WMO

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

UNEP

INTERGOVERNMENTAL PANEL
ON CLIMATE CHANGE

IPCC-XIX/INF.1
(2.IV.2002)

NINETEENTH SESSION
Geneva, 17-20 (morning only) April 2002

ENGLISH ONLY

Evaluation of the work of Working Group III and Its Technical Support Unit from 1998-2002: Lessons for the Future

(Submitted by the Co-Chairmen, Dr Bert Metz and Prof. Ogunlade Davidson of Working Group III)

The Bureau, the Convening Lead Authors and the Technical Support Unit of Working Group III have contributed to this evaluation: a 2-page summary is included.

Evaluation of IPCC Working Group 3 on Mitigation of climate change 1998-2002

1. Background

For the development of IPCC's Third Assessment Report Working Group 3 was charged with assessment of mitigation of climate change. Dr. Bert Metz (Netherlands) and Prof. Ogunlade Davidson (Sierra Leone) were elected as co-chairs. As customary, the co-chair of the industrialized country, i.e. the Netherlands, financed the establishment and operation of a Technical Support Unit (TSU) during the period 1998-2002. The TSU is located at the Office for Environmental Assessment (MNV) at the National Institute of Public Health and Environment (RIVM) in Bilthoven, the employer of Dr. Metz.

Working group 3 has been responsible for the management of the development, and the preparation for the publication of two Special Reports, on Methodological and Technological Issues in Technology Transfer (SRTT)[1] and Emissions Scenarios (SRES), respectively, in addition to the development and publication of the Third Assessment Report of Working Group III on Mitigation. WG3 also supported the development of the IPCC Synthesis Report (SYR). Finally, WG3 contributed to the development of the Special Reports on Aviation and the Global Atmosphere (SRAV), and Land Use, Land-use Change and Forestry (SRLULUCF).

At this time, in the last year of the current IPCC Bureau, it is useful to evaluate thework of the Working group and the TSU. The results of this evaluation could be used to better organize the activities of the Working group, including the technical support for the Fourth Assessment. This note has two parts: first, it covers the process of developing the Assessment Reports, and second, the effectiveness of the TSU in support of this process.

2. Organizing the development, review and publication of the Assessment Reports

For the purpose of this evaluation, we consider the assessment reports to be developed in 12 steps: 1. Author selection, 2. Terms of reference/outline, 3. Lead Author meeitngs, supporting workshops/expert meetings, 5. Drafting process reports, 6. Drafting process summaries, 7. Communication with Secretariat and other Working Groyps, 8. Review, 9. Approval/acceptance, 10. Editing and production of the report, 11. Presentation and outreach, 12. The (WG3 contribution to the) Synthesis Report. For these 12 steps, some key experiences are discussed below, and some recommendations for the future formulated.

2.1. Author selection

[1] In early 1999, the technical support to the SRTT work was taken over from WG2.

Experience

For the TAR, the selection process of authors and review editors consisted of various steps:

(1) invitation of a number of experts/potential CLAs by the WG3 Bureau to a scoping meeting[2];
(2) selection by the WG Bureau of additional lead authors and review editors on the basis of government nominations and suggestions from potential CLAs and WG3 Bureau;
(3) addition of LAs, CLAs and REs if needed during the drafting process by the WG Bureau, in consultation with the CLA's.

One problem was that the selection of authors may have been dominated too much by experts who participated in earlier IPCC reports. To some extent, this provides valuable continuity, but on the other had hinders innovation.

A second problem was the fact that the government nominations were not used effectively: they were insufficienctly consulted by the Working Group Bureau when compiling author lists. It is interesting to note that for the SRES and SRTT, the author selection appeared to be less formalised, the CLAs (or section coordinators in the SRTT case) more freely inviting additional experts to writing team meetings who were then relatively easily accepted as LAs by the WG3 Bureau.

The involvement of proposed CLAs in the selection of their writing team helped to build a coherent writing team, but has the risk of getting a bias in the team. It requires the CLA selection process to be even more careful.

The main problem was the non- or inadequate performance of some LAs and CLAs, indicating that the selection process was not perfect. Because of the sensitivity of the regional balance of writing teams only in a few cases LAs were dropped or replaced. In particular for developing country LAs, availability of time and lack of internal budgets to cover time spent led to less than optimal performance in the writing teams. From a management perspective, the non-performance of CLAs was an important issue. Having two CLAs per chapter had the advantage that practically always one was active, but the disadvantage was that the task sharing between the two was not always well arranged. In some cases, neither of the CLAs was taking sufficient responsibility to manage the process, and meet deadlines. In some cases, conflicts arose because of a lack of confidence in the (scientific or managerial) capabilities of CLAs by members of the writing team. Those CLA's that used a research assistant with the explicit task to support the CLA were most easily accessible by the TSU and helped a lot in compiling drafts with graphs and figures, in time for the review process

As discussed below, adequately dealing with issues cutting across chapters appeared to be a serious problem, which did not occur in those reports for which there was only one integrated writing team (SRES, SYR). Also, the absence of world renowned economists like Nobel laureates from the teams may have led to a lower appreciation of the report, notably in the USA. Pursuing active authorship by experts from the private sector was only partially successful. Main problem here was the required time. Some authors questioned their neutrality, but most appreciated their input, the neutrality ensured by the team as a whole and the review process.

