Roundtable on Sustainable Forests

A Partnership for the Future

Review Workshop – National Report on Sustainable Forests
Washington, DC
May 29 – May 31, 2002
Summary

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EXECUTIVE SUMMARY

Introduction

This is an executive summary of the discussions that took place at the Review Workshop on the National Report on Sustainable Forests in Washington, DC on May 29 – May 31, 2002. The summary is based on input from multiple concurrent breakout sessions in which each of the chapters was discussed. The executive summary does not reflect a comprehensive listing of all of the highlights from each of the individual breakout sessions, but rather provides an indication of some of the highlights from the discussions as well as the breadth of input received from the breakout sessions.

Chapter 1 – Describing and Measuring Sustainable Forest Management

General

- Some groups were very pleased with Chapter 1, others less so.
- One group disliked the format and developed their own outline that included a preface that would include the historical context of why we are doing a report, the scope of the report and key elements, what are criteria and indicators, discussion of concepts of sustainable development and SFM and underscore that there is a paradigm shift.

Title

- Some participants felt the intent of Chapter 1 was not reflected by the content of Chapter 2. In other words, based on currently available data, we are not yet able to "describe and measure" SFM.
- The title of Chapter 1, Describing and Measuring Sustainable Forest Management, does not reflect what is in the chapter, or the content and emphasis of Chapter 2. Some participants thought the title should be changed.

Use of Key Terms/Definitions

- Make it clear this is an examination of the sustainability of all forest resources, not just those that are managed. Some forest ecosystems have inherent value and are fine without management as compared to forestland that is managed.
- The report should include a glossary of terms to describe what is meant by key terms such as forestland and ecosystem.
- Clarify the definitions between SFM, SD, and forest sustainability.
- Explain which definitions were used and why – explain the assumptions and rationale.

Executive Summary/Preface

- Many, but not all groups discussed the need for an Executive Summary. Since the report is structured to accommodate different audiences, include an executive summary. They suggested that there should be three levels – executive summary, report, and data sources.

- Other groups talked about the need for a preface which would include the purpose and origin of the report.
- Needs to briefly describe where the report is going and why readers should care about the report. Brief overview of what is going to happen with the report and how it is going to be used.

Statement of Purpose

- Many Groups: There should be a stronger and clearer statement of purpose.
- Make it clear that there are many agencies, companies, and other organizations committed to sustainable forest management.
- Make the purpose clearer and the purpose clear right up front.
- Explain how it is relevant to local interests/communities.
- Clearly state the purpose and reason for the report and why it is important.
- Describe the relevance of the report to various stakeholder categories and ask them to supply this information. This will provide a motivation and process for reading and using the report.

Target Audience or Audiences

- Several groups talked about the need to clarify who is the target audience and stressed that until this is done, it will be unclear how to structure the report and any ancillary products.
- The audience(s) for the report needs to be clarified, and how the report is portrayed tailored to different, key audiences. Key domestic audiences include different regions in the country, as well as policy makers. A version of the report should also be tailored for reception in the international arena.
- Thought needs to be given to whom the target audiences are and different products need to be developed for each audience. For instance, a shorter piece using less technical language would need to be developed for the general public.
- Report needs to be tailored to different audiences (i.e., regional and national audiences.)
- One group focused on getting the attention of a target audience but did not characterize the target audience.

Background/History

- Include a narrative on forest history over last 1,000 years that focuses on the evolution of sustainability and how it has changed over time.
- Graphics would help explain and highlight some of the statistics presented in the chapter, such as forest ownership in the United States and the management structure described in the chapter.
- Should be moved to appendix with some fleshing out.
- Overly focused on timber.
- Include an explanation on the global context of sustainable forestry.
- Edit, shorten this section and make sure it is relevant to SFM and the C&I process.
- Include a history of the development of the C&I.

- Explain why the concept of sustainability arose, especially as it relates to threats to the resource.
- Expand on the historical context with particular emphasis on the period since WWII, especially to reinforce that desired future conditions are not a constant.

Summarize Key Findings

- Some groups suggest having a summary section with key findings. Include some highlights of key trends and why this is compelling for now and the future of forest sustainability (e.g. multiple demands and users of forests and population increases).

Provide a roadmap to the report

- How is it going to be used? Where can you find information in report? What are future actions? Give an overview of the book.
- Describe the path for engaging in the process now and in the future (who keeps the data, changes it, uses it, applies it and how can the report user engage?)

Other

- Acknowledge the work that was and is still being done at the community level on indicators both before and during the Montreal process.
- The Chapter needs to do a better job of conveying that this is a national report and not a Forest Service report.
- Needs to create a sense of shared authorship and responsibility.
- Should include past and future public involvement process associated with the C&I and the national report -- how the C&I was developed, the review workshops, the Roundtable, etc.
- Authors of draft are too close to the subject matter, non-technical team should be put together to complete next draft.
- The RSF and the report are hard to follow. A discussion of the role of and partners in the RSF would be helpful.
- Clarify and lower the expectations for the report, particularly regarding the impossibility of truly determining whether we truly are making "progress towards SFM".

Chapter 2 – Criteria and Indicators: Data, Analysis, and Discussion

Criterion 1 – Conservation of Biological Diversity

- A number of participants commented that the summary is choppy and limited in scope and needs to provide a more accurate, balanced representation and synthesis of the available data. They felt the summary of Criterion 1 does not accurately or consistently reflect the content of the detailed data chapter. For example, the summary on indicator 2 is missing an analysis of forest type. The summary is also missing a discussion on cross cutting indicators within the criterion. An overarching concern of some participants is that the summary of Criterion 1 does not comment effectively on the substance of the Criterion - biodiversity conservation.

- As much as possible, the summary of each indicator should be consistent and have similar format and content. The summary should reflect what is presented in the detailed technical report. Representation of the data should be value neutral and accurate. It should clearly represent the quality of the data, as well its limitations - such as data gaps, weaknesses in methodologies, and the depth and breadth of the data. The foundation for additional research that will be discussed in Chapter 5 should be laid in this chapter.
- Some participants felt that Criterion 1 - or biological diversity as opposed to economics - should drive the discussion on sustainable forest management because forest health is the central issue.
- Many felt that it was important to establish a baseline against which to measure progress. They felt that anecdotal information would provide enhancements to the data reporting.
- In the area of ecosystem diversity, indicators are missing ways in which to measure how the internal structure of the forest is changing over time – age classification in and of itself is not sufficient. We may learn more if we combine information on age with forest type.
- Some participants feel the reference to hardwood and softwood is important to maintain, even though the terms have limited applicability, because selected audiences are familiar with the terms. Others feel that the use of these terms is not useful because the terms say nothing about biological diversity.
- Fragmentation was a focus of discussion on several occasions. Some of the specific observations about fragmentation were to:
    - Include biologically relevant strata for summarizing the edge metric.
    - Provide examples of how changes in patch size impact specific mammals and birds to help the reader understand the significance of patch size.
    - Note that some degree of fragmentation has positive impacts.
- Participants felt there should be a landscape level of evaluation that gets at the amount of specific types of ecosystems.
- Some participants felt it should be possible to do a better job describing the quality and health of a forest ecosystem based on the available data.
- In addition to electronic access to the data, the database for the report should be a living document where data can be updated and reported on over time.

Criterion 2 – Maintenance of Productive Capacity of Forest Ecosystems

Indicator 10 – Area of forestland and net area of forestland available for timber production

- Each group had problems with the definition of what is counted and meant by the word available in the term "forest land *available* for timber production" (used in indicator 11 as well). To this end,
    - Assumptions about data, data gaps, methodologies, what's in, what's out needs to be clearly spelled out--use of a glossary and footnotes will facilitate this. (Applicable to all indicators).
    - The question of how to address productive capacity in relations to availability must be addressed, in particular with respect to the 3 Es (equity, environment and economics).

- Cross-referencing other indicators is important to address these concerns. (Applicable to indicators 10-13).

- National data may mask regional trends (recurring theme for all indicators).

Indicator 11 – Total growing stock of both merchantable and nonmerchantable tree species on forestland available for timber production.

- Ditto comments from indicator 10 above on "availability" and "productive capacity."
- Graphics in the brochure (pp13-14) on *U.S. Forests Facts and Historic* Trends is more useful than that those used in the draft report.
- The issue of the accessibility of the report to the intended target audience is most acute here. There must be a balance between those who want to see a lot of data, graphics, etc. and those who are looking for a summary. The middle ground chose for the report leaves both groups wanting. To these ends--more data and graphics, more summary.

Indicator 12 – the area and growing stock of plantations of native and exotic species.

- The definition of plantations and planted areas begged the question of the relevance of this indicator to U.S. forestry vs. European with so many exotics. Also, when does a mature planted area or plantation become an old growth forest?

