especially as rollovers, can help ensure that the usage of all critical terms is consistently understood. Links to glossary terms can also help highlight which terms are most critical.
- 5) Links to references: Links to references facilitate quick referral to cited sources, and they enhance the ability of serious users of the report to dig deeper into primary sources. Links to full citations in the reference list are compatible with PDF/A. With the current PDF/A standard, the document of record would not include links to sources in journals or to the IPCC repository of non-journal literature cited in the assessment. One option that should be considered by the Executive Committee is whether, with complete citations immediately available as a rollover or on a click, it makes sense to shorten the text by switching to a more compact form of in-text citations (e.g. numbered in-text citations).

6) Links to high-resolution figures: Much valuable information in IPCC reports is in figures. Often the figures are printed too small for readers to see the full detail. Links can make it possible to “zoom” as appropriate to higher resolution or to specific parts of the figure. They can also make it possible to select regional figures from a global display or to select output for particular time points, climate models, or scenarios. Links can also make it possible to switch between visualizing the data in graphical and tabular form.

If the decision is made to go ahead with an electronic document of record for the AR5, the Working Groups and the Executive Committee should work together to agree on a more-or-less shared set of enhanced features to include. This collective process should address the value of each candidate feature, based on information content, communication impact, relevance to a broad range of cultural and national experiences, ease of navigation, and assurance against misinterpretation. It should also consider the amount of work required to implement each enhancement. Some variation in features across Working Groups or among chapters may be appropriate. The question of the degree of uniformity in features will require careful consideration by the Executive Committee.

With an electronic document of record for the AR5, the Executive Committee might conclude that all of the above enhancements can be implemented, but the Executive Committee might also advocate a go-slow approach, so that the IPCC gains experience with only the simplest, most robust electronic enhancements for the AR5.

Concluding thoughts

Moving to an electronic document of record can allow the IPCC to produce reports that are clearer and more accessible but also more transparently structured and connected to the underlying literature. It is important that IPCC continues to produce printed as well as electronic versions of its reports. But the expanding gulf between the capabilities of electronic media and the printed page places a priority on identifying the electronic version of the report as the document of record. Adopting PDF/A, with the features described above will strike a balance between improving the user experience and assuring a robust archival record of the contents of the report. As the standards for archival electronic documents continue to advance, the panel may want to revisit this issue and evaluate options for additional features.