Recommendations for the future

- For future author selection, it is recommended not only to ensure disciplinary and regional balance, but also balance in terms of (usually very busy) top senior experts and more junior promising scientists who can actually afford to spend more time on the drafting process.

[2] This scoping meeting was IPCC-wide, allowing for some discussion on issues cutting across Working Groups.

- Demonstrable interest in issues broader than one's own expertise, and in policy linkages should be a criterion for at least a part of the writing teams.
- Where possible (Special Reports, Technical Papers) use one writing team for the whole report (max 40) rather than individual chapter teams.
- For next assessments, a renewed effort should be made to involve people from the private sector, possibly aiming at involving retired people because of the apparently unacceptable time commitment of the IPCC process. Joint IPCC-private sector meetings as well as joint IPCC-NGO meetings could also be organized.

Several options seem to be available to improve the performance of CLAs. First, it is suggested to take more time for the CLA selection process and actually select those first and check their availability (2-step process). Second, CLAs can be asked to actually sign an agreement confirming that they are responsible for delivering the drafts according to the agreed time schedule. Third, governments could be encouraged to provide funding to CLAs to enlist a research assistant with the explicit task to support the CLA.

- Enlisting disciplinary top experts as LAs is important to increase the credibility of the report in disciplinary circles (e.g. in the WG3 area this applies to economics)[3]. Avoid the temptation to appoint these as CLAs. Having – usually overcommitted - top people/Nobel laureates as CLA to boost the credibility of the report is actually in conflict with the need for adequate management capabilities. Involving such people as review editors, reviewers, regular members of the writing team, or CLAs of less resource-intensive chapters (e.g. introduction) may be a solution.
- Changes in the writing team to fill gaps or to replace non-performers should be possible, on the suggestion of the CLA(s) of the teams and with the approval of the WG Bureau. Upgrading active contributing authors is one of the easy options.
- In order to get a better CLA/LA selection and do more justice to government nominations it is recommended to form a selection committee. This regionally balanced committee should consist of experienced scientists (not longer available for authorship), with an excellent knowledge of the field. It should make a recommendation to the Working Group Bureau, based on careful study of nominations and other sources of information, including demonstrated performance in previous IPCC and comparable assessment processes.

2.2. Terms of reference/outline

Experience

The TAR outline was developed in 2 steps. First, the IPCC Plenary discussed formally the broad terms of reference of the Working Group reports, as well as - informally - a more detailed list of issues to be dealt with. Next, the envisaged CLAs in consultation with the WG Bureaus developed a short and a long annotated outline at the above mentioned scoping meeting. The short one was prepared for approval by the Plenary, the longer version for writing team guidance.

For the Special Reports no detailed outline was approved, but this was prepared by the author teams on the basis of broad terms of reference. For the SRES, the terms of reference were procedural rather than substantial. This led to serious debate and strong differences of opinion at the stage of final approval of the SRES: due to interpretation of the general terms of reference by some delegations a whole section had to be removed from the report.

There is a clear tendency by the IPCC Plenary to more and more attempt to control the contents of the reports by approving more detailed outlines, herewith restricting the liberty of

[3] But because of the interdisciplinary nature of the IPCC work, even such disciplinary experts should have a positive attitude to comments and suggestions from outside their discipline.

the author teams to adjust the assessment in the light of the scientific literature and their preferences. This may have unwanted side effects, e.g. in some cases new developments in both science and policy cannot easily be captured in the course of the process. In some cases, the TAR authors wanted to change the short outline, and in some cases, this indeed happened, in close consultation with the WG Bureau. Fears of procedural problem with delegations criticizing such changes proved to be unfounded, which however does not give any guarantee for the future.

Recommendations for the future

- Terms of reference need to be clear and precise in order to be useful as guidance for developing outlines and possible changes of outlines. However, a very detailed outline is not needed since it restricts the freedom and hence the motivation of key experts who should be involved in the process.
- It is not recommended to change the procedure as followed during the TAR, provided that clear decisions are taken that changes in the outline are allowed in consultation with the WG Bureaus.

2.3. Lead author meetings

Experience

During the TAR process, 4 LA meetings were held: an introductory meeting producing a zero-order draft for informal review (Bilthoven), a second meeting preparing the first order draft for the formal expert review (Lillehammer), a third meeting producing the second order draft for the combined expert/government review (Eisenach) and a fourth meeting finalizing the last draft for final government distribution (Cape Town). In addition, some ad-hoc chapter team meetings were held by a few chapters. Although these chapter team meetings have been generally very effective, they were usually not attended by developing country LAs because they did not form part of the writing team meetings accepted for the Trust Fund.

For the SRES a larger number of meetings was held, because this report included the development of new scenarios in addition to an assessment of the literature. For the SRTT several additional meetings of a core team were held in developing the outline and at the stage of producing the Summary for Policy makers.