Indicator 13 – Annual removal of wood products compared to the volume determined to be sustainable.

- The groups recognized the problems with the term "volume determined to be sustainable" and the difficulty in establishing a baseline (this term is also used in indicator 14 and has similar problems in baseline determination).
- The author of this section used net annual growth as a proxy, which was universally rejected by the groups as an inappropriate measure.
- One individual suggested that a series of metrics (e.g., operational ways of reporting) be used to come at this indicator, as well as others. (For example the rate of forest fragmentation.)
- This indicator in particular must examine the 3 Es. The old model of sustainable yield will not suffice.
- Cross-links to other indicators are important.
- Regional trends must be presented.

Indicator 14 – Annual removal of non-timber forest products (e.g., fur bearers, berries, mushrooms, game), compared to the level determine to be sustainable.

- This is not the complete and accurate indicator from the Montreal Process.
- Everyone recognized that it is difficult to ascertain baseline data (it may not exist), and impossible to address the later part of the indicator "volume determined to be sustainable."
- Two groups (one group did not hear presentation) took positive note of Sue Alexander's ongoing work to develop a methodology to assess the magnitude of the volume, identify other data bases and to develop data on a large suite of non-

timber products that account for as much as one seventh the dollar value of timber products. Sue Alexander's briefing notes and the data from the data report should replace the very brief summary discussion in the draft report.

Criterion 3 – Maintenance of Forest Ecosystem Health and Vitality

- Terrific job on an impossible task!
- A suggestion was made to include data and discussion of forest fragmentation in Indicator 15 (or at least mention that it is covered in Criterion 1).
- It was recommended that the authors consider monitoring and discussing other pollutants, such as mercury. Information on mercury can be found in EPA's Toxic Release Inventory (TRI), which is available on their website. Also, the authors can look at where mercury advisories have been issued (e.g. Superior National Forest, MN).
- 17 – It is better to say that no data exists, than to try to draw an artificial correlation between biological components and ecological processes.
- In cases where national data does not exist, use state/regional data and traditional knowledge sources, and note when this is being done.
- Also, use state/regional data to address the problem of national trends masking local issues or problems.
- There was broad agreement that the summary report needs to include more of the detail and explanation that was provided by authors/presenters at the workshop breakout sessions. Specifically, the report should clearly state which data are used, which data are not used, when insufficient data are available, and what is being done/will be done to address data gaps.
- Modeling could be used more as a tool to assess departures from the expected trends.
- It might be useful to distinguish between injury/effect and damage (effect vs. impact)
- Many people recommended clearly labeling and explaining figures and maps. Define terms used in legends. Include some explanation with each figure to reduce the chances of misinterpretation and misuse of the information. (Clearly indicate data gaps on maps.)
- Several agreed that the authors should be more directly involved in producing the summary report. A new process should be considered, in which authors draft abstracts of their indicators for inclusion in the summary report.

Criterion 4 – Maintenance of Soil and Water Resources

- As with much of the report, the need for a finer scale of assessment was identified as critical. Local and regional data would be much more useful in understanding the implications of this criterion.
- Some powerful concepts come into play here and they need to be defined. These include "protection," "threshold," and "significant." Such words, when misinterpreted, can create political debates.
- Another political issue is water. Therefore, water should be emphasized over soil if a trade-off in time or other resources exists.

- Writers need to employ BMPs more widely and use existing management data in making their assessments – how well are we complying with our existing system currently?
- Land categories should have statistically significant data supporting their characterization.
- It's important to define the temporal scale that is being used.
- Finally, writers should put sedimentation issues into perspective. It could be eye-opening to the public if a comparison between agricultural, suburban, and forest lands were made. The public sees a clear-cut and worries about the run-off, but suburban run-off is much worse.

Criterion 5 – Maintenance of Forest Contribution to Global Carbon Cycles

- The Criterion 5 section needs to be expanded to better explain the reasons why the trends and conditions are what they are. For example, carbon budgets are calculated using two factors: stocking density and area of forestland. Either or both of these factors can cause a change in the carbon budget. This needs to be clarified throughout discussion of criterion 5 and each graphic should be explicit about which factor(s) are causing the change.
- The information contained in the criterion 5 discussion needs to be put into a larger, global context, particularly as relates to the total global carbon budget, in order to provide connects between the carbon budget analyses and global climate change and air quality.
- The data discussed in this chapter needs to be disaggregated from the national level to a more meaningful level. The data may be analyzed according to regional, community, forest type, age class, species, or another variable depending on what is possible with the current, available data.
- Need to discuss how to account for "trees" not captured in the FIA data. For example, trees used in windbreaks and other agroforestry practices are not captured by the definitions of forestlands used in the FIA. Research conducted at the National Agroforestry Center may help, but this is a data gap that should be addressed in the future.

Criterion 6 – Maintenance and Enhancement of Long-Term Socio-Economic Benefits to Meet the Need of societies

- Graphics presented in the presentation should be included in the chapter as they provide critical data and relationships that are missing from the chapter.
- Context is lacking for many indicators and is needed, e.g. forest manufacturing is what percent of total manufacturing?
- Need to describe how land is categorized and separate private lands available for a few persons or limited groups versus lands available for the public (e.g. indicator #36). Also the acreage of total forested land inventory may be misleading and should be explained so denominator of equation correct.
- Several indicators should be further broken down (e.g. injury rates in various sectors for indicator #46, types of recreation for indicator #38, multiple uses on land – not just timber or recreation across the indicators)

- Major data gaps in indicators e.g. subsistence level harvesting and sustainable levels (indicator #47), community viability and adaptability measures (indicator #46).
- Data gaps may need to be filled by non-conventional data sets, especially for socio-economic indicators/community viability (e.g. indicators #42, #46. Where national data are lacking, regional or state level data should be used.

Criterion 7 – Legal, Institutional and Economic Framework for Forest Conservation and Sustainable Management

- The summary needs to be clear about data sources and about where there are data gaps. Clarify sources of information and acknowledge that data for this criterion is more "information based" than quantitative. The data crunch approach may not be appropriate, and may not elucidate what we really know about those indicators. Acknowledge unconventional sources and narrative/experiential information.
- The concept of public "involvement" (as described in indicators 50 and 53) has significantly evolved beyond the traditional sense and now includes participation as a two-way street and collaboration. The public is now involved in all stages of the policy process – from planning to implementation. Acknowledge that communities have helped move this process forward.
- The subcategory of economic indicators (indicators 58 and 59) leaves out several important issues, including incentives for stewardship, unintended consequences (e.g., with tax policies), and state/local considerations (e.g., state licensing of foresters).
- Recognize the contributions of non-federal organizations, such as local communities and private landowner associations, especially related to education, knowledge, and monitoring.

<u>Chapter 3 – Current Actions in the United States</u>

Overall Purpose, Value and Placement of the Chapter

- In general, there were very divergent views about whether to include Chapter 3 with some groups feeling it should be removed, others supporting its inclusion and others having mixed views within the group.
- Several groups felt it should be an appendix rather than a chapter, regardless of the purpose.
- Another group was not at all supportive of including the chapter felt that it should removed as part of the report but supported the development of a web-based clearinghouse that is kept up-to-date.
- This group and other groups felt that if the chapter was left in, reverse the order of chapters 3 and 4. Rationale: interpret the data then show examples of how the work is being done. This order would provide a good lead into Chapter 5.
- One group was keenly aware of negatives and positives of including Chapter 3 and concluded that the decision should be related to audience: Positive to explain U.S. situation to an international audience; negative picking favorites.

- Another group felt that examples should be limited to those related to particular indicators and reported in Chapter 2 as part of the data for Criterion 7 (e.g. #52 the management of forests… # 53 public involvement activities…).
- Similarly, another group suggested using the examples as sidebars and anecdotes throughout Chapter 2 and removing Chapter 3 entirely.
- Consider pulling out examples and putting them in the history section (based on which one was first, which one has grown to the largest…) and in a futures section (innovations that will take us into the future).
- Chapter 3 should be short and more summary form, not an appendix, and not trashed. Summary of important activities, initiatives and by whom.
- If Chapter 3 is included in the report, the description of the Delphi process needs to be clarified, particularly the rationale for the selection of examples.
- Synthesize and summarize information about each category and subcategory (X number of this and Y number of that). Abstract different approaches NGOs, government, academia, etc. use in their activities and types of work done. Create a table/matrix as overview of the various organizations. Pick generic, anonymous examples that exemplify each category.
- There should be better balance in terms of numbers of examples from each category -- there are 12 pages of NGOs and 2 pages of non-industrial forest management groups.
- Needs more consistency of how examples are presented and all regions should be represented.
- Thought that for whatever purpose the information is being collected, there needs to be standardized format and step to verify the information with the selected organizations.
- Get rid of current structure that lists every organization and provide a neutral summary of what activities organizations are doing, use a generic example for each category and refer people to a website that will contain details and lists.
- Research how other federal agencies have done similar things to inform the way in which other actions might be selected and represented (e.g., EPA Excel program, and Department of Commerce EP program).
- At least a couple of groups suggested organizing the examples around the 'instruments' category by present descriptions of what has been accomplished through the summaries as well as examples, without specifying the names of specific examples (e.g., X number of acre were certified between the years of …, Y number of conservation easements put in place..).
- Suggested that overall approach should be to categorize by what instead of whom. For whom, do not be specific, list by stakeholder type, discuss diversity of examples.
- Some additions were suggested such as local governments, "green religious" groups, urban forestry, and separating out communities and community forest management from other forms of forest management.
- NGO category should be further broken down to include social/development organizations and environmental/conservation organizations, among others.

- The purpose of the examples are three fold -- first to be written to make people excited about SFM; second, to draw people to web site with examples; and third, to illustrate how everyone is surrounded by forest products.
- Criteria to choose examples --
  - Diversity across three categories;
  - Voluntary and regulatory;
  - Show something innovative and results;
  - Illustrates the diversity of FM activities in United States.
- Criteria should be developed, examples do not have to meet all criteria.
  - Related to sustainability;
  - Related to SFM;
  - Related to one or more criterion;
  - Strive to address the 3 E's, and
  - Exhibit diversity in terms of geographic location, ethnicity, and funding sources and types.
- Several groups supported the creation of a web-based, searchable database that contains as much information as possible about SFM activities. Could be developed and maintained by FS or non-profit and would be based on self selection.
- An on-line registry of projects and programs would be most useful with a moderator to screen entries using 'value neutral, fact-based' screening criteria. The categories and subcategories created are useful and could be used to organize web keyword searches and data reports.

Chapter 4 – Interpreting the Information

General Thoughts

- One group agreed that an important function of Chapter 4 is to summarize gaps in data and to feed into Chapter 5 discussion about how to best address those gaps. With the data that does exist, they thought generally that it would be useful to find trends to describe that data, make projections about trends and the consequence of the trend. No agreement on whether trends would be described criteria by indicator or organized by broad policy issues. Find a way to illustrate what the data is telling us: What is the story that the data is telling us?
- Largely because of the inadequacy of the data, one group felt that Chapter 4 should not exist but they found homes for parts they thought were useful, such as putting some of the discussion of sustainable development in Chapter 1. This group felt that Chapter 2 should summarize but not interpret data for the C&I in Chapter 2, which should have both a universal disclaimer about data availability and clear indications where there is not sufficient data. Let individuals interpret for themselves given that there are very few indicators that could be interpreted in only way.
- Another group felt that if the discussion of SD in the current version of Chapter 4 were used, it does a good job of discussing ecology and economy but leaves out equity.

- The chapter should not draw conclusions (e.g. 'good'; or 'bad') but should provide an indication of trends and flag indicators related to those trends, e.g. if forestland for recreation is decreasing and population is increasing this could concentrate increased demand on forestland.
- Another group felt it was very important to include an interpretation chapter but recognized it was very risky and it was critical to keep "everyone in the big tent." Thus, it was felt that this chapter shouldn't be written from a FS perspective and that this chapter MUST be peer reviewed by a broad cross-section of interested parties.
- One group struggled with what to with Chapter 4 with divergent views about the purpose of the chapter. They agreed that what was most important to do was a summary of trends as distinguished from an interpretation, with multiple summaries, and a summary of summaries. Some members of this group felt cross-referencing and using footnotes to explain things will be important. It was also felt that if Chapter 4 does include interpretation, it should include multiple interpretations.
- Still another group felt the data is meaningless without interpretation. However, the interpretation should focus on describing trends and avoid making value judgments about the trends. Several in this group felt that in order to interpret, you must have benchmarks and thresholds. There was broad agreement that it would be valuable to discuss the interactions and interrelations between indicators and that identification of leading indicators may be a good idea. Suggested presenting multiple interpretations of the trends and projections of data could be useful.
- Important to discuss the limitations of data aggregation. As you move from regional to national, you lose significant information.

Relationship of Chapter 4 with Other Chapters

- Chapter 2 vs. Chapter 4 split – what goes where? Chapter 2 should include indicator-level assessments; Chapter 4 should include criteria-level assessments. Other groups shared the view that the seven criteria should be the organizing framework for Chapter 4 with criteria level summaries (one page each).
- Include a summary interpretation of all of the indicators in Chapter 2, using graphics as appropriate. An Executive Summary should include an initial summary or listing of key learnings or findings, which would be well substantiated in the text of Chapter 2.
- Use information in chapter 2 to create a table that shows related indicators and use Chapter 4 to interpret those related indicators based on the current state of knowledge.
- "Lump and boil" – Chapter 4 should present the major findings in broad categories (lumps), focusing on indicator linkages where possible. This summary should also indicate where the data gaps are. Those who worked on the interrelated indicators should work together with the chapter authors in an iterative process (boil) to determine how the results should be best portrayed.

Identification of Leading Indicators /Index

- Dangerous to develop an index.
- One group pointed to the UNDP human development index as a model for the development of an index for SFM.
- Don't include an index of leading indicators, but incorporate a medical analogy, which helps assess how far we can go at this point. You can not only diagnose the problem, but can point out where we need further "tests," and identify what actions need to be taken based on the diagnosis. Use monitoring to understand when the problem has been addressed.
- Indicators - Many were supportive of the concept of developing or identifying leading indicators but not for this report – rather as a future activity.

Dialogue

- Most groups were supportive of continuing dialogue regarding interpretation of the data. One group expressed about the cost and investment that has already been put into this process.
- The report should indicate the need for future dialogues on what data mean but could also provide some ideas on how to use the report to interpret data so users can apply the report to their interests, needs and perspectives.
- The Roundtable needs to advance dialogue on sustainable forest management, maintain record of the divergent interpretations/views from this process, and needs to print a compilation of various interpretations.
- Similarly another group felt there should be follow-up dialogue but not necessarily the Roundtable as it is currently configured but new groups at the regional level.
- Another group felt that continued dialogue is a good idea but everyone had a different idea of what continued dialogue should focus on. One approach to a dialogue would be to reach a consensus on how to best fill the data gaps.
- Many participants were supportive of the idea of having a diversity of stakeholders review and comment on interpreting the results of the 2003 Report, however participants foresaw high potential for controversy over who and how this kind of evaluation was done.

Chapter 5 – Future Plans

- Stakeholders recognized a number of data needs that should be identified in Chapter 5 ranging from data gaps, to the need for better data collection methodologies, to the need for better access to different scales of data. Some examples of data needs are:
    - Obtain more data from local and regional sources. Enable access to data of all scales (e.g., drill down or step down capabilities).
    - Get a better handle on forest economics.
    - Fill social (including spiritual), economic and legal data gaps.
    - Do a better job distinguishing metrics from the indicators.
    - Be more deliberate about tracking social equity.

  - Data on non-timber forest products is lacking. Seek other sources of information including STARs, NatureServes's database, NHFEU, hunt-based revenue data, information on recreational use, deer overpopulation and loss of forested land from mining, etc.
  - Evaluate expanding FIA database.
  - Represent all data temporally and geospacially.
  - Institutionalize or centralize data collection and management (e.g., through a national center for C&I data).
  - Identify linkages between Indicators and Criteria.
- The report should identify constituencies and institutions to engage in filling data gaps such as universities, the National Commission on Science of Sustainable Forestry.
- Pursue the concept of an index of leading indicators.
- Many stakeholders suggested tailoring the report to different audiences. In addition, some stakeholders suggested developing other materials to help share the report's content such as a tabletop display, entertaining venues and messages to raise popular awareness, etc. Materials should also be prepared for professional journals as well as popular magazines.
- Some stakeholders stated that the role of State Foresters in the process should be spelled out as should the role of states in general in the data collection and future actions of the data interpretation and application. There should be an ongoing and transparent process for states to engage.
- Dialogue – in order to prioritize critical forest issues and data challenges – keep everyone in the big tent.
- Stakeholders who attended the workshops have a responsibility to take what they have learned and share it with their constituencies.
- Some stakeholders felt the responsibility for Criteria and Indicators should be institutionalized. Teams should be designated to prepare for the next version of the report. The teams would coordinate data collection efforts; connect databases, etc. The current approach of relying on individuals to take on writing the report on top of their other work is not sustainable.
- The 67 indicators should be reviewed to insure that they are measurable and meaningful.
- Some indicators may be more important to national picture whereas others may be more critical to the local picture. For example, Criterion 4, Indicator 18 is both caused and cured at the local level and would vary greatly across the country. Alternatively, those indicators in Criterion 7 may be more important to national policy and should be flagged for those interested in forest policy.
- Include a table of data gaps. This would be useful to different stakeholder groups who may take the responsibility to fill some of the data gaps.
- Some stakeholders felt Chapter 5 should have a conclusion with outcomes as well as an overview of related policy and legislative initiatives that could use, and be affected by the report.