A few aspects need attention. The meeting venue appeared to be important in that each chapter group needs a separate room to work effectively. This could not always be guaranteed. A continuous problem was finding the balance between plenary and group sessions. Almost all authors in all chapter teams were pre-occupied with their own chapter, and - with a few notable exceptions - not interested in other chapters, some even claiming that the plenary sessions were a waste of time. This severely hampered an adequate discussion on cross-cutting issues and consistency between the chapters. Daily CLA meetings appeared one way of addressing this problem. Nevertheless, at the end of the process many details had to be addressed by the TSU, such as a proper definition and consistent usage of terms (the very important glossary attracted very little attention, see below) and usage of the style guide.

Recommendations for the future

- If the IPCC Trust Fund budget allows, one or two chapter team meetings should be added to the plans, e.g. at the initial stage transforming the skeleton outline into a zero-order draft[4].

[4] It is not recommended to replace a full LA meeting by separate chapter team meetings since the opportunity to work on cross-cutting issues cannot be missed.

- The daily CLA meetings to address key issues and crosscutting questions appears to be a proper way to deal with such issues; additionally, some of the LAs can be assigned to more than one chapter and be rewarded for this by having multiple LA-ship.
- Specific individuals (not CLA) per team can be made responsible for coordinating issues like (1) coordinating material with specific other chapters, (2) usage of terms, style, (3) summary discussions, etc., limiting the need for other authors to attend plenary sessions and avoiding too much burden on CLAs and absence from their chapter team discussions.
- Better use of a WG website to communicate general issues to all authors and exchange draft texts.
- The availability of sufficient break-out rooms is more important than a nice plenary room.

2.4. Supporting workshops/expert meetings

Experience

Compared with other Working Groups, Working Group III organized a significant number of expert meetings and workshops to address gaps in knowledge in support of the TAR or to discuss cross-cutting issues[5]. These meetings intended to provide important input into the TAR. The effectiveness was very much dependent on the timing and the workshop organization. Some meetings were too late in the process to really have an impact, not the least because the proceedings became available to non-participating authors rather late. The quality of the papers presented varied a lot. For some expert meetings the organizers did not manage to produce timely and comprehensive proceedings (e.g., mitigation scenarios, costing methods) limiting their usefulness beyond the participants. Presentations of results during Lead Author meetings and making individual papers available to writing teams did not seem to have a great effect.

Recommendations for the future

- Plan expert meetings very early in the process and explicitly aim at making the results available to the writing teams in an easily accessible format.
- It is also recommended to make CLAs of pertinent chapters co-organizers of the meetings to facilitate the inclusion of the meeting material in the assessment.
- Arrangement of publication of papers in a Special Issue of a Journal, or in book format makes them available for quotation in the assessment report.
- A scientific committee should guard the quality of the presented papers.
- It is advised to make better use of expert meetings to reach out to four groups of people: (a) experts beyond the writing teams, (b) experts from other Working Groups, (c) experts from the private sector, and from environmental NGOs, and (d) "assessment users". By inviting a limited number of policy stakeholders to such expert meetings, or organizing expert meetings jointly with stakeholders[6], user input (what is relevant from decision making point of view) can be strengthened.

2.5. Drafting of report

Experience

The pace of the drafting process was fixed by the subsequent lead author meetings and the fixed dates for the review rounds and approval process. From a management perspective, the process was seriously hindered by a lack of interest by the authors for issues other than the

[5] 2 expert meetings on development, equity and sustainability an one on costing methods in collaboration with WG2, meetings on sectoral economic impacts, on regional economic impacts of mitigation policies, on scenarios, on HFCs, on social and behavioural aspects of mitigation, on ancillary benefits.

[6] Participation of IPCC experts in activities organized by stakeholders can also be beneficial. Workshops organized by IPIECA during the TAR process are a good example.

substance of their own chapters and a general neglect of agreed time schedules. Also unequal commitment by writing team members led to problems. Some issues:
a) *poor planning*: not taking the time schedule with associated deadlines sufficiently serious (results: time pressures, inferior quality of drafts, etc.),
b) *lack of interest beyond own assignment,* affecting the consistency between chapters (results: inconsistencies and overlaps),
c) *unwillingness to discuss key findings/messages early on* (results: limited input by authors into draft summaries leading to inadequate consistency between key messages in summaries and in chapters, and criticism by authors in a late stage),
d) *neglect of agreed style guide* (results: time pressure and unexpected amount of editing work by TSU, e.g. references),
e) *neglect of technical appendices* such as the glossary, index, lists of acronyms and units (result: late discussion about key terms, inconsistent use of terms and acronymns),
f) *limited usage of non-english literature:* the selected authors from the non-anglo-american regions insufficiently ensured inclusion of such materials.
g) *inadequate literature referencing:* in addition to inconsistent styling, reference lists were incomplete: many references in the text did not appear in the reference list and the other way around (up to one third in the final stages). The reference lists for the zero, first and second order drafts were generally very incomplete, making the review of the drafts problematic. It also provided the teams and the TSU with a work overload in the final stages.
h) *focus on text:* in general, the authors were focusing exclusively on the fine-tuning of texts rather than appreciating the importance of tables and graphs (which are more prominent to readers).
i) *inability to produce concise text:* for all reports it was a main problem keeping the size of the documents short and make them more readible.
j) *Prolongued discussion on controversies:* in quite a few chapters controversies existed on particular issues which tended to dominate the whole process, distracting from other issues which may have been of similar importance to the readers.