Chapter 1 – Describing and Measuring Sustainable Forest Management

Purpose of the Report

- The purposes of the report are clear but they do not take you anywhere. The purpose as stated takes us to 'continuing a dialogue' versus something more definitive like 'influencing policy or behavior'.
- Some characterization of the quality of the data should be included as part of the purpose of the report.
- A long-range emphasis of the report could be like a census report which could provide the ability to 'drill down' to access different scales of information (e.g., in addition to national, regional information could be accessed).
- The purpose of Chapter 1 is unclear because the chapter does not include measures of progress.
  - The purpose of the chapter could be clarify by including a temporal element.
- Chapter 1 needs to answers these questions to clarify the purpose and audience of the report: For whom is this report written? Why is this report being written? What is the timeframe included in the report and when will the next report be written?
  - There are multiple answers to each of these questions, so the introductory chapter needs to provide specific answers to set the context and purpose for the report that follows.
  - In answering these questions, the report should acknowledge that no one definition of sustainable forest management or sustainability exists and there are continuums of definitions. The report should state the definitions being used as a basis for the report.
  - Chapter 1 needs to provide more specifics because it is too vague at the moment to provide an overall purpose for the report.
- Chapter 1 should be linked with the interpretation chapter (Chapter 4) for continuity and clarity reasons.
- Chapter 5 may significantly affect content the report, so some of the participants felt it was difficult to assess if the purpose of Chapter 1 was clear before Chapter 5 is written.
- Along with this, the chapter needs a stronger statement of purpose. It would be most effective to set the discussion in an historical context so that past indicators and our efforts to employ them were acknowledged.
- Clarify the expectations for the report, particularly regarding progress.
- The intro suggests that the report will identify progress, but it really identifies a point in time – be careful to portray what the report does.
- The first few paragraphs should be written to make it immediately apparent as to why this report is relevant (one participant noted it should be easy and clear enough for a member of Congress to pick up on it).
- Most participants stated that the purpose of the report is unclear and needs to be stated in a clear, definitive manner.
- The report should begin by explaining why an individual would want to read the report - -why is it relevant to them? Why or is the report relevant locally?

- If the report is only an overview of national data this should be clearly stated.
- Participants felt the report should address the following questions. What is the U.S. commitment to the report, sustainable forests, the overall process (both the international and domestic processes)? What is the role of agencies and policy makers and what is the timeframe for this effort, for making progress etc.?
- The purpose of the report should clearly explain how Criteria and Indicators relate to sustainable forest management,
- The report does not make it clear why Americans should care if their forests are sustainable – report assumes readers already think sustainability is important.
- Also the report should explain why a national scale was chosen for reporting the data. The report should further clarify the importance and rational for applying and reporting an internationally agreed to set of Criteria and Indicators in the U.S.
- Clarify the intent of the report (how does it fit in with larger sustainable forest management scheme); e.g., make a bulleted list of how the report will be used.
- Chapter 1 needs a stronger statement of purpose, a commitment to sustainable forest management. However, a statement of purpose should appeal to both private and public landowners. The statement of purpose requires broad stakeholder buy-in.
- Most in the group agreed that Chapter 1 could be strengthened by including statements about federal agencies (federal agencies should lead by example), state agencies, and private sector organizations (industry and NGOs) that are committed to sustainable forest management. However, these statements should not imply a judgment about who is doing better than others in working towards sustainable development.

Audience

- A thoughtful assessment of the target audiences needs to be done prior to drafting and this chapter needs to be carefully scoped to address each audience.
- The audience of the report is unclear. Design the report so it can be disseminated to different audiences. Think of a set of reports tailored to different audiences including domestic, international, policy, and regional.
- If the report is to be useful at different levels/audiences of application, re-think the format. Make the report useful to audiences and efforts that have an impact on implementation.
- Accountability of regulators and stakeholders (as part of target audience) should be discussed.
- It is not clear who the audience is. Perhaps write two reports – one for the general public and one for technical people. Terms need to be explained.
- Define and identify audiences. Then develop products for each. A communications plan needs to be developed.
- Respect the interests and fears of different groups. Internationally, the process toward sustainability must fit within the culture. Nationally, we must respect the needs and interests of states, communities, and individual landowners. Express this respect in Chapter 1 by explaining that the goal of the report is to provide opportunities for dialogue.

- If the audience of the report is the public then Chapter 1 needs to provide more clarify in order to set the context for the remainder of the report. This is important so the general reader understands the report.
    - A glossary would be helpful in achieving this goal, particularly from a community perspective.
    - Chapter 1 should offer more clarify and should be shorten by taking out non-pertinent information.
- Beginning the report with basic mission statement would help the general audience better grasp the purpose and contents of the report.
- The report should include an executive summary that is written with the widest public audience in mind. This audience should include community groups, state agencies, federal agencies, tribal groups, industry groups, academia, and others.
- The report's authors should identify the audience for whom the report is written. Participants concurred that it isn't possible to write the report for every audience's interest and awareness level so intended audience needs to be identified now. The report should then be redrafted to meet the needs and interests of the intended audiences.

Content of the Report

- The content of Chapter 1 does effectively do the following:
    - Suggest an understanding of trends of sustainable forestry.
    - Page 2 - Have a focus on the human/anthropomorphic elements of sustainable forest management.
    - Establish the concept of a trust fund (page 3, second paragraph).
    - Page 4 - Establish the idea of describing 'ecological functions' of forests.
- Chapter 1 needs to briefly address where the report is going, and answer the questions: "Why should I care as an individual? As a community? There should be more on the government's commitment to sustainable forest management. Where is the follow through?
- Chapter 1 should create a sense of shared responsibility for moving toward sustainability.
- Chapter 1 should create a climate in which stakeholders can develop methods for achieving sustainability.
- More context is needed, such as the impact of conversion for development on forest land.
- Explain why the concept of sustainable forest management arose. Put it into context. Include a statement of the threats to ecosystem services that arose and to which sustainable forest management was a response.
- The end use of the report needs to be discussed in this chapter.
- Under the conditions and trends sub-section address the following issues among others affecting forests (this is seen as important in setting up the context of the report):
    - Trade dimensions (the report needs to flesh this out).
    - Influence(s) of bio-diversity & protected areas.
    - Global span of forest products industry & issues (e.g., global climate change).

  - Illegal logging (CA, SA, Asia) undermining U.S. forest products industries.
  - Inter-relationship of government/private polices on forest management.
- A description of the stability of forest ecosystems that are managed sustainably in the United States should be included in Chapter 1 (e.g., are these forests dynamic, even flow or combination of both?)
  - The stability of a forest system may vary by ownership type and management priorities.
- Also, the chapter should describe a sustainably managed forest's response to instability.
  - Sustainability and sustainable practices often respond to change, and the response may be dynamic or even flow.
  - What is the natural response of a healthy forest ecosystem?
  - Sustainability often responds to change.
- Chapter 1 needs to address the issue of competing land issues, including urbanization and sprawl, and the effect this has had and will continue to have on forest management in the U.S.
- Chapter 1 should highlight public and community awareness and involvement in the National Report process and forest issues in the U.S., including policy issues (e.g., tax changes). This includes emphasizing that the participatory approach used was an open and transparent process – this may serve as a model for other countries undertaking similar processes in the future.
- Chapter 1 needs to establish the national and global context for this report. For example, the C&I were developed in a global context, but this is a national report – the linkages between and among these processes needs to be clarified.
- The writers should explain why no benchmarks exist thus far, and how they will be developed for the future. We should be as explicit as possible about where we're going with this effort.
- The chapter needs editing. It has a lot of unnecessary words and is written from a Forest Service perspective. It is obvious that there was more than one author.
- This chapter is trying to do two things and they're confusing each other. Break apart the description of the Montreal Process and the history of U.S. Forestry.
- Consolidate the information to make it more accessible to the public. It needs to be able to be put into fact sheets and newsletters.
- Page 3, paragraph beginning with "The SDI…" and the paragraph above it, are both unnecessary.
- Page 5, the paragraph beginning with "The largest…" get rid of it or move it to the history section.
- Too much of the introduction is 'D.C. speak' and 'agency insider language' e.g. what is the RPA Assessment and why is it mentioned or relevant?
- The list of stakeholders is not needed since it includes everyone already.
- The chapter should explain the process that led up to the report and how stakeholders can engage now and in the future (in the dialogue, in the data applications, in researching and/or filling gaps).
- The report should explain how the report could be used and applied. Concrete examples should be supplied.

- The Montreal Process should be mentioned earlier in the text since it provided the impetus for the report to be created.
- The need for, function and role of the Roundtable should be clearly articulated in the beginning. Why was the Roundtable formed? What was their role in the report? What is their role today and in the future?
- The report should draw connections between local, regional and national level efforts and make an attempt to explain how data from these various levels is or could be aggregated up or down and possibly areas where data are more telling when reported regionally.
- The report should explain how 'you' (the reader) can use the report with subheads.. Forest industry can…Community Groups can….Other countries can…. Representatives from these sectors should be asked to contribute their ideas so they carry more validity and are more realistic.
- Chapter 1 should make clear that the report and Criteria and Indicators take a broad/nationwide view.
- It would be useful to reference data sources (explain and highlight the variety of sources tapped to compile the data for this report). This would increase credibility of the report.
- Indicators depend on data from separate local, regional or national sources. It would be useful to separate those out.
- Participants did not agree on whether to shorten or expand any of the sections in Chapter 1.

Definitions

- Page 2, first sentence – what does "implement" mean? Clarify. "Use" might be a better word.
- Regarding the concepts of sustainable development and sustainable forest management: quoting a single source is dangerous. We recommend taking out all but the last sentence of the SAF definition – or include several definitions.
- Consider footnoting or putting in an appendix with many definitions of sustainable forest management in it.
- Bottom of page 3, the last 2 paragraphs – "range of outcomes" and "no thresholds" are, to many, counter to the essence of bio-diversity in sustainable forest management. Is extinction ok? The implication of extinction is inferred in these paragraphs – the possibility of allowing it is left open.
- Need to discuss: what is an acceptable threshold? What's the definition of sustainability? How do we reconcile that we would lose species even without human impacts?
- Clarify the definitions between SFM, SD, and forest sustainability.
- Explain which definitions were used and why – explain the assumptions and rationale.
- What do we mean when we say "forest" – the definition is problematic. Forests mean more than just trees – they are systems. Clarify the rationale behind the chosen definition; acknowledge the limitations and assumptions.

- The description of sustainable development on page two implies a higher degree of unity and commonality in our understanding of sustainability. These descriptions should be qualified and put in proper context.
- The text is unclear as to whether indicators are static (must retain current language and definition or whether they can be changed).
- The group spent a lot of time on whether it would be necessary to develop a definition or at least greater clarity of the concept of sustainable development. A range of views was expressed:
    - The current explanation is sufficient, and can even be shortened by focusing on the Brundtland report's definition. This allows individuals to interpret the term based on their personal values;
    - Mention what is not sustainable to define the boundaries of sustainable development;
    - Make a bulleted list of issues that illustrate what sustainable development is about;
    - Attempt to develop a definition, but keep in mind that this definition may change in the future.
- It would be useful to include definitions of key terminology, for instance "forests" – what requirements are set for canopy-cover?
- The title of Chapter 1 does not reflect what the chapter does or what is achieved in Chapter 2. (e.g., the term "ecosystems" is used as if we know what it means. The term ecosystem as presented can mean anything we want it to mean so we need to be more specific about what is intended by the term. Do we mean by forest type or what?)
- Saying that sustainable forest management is a journey, not a destination, is not enough. The term needs to be better defined in order to be useful.
- The current definition (of sustainable forest management) is too vague.
- Sustainability needs to be further defined and the fact that it is not currently must be acknowledged. Refining the definition will be an ongoing task.
- Definition of sustainability is problematic – it's anthropocentric. It needs to be broader; incorporate land ethic and community.
- Problems with terminology: Does sustainable development = sustainability? Clarify distinctions between SFM, SD, and Sustainability, particularly on page 2.
- Better define sustainable forest management by using principles of systems thinking (guidelines for achieving sustainable properties).
- SFM should be defined as a subset of sustainability. The introduction fails to do that – does not give a clear explanation of sustainability. Acknowledge the current limitations of what we can define.
- Include a glossary of terms to define such terms as forestland, ecosystem, etc.

Structure of the Report

- Organization of chapter needs rethinking (see notes below on suggested chapter headings).
    - Eliminate redundancy.
    - Tighten up language and structure.
    - The order of material presented needs a logical flow.

- Essential: The report needs an Executive Summary.
- Historic information and background should be in a preface. Some of this can also be integrated into Chapter 2 in the rationale discussions. However, it is important to retain a summarized version (group liked to discussion in the report) of forest ownership and management--this should not be buried elsewhere).
- In the general discussion add a section on Tax structures as it impacts SFM--This is often the centerpiece of debates (e.g. fragmentation). This could be included in a stakeholders' discussion (i.e., target audience). Taxes were recurring theme in Group B discussions.
- Proposed outline for Chapter 1, including addition of Executive Summary and preface before Chapter 1.
    - Executive Summary
    - Preface
    - Chapter 1 (headings)
    - Purpose and function of the report, retain summarized version of forest management ownership and management form history and background; address target audience to provide context to get their attention and ownership into the process.
    - Scope of the report and key elements.
    - What are C&I?
    - Concepts of Sustainable Development and SFM.
        - SD is an umbrella for SFM.
        - Clearly state a general understanding of SD and SFM (too much and this is their view and this is another view). Define SD and SFM for the purposes of the report.
        - Paradigm shift--discuss how SFM builds on the historic understandings of sustainable yield and multi-use, and goes beyond…the 3 Es. This is seen as important to convince the target audience that they (the target audience) should take ownership of the process.
    - Role of and partners in the Roundtable.
    - What Next - This should written as if it were a preface to Chapters 4 & 5.
- The report needs a preface and executive summary. The preface should include the purpose and origin of the report that is currently in the first chapter. Chapter 1 should focus on sustainable forest management.
- Work is needed to improve the connections and transitions between chapters.
- Slim down the first few sections of Chapter 1.
- Consider reducing the length of Chapter 1 and producing short fact sheets in addition to the report, which might cover some of the items currently in Chapter 1.
- If a shorter version of the report is to be developed, the level of technical language is appropriate.
- I support having an electronic version of the report.
- Developing an executive summary ("Pepsi Commercial") for this report is critical! This is especially important because this will likely be the most highly read chapter of the report.

- Do not limit the report to 100 pages if it takes more to cover the material. Do not assume that readers have sufficient context already.
- Students might not understand the "agenda" and the context that this grew out of.
- Introduction (and whole report) needs more detail.
- Show an outline up front, including purpose, assumptions, etc.
- The report should have a one-page executive summary.
- The structure of the report should include an executive summary, followed by this detailed report, and the base of supporting data be made available (like it is currently) for those who are looking for details.
- Chapter 1 needs some sort of conclusion (and segue to the rest of the report). The last paragraph attempts to serve as a conclusion but more depth is needed along with a subhead of 'conclusion.'
- Have history of committees go to appendix. It will bog some readers down.
- Who is the audience? Montreal C&I countries? U.S. public? Do we want more than one product?
- Will there be a summary section?
- Needs more explanation of Criteria and Indicators. What are they? How do you use an indicator?
- History is too brief.
    - No global perspective or context.
    - No description of shift from 1750's utilitarian approach to the 1960's spiritual approach.
- Chapter one is what most people will read, have interpretation in this chapter.
- Do we need all the stuff in Chapter 1? Indicator process needs to go somewhere else.
- Have summary section with key findings. How is it going to be used? Where can you find information in the report, future actions, and overview?
    - Chapter 1 fleshes out national and international process. Have a separate narrative and define sustainable development and sustainable forest management.
- Include a narrative on forests for the last 1,000 years.

The C&I

- On page 5, second sentence, "Ongoing monitoring…" it is unclear whether we are setting up to monitor the C&I or whether we have been monitoring C&I? Is the purpose of the report to monitor C&I or at what point will monitoring begin?
- Section on C&I (page 4) should include external uses and local applications of C&I – include the aspects that Rob Hendricks' presented in the plenary.

Graphics and Glossary

- Graphics would help to drive home some of the statistics used in the report. For instance, in the description of forest ownership and management structure.

Data – Collection, Quality and Utility

- Develop a database that 'transcends' the boundaries of scale so different audiences can utilize the data.