The TSU provided support to individual writing teams. Since the number of chapters was larger than the number of TSU staff members who could attend meetings, this support was provided on a somewhat ad-hoc basis, usually based on the expertise of individual TSU staff members. The original idea to provide support to all chapters (e.g. 2 chapters per individual) appeared infeasible since some TSU staff had no time for this focused support while others could not serve more than one team.

Recommendations for the future

- The multiple, intensive review procedures made the time schedule tight. A somewhat more relaxed time schedule (4 rather than 3 years between 1st scoping meeting and approval) is recommended.
- Main solution to most above problems is to make particular writing team members (or CLA research assistants) "problem holder" for the issues involved. These persons should address the issues (e.g. the reference lists, style, etc.) from the start of the assessment process.
- Other ways to ensure consistency between chapters are to more specifically take these points into account in the composition of the writing team: in addition to internationally recognized senior scientists, promising younger scientists with more available time could be included and specifically given the assignment to take care of these issues. A similar option is to require CLAs to sign an agreement accepting the task[7].This may encourage potential CLAs to arrange with their governments to consider explicit financial support during the drafting process, e.g. for hiring an assistant.

[7] Now, they are only asked to agree in writing with the last draft to be submitted to the printer for publication.

- Promotion of usage of non-english literature should be further promoted, by providing facilities to non-English authors to produce translation of abstracts (through the IPCC Secretariat Geneva). Alternatively/additionally, lead authors can be stimulated to arrange for full translations of relevant articles, or articles based on reports, for publication in the english-language literature (e.g. special issues focusing on particular regions).
- Important report items such as the glossary could be posted more prominently on the IPCC website, giving it more status and stimulating LAs to scrutinize it.
- From the start, the importance of graphs and tables should be underlined, and some resources can be reserved by the TSU to subcontract a graphical artist (say at the time of the 2nd order draft), particularly to improve the SPM/TS illustrations.
- Introduce a more effective management of the length of chapters, e.g. by including this aspect in the agreement with CLAs (see above), and other means.
- Avoid that controversies continue to dominate the writing team discussions throughout the process by adopting more explicitly and in an early stage of the process the procedure of describing the controversy in the assessment rather than to continue to attempt to find a common position.

2.6. drafting of summaries

Experience

The drafting of the SPM was started after the first order draft had been completed. It appeared important to identify and discuss the main findings of the report early in the process to help focusing the chapter drafting as well. The first draft was based on a list of main findings by the teams. The interest however in the SPM process was limited, notwithstanding the fact that the SPM is the most important component of the report. The drafting was done by a small team of co-chairs, CLAs, TSU and a few interested other LAs. Telephone conferences facilitated this process. This led to a situation, in which at the end several authors who were not involved were not satisfied with the result, even if they had had the opportunity to provide their comments earlier.

The Technical Summary was started at a later stage, as a kind of intermediate between SPM and Chapters, drawing from both, but primarily from the chapters.
The TSU played a key role in managing the SPM and TS files, and in many cases substantially contributing to the summaries.

Recommendations for the future

- It is recommended to continue the practice of having a core team with CLAs (or another designated chapter writing team members) discuss the summaries during Lead Author meetings and through a number of targeted teleconferences.
- It is important to start this process early on in the process to maximise its usefulness in shaping the way the chapters are written to bring out the messages clearly.
- Share results of the core team teleconferences with all LAs by having the TSU distribute a list of key decisions taken and making drafts available through a closed web-site to interested Las and inviting comments.
- Appoint a specific writing team to write the technical summary, having at least one member not being involved in the chapters themselves[8]; the participation of this TS team in discussing the SPM is important (authors can be the same).

[8] Working Group I used this practice during TAR preparation. Such a person can be brought in half way through the process, bringing in a fresh look at the material and not influenced by particular chapter team controversies. Such a person however should be neutral and accepted by the writing teams.

- Maintain a central role for the TSU, both in the management of the process as well as in the editing of the texts.

2.7. communication with Secretariat and other Working Groups

Experience
The communication with the Secretariat was mainly of four types: (a) informing about travel plans of EIT/LDC meeting participants, (b) providing drafts to Geneva for distribution to governments, (c) the organization of Plenary and Working Group sessions, and (d) discussion about the communication strategy. The Secretariat did not play a role in ensuring consistency and managing crosscutting issues between the Working Groups.

Late information about meeting participants and slow processing of travel authorizations led in the initial phases of the TAR to problems with EIT/LDC meeting attendance. These problems were resolved later in the process.

Communication with the Secretariat was not always effective. During the TAR process, much more use was made of electronic communication than during the SAR, while the IPCC secretary mainly relied on fax communication. Communication between the TSUs was quick and effective throughout the process. Here, experience with earlier assessments by two of the three TSUs and willingness to share this experience resulted to be extremely useful.

The IPCC website improved greatly in the second half of the term due to targeted efforts by the Communication Strategy Group. The decentralised website at WG III was not kept up to speed due to internal problems at RIVM; the closed website for WG III authors could not be set up via the WG 3 website at RIVM and had to be organized through EIONET, thereby making it more difficult to use.

Recommendations for the future
- It is recommended to share the experiences of the TAR with the new Secretary to be appointed.
- The use of the IPCC WG3 website for supporting the writing process should be further improved (closed web based file exchange; access to draft summaries and other working group chapter drafts, etc; linked central and decentral websites).
- The travel arrangements through the WMO travel unit should be further streamlined.
- It may be considered to have multiple language versions of the central IPCC website.

2.8. The review process

Experience
Managing the time schedule, i.e. sending out the draft reports to reviewers in time, was very challenging. Key problem was that several CLAs did not manage to meet deadlines. Sometimes this was bad planning by the CLAs who had other commitments at the time when they had to deliver the drafts. Sometimes, they were limited by late submissions by their writing team members and unable or unwilling to cut knots. CLAs who took a more central responsibility in putting the drafts together were better able to meet deadlines than CLAs with a more decentralised approach. Such a more central role is only possible if the CLA has the full confidence of the writing team.

Because in the proposed draft Procedures (1998) this was required (later this part was not adopted in the Procedures approved in 1999) and to have a record in case of challenges from reviewers as happened in Working Group I during SAR, instructions were given to all writing teams to archive the responses to each comment. The TSU facilitated this by providing tables

of comments with an empty right hand column. Only part of the writing teams took the trouble to complete these tables, notwithstanding repeated requests. The number of cases in which WG3 had to resort to these tables to respond to requests by reviewers/governments (during the second and final review some reviewers asked why their earlier comment was not taken into account) were few.

The reviews were amongst the most labour intensive aspects of report development for the TSU. Copying and mailing of review drafts appeared a major task, which was however properly managed by the respective RIVM departments, being advised timely of these major actions. Collating review comments – with continuous numbering - was done effectively by involving all part-time TSU staff.

The response to the distributed reviews was limited (typically 10-20 % of the hard copies sent out) and developing country responses were very much underrepresented. It appears that limitation in terms of time and resources of reviewers, but possibly also lack of interest and commitment were the main problems.

The reactions of writing teams to review comments were in a number of cases biased by the appreciation of the author of the respective comment by the team. E.g., if the comment originated from a person who was not recognized as an expert in the field, it was sometimes treated less seriously. This particularly applied to comments addressing the user-friendliness of the texts. Lead authors tended to focus on the scientific merit of the comments, overlooking the fact that the IPCC reports need to be understandable to a broad range of people, most of them beyond the experts themselves.

In general, the role of the review editors in overseeing the review process was working well.

<u>Recommendations for the future</u>

- Although the archiving of responses to comments has eventually not been included in the Procedures and although there is a reluctance of writing teams to record their responses, it is extremely important to keep a clear record of responses to each comment. There is increasing scrutiny of the proper handling by IPCC of review comments. The availability of such a record increases the power of IPCC to respond to criticism. Assigning one member of each writing team to make these records would make sense.
- To avoid bias in response to comments it is recommended to remove the names of the reviewers from the individual review comments as provided to the teams, making the review more comparable to the regular scientific peer review process.
- Because of the high costs of hard copy distribution and low response, it is recommended to move to a primarily electronic distribution of the drafts for review, supported by widely circulated and early announcements of their availability; hard copies or cd copies would then be made available only on request. Self-selection by reviewers could be allowed in addition to approaching reviewers nominated by governments. Downloading of files should be made easier.
- Look for regionally distributed institutes that have facilities for fast downloading to assist reviewers from the regions. When moving towards electronic distribution of drafts for review, particularly reviewers in developing countries might need this assitance, since mailing of hard copies or cd’s overseas is generally problematic.
- In order to overcome the constraints in financial resources of developing country reviewers, an option is to reserve a limited amount of IPCC Trust Fund money for assigning a few experts from LDCs/EITs as selected by the WG Bureaux to review the drafts.

2.9. Approval/acceptance

Experience
Approving SPM texts word-by-word and accepting the underlying full reports in a limited time was a challenging task. The SPMs of the two SRs were approved in three days, the TAR SPM was approved in four days, as scheduled. Having (continuously numbered) collated government comments ready for delegates, providing reasons for accepting or rejecting specific comments and making available revised text proposals, prepared by the LAs in conjunction with the co-chairs, were essential elements for a smooth process. In addition, off-line explanations of controversial texts by LAs and informal consultations to find consensus, often chaired by one of the delegates, proved extremely useful. A very important aspect of the process was also the checking by LAs present in the room of text proposals vis a vis the underlying report: in case of inconsistency this allowed the chair to dismiss proposals. Having LAs at the meeting also to answer questions informally to delegates and to act as resource persons in drafting consensus text was also extremely useful. However, in a few cases LAs or review editors ended up as delegates, which lead to confusing situations. Also, in some cases LAs got involved in pushing for text elements during negotiations.