- It is not clear who in the future will be responsible for data collection and analysis. The commitment to C&I as a "national effort" is not clear.
- Include a statement about the quality of the data (e.g., be clear about whether the data is anecdotal, etc.). Characterize the quality of the data. Don't just say the data "are inadequate"; explain what is needed to make the data adequate for what purposes.
- Use of data – it is not solely about the assembly of the data, it is more about establishing a baseline for definition of the C&I and is meant to derive a presentation of what sustainability means. It is about defining the data in terms that enable stakeholders to communicate about what the data mean. The data help us to understand the C&I better.
- At this point, the data on spiritual value is lacking. There is also a need to better define what we mean by 'spiritual' value.
- Make the data available to all stakeholders (e.g., local to national users). The report is a summary of the data. It provides a roadmap to all existing databases.
- It is unclear whether the report and future reports will provide snapshots of data at specific intervals or whether the intension is to monitor and collect data on an ongoing basis. Will stakeholders be able to access and contribute to the database on an ongoing basis?

Importance of Regional Data

- Important: A brief discussion of scale should address the fact that national aggregated data can "mask" regional and local trends.
- Some felt that, in addition to presenting a national snapshot of the state of the nation's forests, that there should be a regional emphasis as well.

Roadmap

- The report should present a system or roadmap of information available to show progress towards sustainability. It would be helpful to diagram what the "system" or "roadmap" is to show how all the pieces in the system fit together.
- If the report does present a system or roadmap – the purpose of the system is unclear. Is the system to enhance trends?

Sustainable Development and Sustainable Forest Management

- The description on sustainable development and the sequence of that description are concise and well done. The tone of the report provides a good balance between authority and humility.
- Important: Emphasize SD and SFM as a journey, not a destination.
- Also on sustainable development and SFM:
    - SD is an umbrella for SFM.
    - Clearly state a general understanding of SD and SFM (too much and this is their view and this is another view). Define SD and SFM for the purposes of the report.

  - Paradigm shift--discuss how SFM builds on the historic understandings of sustainable yield and multi-use, and goes beyond…the 3 Es. This is seen as important to convince the target audience that they (the target audience) should take ownership of the process.
- There are different paths to sustainability within biophysical boundaries.
- Acknowledge and talk about the work done on C&I at the community level before Montreal.
- Need some explanation of how the Montreal C& I will be addressed and modified over time. The report should explain the Technical Workshops to explain how the C & I were developed and commented on in the past.
- Chapter 1 does not include any evaluation of sustainable forest management and does not draw any conclusions about how the U.S. is doing in achieving sustainable forest management. Chapter 1 should include both these things.
- In discussing sustainable forest management, there are several internal contradictions in the report that need to be clarified. For example, Chapter 1 discusses the lack of baseline data, but also discusses expansiveness of the USDA-Forest Service Forest Inventory and Analysis Data (FIA link Chapter 1).
- If sustainability is a moving target, how can we make progress towards it?
- Is the title of this chapter "Describing and Managing SFM" (as it says) or is it really "Describing and Managing Forest Sustainability"? It reads as if it is the latter, since it doesn't really explore management.
- "Blows by" natural systems and intrinsic values and goes straight to human centered view which depends on and is defined by humanity.
  - Forests are fine without us. Recognize the intrinsic value of forest ecosystems on page 2 where concepts of sustainable forest management and sustainable development are discussed.
  - In some regions, human intervention is now required to maintain forest health.
  - Report is called sustainable forest management not sustainable forests. Management is driving it. Is that what we want to say?
- Explain why sustainability matters.
  - Interrelationship between forests and water.
  - Economic impact and affect of policy on forests.
  - Why do we care?
  - Tie into how it relates to their local community.
- The chapter does not talk about sustainability of forest resources. Disconnect with condition of forest in terms of sustainability.
- Focus more on forests rather than management.
- Make stronger statement on how management does not preclude alternative methods for future generations.

Background - Historical and Institutional Context

- Good job differentiating between eastern and western forest issues in Ownership and Structure sections.
- Do this same thing (distinguish between eastern and western forest issues) in the Background section.

- In the Ownership and Management section, do the math regarding the size of forest ownerships. Don't leave it to the reader to figure out.
- It is difficult to follow back and forth between the different types of measurement used (e.g. board feet, acres, etc.) Instead, show a graph of acres over time.
- Create incentives for achieving sustainability.
- Efforts to make this a National Report, vs. a Forest Service Report, need to continue. Some explanation of stakeholder involvement in the development of the report may do this.
- Chapter 1 should include information about opportunities to participate in dialogue about sustainable forest management. Or, have a separate chapter on past and future public involvement.
- The description of the historical and institutional context is done well.
- It would be helpful to explain the connection between this report and other.
- forestry reporting such as RPA, state and regional assessments, etc.
- Authors should include a timeline of the history of sustainable forest management in the document.
    - Recommend include "Sustainable Forest Management History" document distributed at review workshop as an appendix to the report or include its contents (or slightly modified) contents in Chapter 1.
- History section needs to consider global context of sustainable forest management in the United States, especially given U.S. role in import markets and other trade issues.
    - This is important given the market for timber and forest products is a global market.
    - Chapter should discuss how global actions affect the U.S. and should attempt to predict trends for future.
- History section should also include a discussion of the recent growth and involvement of non-governmental organizations (NGOs) in forest issues at all levels (e.g., international, national, regional, state, and local).
- Chapter 1 should discuss the capacity of U.S. to complete this process, including overcoming challenges, because the U.S. may serve as a leader in this process for other countries to follow.
- Chapter 1 should emphasize the participatory approach as well as the open and transparent processes taken in developing this report.
    - Chapter 1 should discuss community involvement in sustainable forest management and involvement in the development of this report.
- Chapter 1 discussion should clarify the relationship between the Montreal Criteria & Indicators that were developed in a global context and the National Report on Sustainable Forest, which is being developed in a domestic context.
    - The role of the U.S. in the Montreal Process should also be clarified.
- Chapter 1 should provide a description of mandates / congressional regulations that are driving agencies to participate in sustainable forest management and the report.
    - Should include for all *Memoranda of Understanding on Sustainable Forest Management Data* signatories.

- Important because will answer questions like why does NASA care about sustainable forest management?

➢ Chapter 1 should discuss the "balance of control" in forest management in U.S. For example, some lands are held in stewardship for all (e.g., National Park Service land) and some are under local control.

➢ Need to acknowledge the historical context of past indicators. They have made a difference. It makes sense to put this primarily under "The Montreal Process" – although it may need to go elsewhere as well.

➢ Expand on the historical context, especially to reinforce that desired future conditions are not a constant.

➢ This is not an adequate description of the history – it does not describe the changes in our public and private forests.

➢ Need more context and more detail on management of natural forests in each decade since WWII (e.g., rebuilding the nation in the 1950s, development of environmental laws in the 1970s, the advent of multiple use management). In particular, include:
  - Cultural changes that affected legislation and forest management.
  - Public and private lands.
  - How we went from 13 billion bf to 2 and that we cut technical assistance to other countries.
  - Recognition of contributions from industry in the south.

➢ Use tables to summarize historical trends.

➢ There is no analysis of how history impacts ownership and management, and vice versa. There needs to be an examination of the interplay.

➢ What are the implications of these sections? – i.e., what does it mean that 50% of forests are NIPF, and that ownership sizes are decreasing? What's happening in the private sector and the state sector? What do the trends/patterns mean?

➢ Distinguish between what has occurred and what will happen (Former is for Chapter 1, latter is for Chapters 4 & 5).

➢ Chapter 1 contains a reference to 'MacCleery, 1993'. MacCleery does a much better job of presenting the historical context and perhaps his information should be excerpted with permission and used to create an Appendix. The current history as written is not compelling or comprehensive enough.

➢ Chapter 1 should point towards the future as a reason for engaging in or using the C&I and the report and develop a sense of urgency for paying attention to the data and applying the report's findings. For example, what will be the future changes in population, in forests, in industries and markets. What are some of the key trends in the report and how are they linked to potential future trends? One participant gave an example of linking trends in U.S. wood consumption with growth in population as a reason to be concerned about sustainable forest management. Another example might be increasing populations, sprawl etc. place greater demands on forests for recreational uses etc. or conflicts among multiple user groups.

- The history section is long (compared with other sections of the report) and does not clearly link to the report's purpose. It should be edited and shortened and rewritten to relate more closely to the report and sustainable forest management.
- The history section should focus on how the countries reached agreement on the current set of C&I as well as the reason for and importance of having the same C&I dataset across the Montreal Process countries.
- The history should tout importance of achieving the ability to report on the C&I as well as why this report is groundbreaking, significant etc.