The translations of the final draft SPM text that were made available to delegates at the meeting were of limited use, because most of the discussion was about the new texts.

The role of the TSU during the approval and acceptance process was to (a) collate government comments, (b) prepare a Review Editors' report, (c) edit the SPM in real time during the Working Group session, with on-line projection on a big screen (d) prepare in real time a list of associated changes in the TS and rest of the underlying report, and (e) help the Geneva Secretariat's staff in the general management of the meeting. From this point of view, no major problems were encountered during the WG3 sessions in Nepal and Ghana other than some logistic problems in the beginning of the sessions, regarding computer-facilities, projection facilities and photocopying arrangements.

Recommendations for the future
- Ensure that collated comments, responses of LAs and draft modified texts can be made available to delegates in a timely manner at the meeting.
- Use informal explanations by LAs and consultations to resolve controversial issues should be encouraged.
- LAs or REs should not be acting as delegates for the issues/ chapters in which they were involved and the role of LAs in negotiations on consensus text should be restricted to that of resource persons.
- If translations of draft SPM texts are provided to delegates they should be sent at the time of government distribution, when they are useful for the final government consideration. It does not make sense to distribute translations only at the final meeting.
- Logistical support, projection facilities and computer and internet access (also for participants) need to be improved. In developing countries, additional support from the Geneva Secretariat might be needed. If the meeting is held in a developing country, it is advised to travel to the venue a earlier to check technical facilities with the local and Secretariat staff.
- Proper TSU support requires the availability of at least 4 TSU staff during the sessions.

2.10. Editing and production of the report

Experience
For the TSU, one of the most intensive periods is during the editing of the report and the preparation of the camera-ready files. As to the editing, two phases can be distinguished: a substantial and language editing phase ("copy editing") and a proof-reading phase. In between, the Word files were translated into professional publishing format. Three main problems can be identified here.

a) *In-house or outsourcing.* Because of the simultaneous production of two reports, different options were used for the two Special Reports: one internal at RIVM (studio, for SRES) and one external (private firm through ECN, SRTT). In general, the internal option had the big advantage of enabling a continuous interaction between TSU and studio, which is why this options was also chosen for the TAR. Disadvantage is that the risk of competing assignments may be bigger at an internal facility than when using a commercial firm. The external option resulted in some problems because of unclear communication. Note that different from the other Working Groups, WG3 did not have the technical expertise to have this work done by TSU staff members.

b) *Edit co-ordination.* Because of the sheer size and high time pressure of the TAR editing, and the fact that the TSU did not have native english speaking staff, two different English editors were contracted. This led to two problems. First, even if they used the same IPCC style guide and communicated with each other and the TSU on a multitude of language and lay-out issues, a lot of differences in results remained, leaving the TSU and studio with a lot of additional work. Second, the level of scrutiny between the two was very different, and the question could be raised if the perfect was not the enemy of the good.

c) *Errors in proofreading stage.* Even if the editors were asked to identify lay out errors during the copy-editing phase as well (missing commas, wrong fonts, etc.), and additional editing by the TSU, too many errors remained which were only identified during the proof-reading phase, necessitating the studio to spend maybe even more time on correcting these errors than on preparing the lay-out itself. Even if this problem was identified during the preparation of the SRES, it again occurred during the TAR. One of the reasons was that after the copy editing phase, changes in the document were made by the writing team or TSU.

Recommendations for the future

- It is recommended to use an internal facility for the preparation of the camera-ready copies rather than subcontracting this out. Solid contractual arrangements then have to be made. Another solution would be the one adopted by the WGI and WGII TSUs: employment of a staff member who has the capability to do this job (i.c. Dave Dokken/Paul van der Linden).
- As to the editing, it is recommended to better take into account the time requirements of this phase by having even more time available for editing, allowing one editor to do the job, and to do it properly.
- A native English speaker in the TSU would help.
- The only way error removal by the studio can be avoided or reduced is (a) to specifically assign the copy editor to identify lay out errors, and (b) to have more time available at this stage to have the TSU doing a full copy-edit before handing over the files to the studio.
- Involve more TSU staff for this stage of the process.

2.11. Presentation and outreach

Experience

All reports were formally presented at UNFCCC SBSTA or COP meetings. In addition, partly as a result of the discussions in the task group on communication chaired by Prof. Pachauri, improvements were made with respect to electronic communication and the Secretariat's website. All reports are being made available in electronic format (cds and web). Powerpoint presentations by the chairman, co-chairs, and lead authors involved in the UNFCCC presentations were made available on the website. Free copies of the full reports ar ebeing made available to developing countries. However, targeted outreach activities, notably in developing countries and economies in transition, were limited to Working Group III. These were possible not because they had been planned in advance, but because of available funds in the last year of the project (see below). It is disappointing that notwithstanding the high priority afforded to such activities, the other Working Groups lacked interest and resources to

implement such a programme. Since the WGIII programme is still being developed, it is too early to evaluate its success.

Recommendations for the future

- It is recommended to include a significant amount of financial resources in the IPCC budget or in the TSU budgets for this purpose, maximizing the availability and effectiveness of the assessment reports in various regions.
- The website development and maintenance of WGIII and the associated electronic communication facilities was basic and should be improved, linking it much more closely to the central IPCC web site.
- It is recommended to develop a database of people requesting copies of particular materials to identify users of the materials (to get a better picture of the actual user groups). They can also be approached as future reviewers.

2.12. contributing to the Synthesis Report

Experience

During the early phases of the TAR process, the plans for the Synthesis Report were developed, including the formulation of policy-relevant questions. These questions were presented to the authors of the TAR during the writing team meetings, but did not attract any serious attention until after the finalization of the TAR. At that time, authors were selected to be part of a core writing team under the management of the IPCC Chair. The selection of the members of the core team was made on the basis of recommendations by the WG3 co-chairs and Bureau. Important criteria in this selection were a personal interest in the issue shown, commitment shown during the TAR process and ability to function in an interdisciplinary team. In general, the work of the core team went very well, including the involvement of UNEP-GRID in preparing more attractive graphs. The late interest by the authors however led to inadequate treatment in the TAR of issues to be covered in the SYR. A problem was that the IPCC Secretariat was not able to handle the report editing and production process, and the TSUs (especially WG2) had to step in.

Recommendations for the future

- Strengthen the SYR process by moving it to the early phase of the fourth assessment process. If key policy questions are well elaborated at an early stage, so that inputs in the answers to those questions can be identified, then the SYR can have an important role in focussing the development of the full assessment report. In other words, it would then help prioritise the issues that are taken up in the assessment report and would help to keep the full assessment reports concise.
- Select members of the core writing team for the Synthesis Report already early in the process, and arrange an early meeting of this team.
- Discuss the management of the SYR process early on with the new IPCC Secretary and make early arrangements for the sharing of tasks between the WG TSUs and the Secretariat.
- Maintain the practice of involving a graphical artist in the core team, possibly even involve such persons in the WG reports.

3. Managing the Technical Support Unit

In order to support the above-described process, several issues are important:

3.1. Financing

Experience
The TSU was financed through 5 Ministries. In total, the level of financing was adequate, but TSU staffing was tight, leading to a continued high workload of TSU staff. Because at the start of the project implementation details could not be foreseen, actual expenditures for different budget items (other than for core staff) resulted to be quite different from what was originally planned. For example, unplanned expenses were incurred because of the management of the SRTT, taken over from WG2; the support to a series of expert meetings and workshops in developing countries; the implementation of an outreach programme and the support to the Synthesis report. The WGIII TSU was better able to respond to unforeseen new tasks because of budget flexibility than the other TSUs, which had to apply for new and additional funds periodically.

The following issues appeared to be of key importance for the financial situation in the project:

- The contribution by the Energy Research Foundation, funded by both the Environment and Economic Affairs Ministries, consisted of two components: a direct financial contribution and a contribution in kind through project support by ECN staff. If needed, these components could be adjusted on a yearly basis, within the constraints of the total available budget. The ECN staff assigned to the TSU worked for the TSU on a part-time basis, allowing adjusting available staff to the workload.
- Adequate provisions for telecom, copying, mailing, printing, and lay-out work.[9]

The financial management of the project was originally very poor. Main reason for this was the shift at RIVM to a new financial system (SAP), which was delayed several times and eventually appeared to be very user-unfriendly for project leaders unfamiliar with this kind of software. Support from financial staff at RIVM was extremely limited at this time, due to staff shortages. Later in the project the situation changed with the appointment of a sector financial manager.

Recommendations for the future
- The discrepancies between the foreseen activities and the actually implemented activities (e.g. unforeseen reports) underline the importance of having sufficient room available in the budget for unforeseen activities.
- At the start of a new project, it is recommended to have a definite agreement with the host institute management about the usage of (part of) the overhead for staff members and the financial arrangements with respect to the involvement of supporting departments (studio, mailing and copying, computer technical support, see also below). If such support cannot be guaranteed, additional budget items would have to be included.
- The exchangeability of the direct financial contribution from ECN with manpower resources should be continued to maximise TSU flexibility.

3.2. Staff arrangements

Experience
The resident RIVM staff consisted of one head, one office manager, and one senior associate. The first two were funded through the Environment Ministry, the latter through the Foreign Affairs Ministry under the condition that it would be an expert from a developing country. The latter resulted to be a good arrangement for several reasons. The collaboration was a learning experience in both directions, and mirrored the regional balance which is so important for IPCC Bureau and writing teams. This was complemented by staff from ECN on

[9] RIVM overhead covered these expenses so far, but this arrangement can not be guaranteed for the future.

a temporary basis (about 0.65, 1.85, 0.9, 0.35 man year/year in 1998, 1999, 2000 and 2001) as well as by staff of Alterra/Wageningen (approximately 0.2 man year/year). As the numbers illustrate, the staff input was very unevenly distributed over time. In 1999, the TSU was providing support to the development of three major assessment reports in parallel at the same time as organising expert meetings and workshops. ECN resources originally allocated to earlier and later years could be moved to this year.