Page Specific Suggestions

- Looking at snap shot with limited historical perspective. How can this be used for future trends? Page 3, 3rd paragraph needs to look at meeting future needs as well as current.
- Mention stakeholder input used to develop report (page 4).
    - How would you encourage public views and participation? Track current points to feed into future discussion.
- Page 5 - where and how will we identify strategies for filling data gaps? Where will it show up in the report?
- It is not the story of how people relate to forests (e.g., page 6). Want a novelist to write it. Move from cutting to preserving and provide a more compelling story.
    - Report is currently dry and needs to captivate the audience.
- Page 6 needs to include African, Dutch, French, Spanish, and English settlers. Cutting of forests was driven by exploitation as much as agriculture. Bill Cronon, University of Wisconsin is an environmental historian and potential author of this chapter.
- Page 7. How do different ownerships affect forest land and management? So what does that mean?
- Use figures, graphs and maps rather than text for ownership structure on page 7.
- Page 8, 1st paragraph:
    - If they have discussion needs to be more explicit regarding tax policy, state policy, distributive and redistributive policy.
    - Too much jargon, adds nothing.
    - Issues exist and reference where they are fleshed out in Chapter 2 (e.g., covered in Criterion 7).
- Page 8 2nd paragraph - is there a correlation between landownership and best management practices?
    - Is there a correlation between abidance and location of forests and guidelines/policies for managing those forests?
- Page 8, 4th paragraph deals with certification. Present in neutral tone and divergent views on their effectiveness.
    - "Community component" needs to be more neutral.
    - People will confuse codes and best practices with best management practices. Use care with this language in the 2nd and 4th paragraphs.

Chapter 5 Issues

- There should be more on the government's commitment to sustainable forest management. Where is the follow through?
- Tie how we got here (to the current draft report through public involvement) to future actions in Chapter 5.
- Chapter 1 should include information about opportunities to participate in dialogue about sustainable forest management. Or, have a separate chapter on past and future public involvement.

Other Topics to be Included in Chapter 1

- Chapter 1 needs to address tax changes in the U.S. and how these changes have affected forestland owners and managers.
- A discussion of competing land uses should be included in Chapter 1, especially a discussion about urbanization and its affects on sustainable forest management.
    - Should distinguish between concepts of "urbanization", "suburbanization" and "de-urbanization" and their various effects on forest management in the discussion of land use changes.
    - Also, should discuss urbanization as a positive (e.g., reduce pressure on forestlands) and negative (e.g., cause of fragmentation) on force acting on forestlands.
- The role of State regulations and institutions on sustainable forest management needs to be addressed in Chapter 1.
- Highlight interagency participation on this report – don't just bury it in a footnote. Elaborate on agencies' contributions.

General

- No mention of urban and community forestry. Some urban areas up to 37% forest.
- Explain up front how this report came about.
- Note report will identify data gaps requiring data collection for future reports.
- No context of technological impact on forests. Acres of farm land were reserved for draft horses and growing feed for them. When tractors were used, the pastures/farm land reverted back to forests.
- Written to present data for interpretation, hope Forest Service will do some interpreting.
- Get public and urban input on report regarding usefulness and readability.
- More interest in social/legal versus process. It is another way for people to look at forestry.

Chapter 2 – Criteria and Indicators: Data, Analysis, and Discussion

Criterion 1- Conservation of biological diversity

High Points

- A number of participants commented that the summary is choppy and limited in scope and needs to provide a more accurate, balanced representation and synthesis of the available data. They felt the summary of Criterion 1 does not accurately or consistently reflect the content of the detailed data chapter. For example, the summary on indicator 2 is missing an analysis of forest type. The summary is also missing a discussion on cross cutting indicators within the criterion. An overarching concern of some participants is that the summary of Criterion 1 does not comment effectively on the substance of the Criterion - biodiversity conservation.
- As much as possible, the summary of each indicator should be consistent and have similar format and content. The summary should reflect what is presented in the detailed technical report. Representation of the data should be value neutral and accurate. It should clearly represent the quality of the data, as well its limitations - such as data gaps, weaknesses in methodologies, and the depth and breadth of the data. The foundation for additional research that will be discussed in Chapter 5 should be laid in this chapter.
- Some participants felt that Criterion 1 or biological diversity as opposed to economics - should drive the discussion on sustainable forest management because forest health is the central issue.
- Many felt that it was important to establish a baseline against which to measure progress. They felt that anecdotal information would provide enhancements to the data reporting.
- In the area of ecosystem diversity, Indicators are missing ways in which to measure how the internal structure of the forest is changing over time – age classification in and of itself is not sufficient. We may learn more if we combine information on age with forest type.
- Some participants feel the reference to hardwood and softwood is important to maintain, even though the terms have limited applicability, because selected audiences are familiar with the terms. Others feel that the use of these terms is not useful because the terms say nothing about biological diversity.
- Fragmentation was a focus of discussion on several occasions. Some of the specific observations about fragmentation were to:
    - Include biologically relevant strata for summarizing the edge metric.
    - Provide examples of how changes in patch size impact specific mammals and birds to help the reader understand the significance of patch size.
    - Note that some degree of fragmentation has positive impacts.
- Participants felt there should be a landscape level of evaluation that gets at the amount of specific types of ecosystems.
- Some participants felt it should be possible to do a better job describing the quality and health of a forest ecosystem based on the available data.

- In addition to electronic access to the data, the database for the report should be a living document where data can be updated and reported on over time.

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- Criterion 1 should drive the discussion on SFM because forest health is the issue. Biological diversity - not economics – is the driving force.

Data and Data Limitations

- To what level should metadata in support of the technical papers be documented? By whom? What should the federal government provide?
    - Including metadata is desirable.
    - Geographically reference the data.
- Provide a clear indication of what the limitations of the indicator are. Do not burry this information in the detailed data chapter on the website. This and additional details should be provided in the data summary.
- Make sure the limitation of the data/methods are clear and note where we are beginning to address the data gaps (e.g., the breeding bird survey).
- Interpret indicators in the spirit they were intended – as originally written and interpreted. The description of the indicator is not always consistent with the original description from the Montreal Process.
- Including all data/metadata may be a challenge. The report need not provide documentation on all data details, but all resources should be identified to allow the user to dig deeper for additional details about the data as necessary.
- There is no recognition of the relative strength of the data (e.g., whether there were only two data points versus a number of data points.)
- The cost of filling data gaps is LARGE and it is important to explain data availability and future data needs in that context. Be realistic about what we can accomplish.
- Be clear about the limitations of the data and were we need to go to fill the data gaps.
- Make better use of footnotes to provide additional data insights.
- In what circumstances can course scale information be adequately indicative of an indicator?
- Define the scope of the report, then identify to what extent it will address the ideal measures.
- Include some indication of what the ideal measures would be and be transparent (open and honest) about where the extent of measurement is beyond the scope of the report. There may be a role for the Roundtable in addressing the areas of measure that are beyond the current scope of the report.

Metrics

- Metrics – are there better metrics to use? Is it sufficient to describe whether species are increasing or decreasing? What are we actually trying to say based on the data?
- Distinguish between the indicator and the metrics used to describe the indicator (e.g., translation of the indicator requires metrics).

Report Organization and Content

- Suggestions for report organization
    - Add a subheading on "Significant Limitations". The limitations could be further categorized as high, medium or low limitations.
- What will the indicators be used for? What are the implications of what the indicators mean? Be cautious about how we represent what they mean (and what we will be accountable for).
- Caution against repeating the FAR experience. Make sure there is consistent coverage of the data. Present a clear and simple discussion on the indicators. Say where the gaps are. E.g., for each indicator say "here are some research needs" and discuss the concerns for each indicator.
- The summary is missing analysis for some of the indicators. The analysis should be presented for each indicator and the reader should not have to go to the web to fill in the gaps.
- There is a need to standardize the headings in the summary for each indicator. Use the organization presented in the data collection forms from the C&I Technical Workshops held in the spring of 2000. Subheadings might include: metrics, conclusions, limitations, etc.
- Provide a synoptic description/account of the data or conclusions for each indicator in the summary.
- The current summary does not capture what we are seeing in the detailed data chapter. On page 6 & 7, Indicator 2, missing in analysis is "forest type". The text is not consistent with the indicator language (e.g., there is a mismatch in forest type to other classification such as old growth).
- The summary is missing a discussion on cross cutting relationships between the indicators within criterion 1 as well as between Criterion 1 and other criteria.
- The summary is missing a discussion on cross cutting relationships between the indicators within criterion 1 as well as between Criterion 1 and other criteria.
- Should we address potential data and research needs such as NVC in Chapter 2 as well as Chapter 5?
- In general the terms used should tell us about the indicators.

Ecosystem Diversity

- Indicator 3 - Is the categorization of hard wood/soft wood useful?
    - One of the target audiences is familiar with the terminology so it may be worthwhile to correlate with these terms and build on them to expand the understanding of the primary method of measurement which may not be as familiar. Other terms for which this rationalization may apply include old growth and saw timber.
    - These terms are useless because they mask the point. The terms tell nothing about biodiversity. They are not biological terms. Similarly, saw timber is not a forest type.