The expertise of the various TSU staff members (Swart/Integrated Assessment, Pan/economics, Kuikman/LULUCF, Ybema/van Rooijen/Martens and others/energy economics) generally matched the subject matter. In addition to the staff mentioned above, also staff not allocated formally to the project contributed — notably, the RIVM studio (see above). Different from the expectations, work pressure was high throughout the period because of different reports being in different phases at different times, leading to a typical working week of more than 45 rather than 40 hours.

While the collaboration with RIVM central departments such as the studio, copy shop and mailing department went fairly well, there were two areas were support was lower than expected or hoped for. The first is the development and maintenance of the IPCC-WG3 website. Throughout the project it appeared impossible to ensure capacity from RIVM to provide technical expertise in this area. Efforts to train TSU staff to do this work were only partially successful. It is recommended for the future to either subcontract this work out to an external company, or have the ability to develop and maintain websites as one of the requirements for one of the TSU staff. The latter is the option chosen by other TSUs.

The second problem related to support of the financial management. The new RIVM financial system SAP becoming available only with considerable delay in 1999, and the limited userfriendliness of the system make special expertise in this area very useful. Only from 2001 onwards such expertise became available. Taking into account the complex funding structure of the project, it is recommended to make financial management an explicit criterion for one of the future TSU staff.

With respect to the staff, it is important to note that originally it was expected that scientific expertise in the subject area of Working Group III and management and communicative capabilities would very important. These capabilities were indeed very important, but the need for more technical support tasks has been underestimated. This included the abovementioned website development and financial administrative capabilities, but also tasks like the development and maintenance of address databases, and electronic collating of comments. In many cases, the professional TSU staff (head and economist) were forced to spend a considerable amount of time on helping with these more technical and secretarial tasks in order to meet agreed deadlines. Also from the side of ECN, the original expectation that the dominant part of the work would be a substantial contribution to the IPCC reports was only partly met. Secretarial staff at ECN was used to assist the RIVM TSU staff in busy times.

<u>Recommendations for the future</u>
Taking into account the heavy workload and the above problems, the future composition of a TSU may have four rather than three full time positions (in addition to the part time staff), which would be more comparable with the TSUs of the WGs 1 and 2. These positions may be:

- Head, with intimate knowledge of most of the subject matter, communicative capabilities and management skills.
- Senior staff member from developing country region, with knowledge on the subject matter complementary to the head, and preferably with technical abilities to develop and manage websites and other electronic data exchange (unless the office manager would

have these abilities or they would be contracted out). Excellent knowledge of English is required.
- Office manager, with adequate organisational and communicative skills as well as financial management capabilities.
- Secretarial assistant for general secretarial activities (could be part-time most of the time).
- Technical expert in the field of policies and measures, if indeed IPCC will be getting involved in best-practice assessment work on mitigation policies and measures.

The arrangement with ECN was a satisfactory one. Nevertheless, the flexibility with respect to ECN staff involvement came at the expense of lack of continuity at the personal level. During the project implementation, around 10 part-time individual staff members contributed to the project, with the disadvantage of loss of experience and an unstable face to the outside world. It is recommended to aim for limitation of number of staff involved. In busy times, such part-time staff could be stationed at the TSU. As to the scientific expertise covered, this was very adequate. Assuming that in the future social sciences other than economics may become more important, this discipline could also be considered in selecting staff.

3.3. Communication

Experience

The successful operation of the TSU is very much dependent on excellent communications facilities. Over the last few years, RIVM has increasingly demonstrated being able to provide these. In the early years there were problems related to the functioning of the email system (bouncing emails from unknown addresses, primarily in developing countries; limited size of forwarded messages, etc.) which hampered the functioning of the TSU, but these were later resolved. In order to facilitate the exchange of large files amongst the authors and between authors and TSU, the EEA EIONET facility was used because of the difficulties using a regular RIVM internet of ftp site (for security reasons). This facility appeared to be user-unfriendly and sometimes not accessible. Limited support from RIVM technical support staff was paired to the fact that TSU staff was not authorized to make changes in the website. In the future, this has to be improved.

Recommendations for the future

- Improve facilities for electronic exchange in the future, i.e. the revision of the WGIII website in relation to the facilities for file exchange (e.g. ftp site, protected website, etc.) in conjunction with IPCC central website. (see also above).
- As to the necessary expertise, two options appear possible: either add this to the criteria when selecting TSU staff members, or include additional funds in the budget to subcontract such activities out. In both cases, the TSU or its subcontractor should have the authorization to develop and maintain the website. If this would be impossible for internal RIVM-sites, the site may have to be moved to an external server.