Species and Genetic Diversity

- Indicator 6 – endemic species are missing as well as native and nonnative species.
- Indicator 7/9/8 – Look at the impacts of climate changes on some of these species.

Use of Graphics

- Graphics:
  - The graphics in the summary are not comprehensive enough. For instance, they are missing the boundaries and do not provide information on whether all the data are represented in the graph.
  - If the graphs do not show all of the data, where can the additional data be found?
  - The maps of forest area tell nothing about biological indicators.
  - Include one or two graphs that show biological data.
  - Include a graphic of the top 10 areas of sensitive species of forest types as well as a couple of other habitat types.
- Include more reflective discussion on issues like data gaps. Consider presenting a graphic showing where data are lacking and where future focus of data collection should be. Possibly use sidebars to show or describe what the data could look like.

High Points for Report Back

- Criterion -1 needs carry the biological issues.
- Summary is “bitty” and indicative of tunnel vision. There needs to be more of a synthesis of the indicators.
- Make the limitations of the data clear.
- Be honest an open about the limitations of the data.
- As much as possibly, the summary report on each indicator/criterion should have a consistent format and level of detail.
- In general, the summary does not capture the information presented in the detailed reports.
- Check the indicator text and make sure it is correct and consistent with the original description (e.g., retain the foot notes).

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- Make sure the reviewing community knows what the deadline for commenting on the report is.

Data

- There is a need describe the data for all indicators in Criterion 1 relative to historical data. Need to do a better job at describing the indicators relative to a baseline of data. Without the historical context, there is no basis for talking about trends.
- It is tough to summarize Criterion 1 because so much of it is better represented at the detailed level. This and other data summaries should be written based on a baseline of information rather than what has been done – writing a report based on available data. Identify and address data gaps first, then go from there. E.g., classification should be revamped and attention paid to the resolution of its mapping and how accurately it is mapped to establish baseline conditions.

Content and Organization of the Chapter and Report

- Who is the audience for this report? How do we make this report useful?
- To what extent and where does the report address the causes for changes in observed conditions? How is the report made practical?
- This report could benefit with a comparison to other reports with similar emphasis. e.g., As compared to Ecoregional Assessments/Global Forest Watch. This summary does not really provide an idea of what is happening to biodiversity in forests across the United States. The summary does not say much substantive about biodiversity conservation.
- Information in the summary is not always consistent with the information provided in the detailed report (e.g., use of the PAD – missing reference to WWF).
- There is a need for a professional editor to review the report and assure that there is a better blending of style between the chapters.
- Make sure that the value placed on the data we have is effectively represented in the summary.

Figures

- In Figure 1-1 it is important to reference human populations and trends. It is easier to read as a trend line rather than bars, and overlay with population trends.
- Embed the figures in the text of the report.
- Figures are helpful in portraying data.

Ecosystem Diversity

- Indicator 3 - Page 8, last paragraph – there is a discrepancy between the detailed report on Indicator 3 (50% western pine and 8% in the detailed report.)
- Indicator 5 – Fragmentation – use biologically relevant strata for summarizing the edge metric.
- Include a statement regarding trends in state and federal lands in regard to biodiversity and other factors region by region across land classes and including private lands.
- There is not an automatic correlation between protected areas and biodiversity.
- The definition of protected areas should be refined to include areas with a dedicated purpose of providing ecosystem integrity.
- Ecosystem diversity – missing a way to measure how things are changing. For instance, include area telling us about internal structure of the forest (more than age classification).
- Changes in ecological processes – should be able to highlight factors related to changes in ecological processes.
- Should have a landscape level of evaluation that gets at the amounts of specific ecosystems (e.g., landscape, ecosystem, species and genetic diversity)
- Indicator 2 – age class does not tell you much. What does a '9 inch diameter' tell you? Don't we want to know how much old growth there is? Can get the answer to this more effectively through forest type.

- Include a better discussion of classification. Need to not just look at existing conditions and more at the underlying ecological sites and the ability of those sites to describe succession and disturbance regimes.

Species Diversity

- Indicator 8 estimates – include estimated ranges. This may be useful in addition to definitive data with caveats.

Future Actions

- Future action – The report does not adequately address land use change related to development (e.g., productive lands that may be great old growth but become WalMarts) and does not make a connection to longer-term landscape dynamics.
- Future action - Data availability – there is a need to establish a report/infrastructure that is a living document where data can be updated and reported on over time.

Highlights for Report Back

- Integrate a historical baseline of data against which to measure. Use anecdotal information to highlight points.

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Chapter and Report Content and Organization

- The final report needs good labels and legends with explanations on the diagrams for those who will not read the report in detail. Make the graphs stand by themselves.
- The report provides some degree of data analysis but stops short of saying how we are doing. There is a need to provide a synthesis of the analysis.
- The narrative of the summary should strike the right balance between a characterization of the data with what the data mean while at the same time preserving the intent of the indicator.
- The summary should not place value on the indicator.
- Making clearer and simpler statements about the data in a way that is consistent with the intent of the indicator, using graphics where possible would help to get closer to the meaning/interpretation of the data.
- Glossary of terms is a great idea.

Charts and Graphs

- Include more charts and figure showing trends in regional variation.
- Could use graphics more effectively. Do more with graphics to show what the data are saying, using including 3-D diagrams, bubble diagrams. Get a professional graphics designer to help.

Ecosystem Diversity

- Indicator 2 - Forest stand age – Clarify what the data sources are (e.g., is park data used for both east and west databases?)

- Privately owned land that is protected through application of various federal regulations (e.g., ESA, Wetlands Act – in the east particularly) is not specifically recognized in Indicator 4, so there is a perception that there are less protected areas than there are.
- Must consider area of riparian zones in national forests and private lands in protected zones of forest areas.
- Indicator 5 – fragmentation –
    - Patch size variation within forested areas – should include an historical perspective on changes in the structure within a forested area over time.
    - Explain what is meant by patch size in the summary (e.g., within forested area or between other areas).
    - Map of land ownership/tax maps showing parcel size would tell a lot about fragmentation and forest edge.
    - Provide examples of how changes in patch size impact specific mammals and birds to help the reader understand the significance of patch size.
    - Explain the impact of fragmentation on economics (e.g., how it relates to the economic viability of a forest).
    - The description of indicator 5 is excellent but there is concern about the representation of causal factors and trends (e.g., Southern Forest Report) and other driving factors such as real estate tax under the rationale. Also, should indicate why it is important to keep a forest a forest.
    - Explain that some degree of fragmentation may have positive impacts on some species.

Criterion and Indicator Linkages

- Linkage between Criteria 1 and 4 - Should include protected areas noted in Criterion 4 (watershed functions) within this criterion.
- Link with Criterion 7, Indicator 58 economic framework, as well and Criterion 2 – timber availability.

Species Diversity

- In species extinction – sort out forest species from species in other ecological systems. Or, better define how forests relate to species extinction (e.g., did mollusks go extinct because of timber harvest and sedimentation, etc.?).

Genetic Diversity

- In the figure with the percent of species imperiled map – clarify whether it relates to forest species. It should.
- Where and how do we show what the quality of an ecosystem is? What is the quality of a type of forested land? How do we see what the health of our forest ecosystem is? How can we synthesize what we are seeing in the data?

Future Actions

- There should be an indicator that shows the quality of a stand.
- Link the data electronically to the report and educate stakeholders about how to access the data.

Highlights for Report Back

- Make clear the cross-referencing/linking between and within Criteria to avoid misperception/misleadings due to stakeholders reading only pieces of the report. Use graphics to help.
- Write the report in a way that acknowledges that readers will not read the report in detail.
- Indicator 8/9 – better define what is meant by the species covered in the indicators (e.g., forest dependant species)
- Indicator 8/9 – get closer to addressing the “quality” issue.
- Synthesize information to help policy users target their efforts. Graphic display should show where efforts should be placed.

Criterion 2 – Maintenance of productive capacity of forest ecosystems

Session II B

General

- On all graphics, add text on how data was collapsed emphasize the scaling issue (national vs. regional), in particular a middle level scales.
- In each instance the message must be clear when data gaps and other shortcomings in the data exist. This is an essential point in laying out the assumptions.
- Support ongoing work to collect and assess urban forest data. (Also, clarify what is included in "urban."
- Develop a method to cross reference related and complementary indicators.
- Address fragmentation and parcelization.
- Suggest the use of italics or dialog boxes as a commentary on "value' or "expectations" of indicator given the definition, assumptions and wording.
- The page limitation of the report that precludes the lack of essential clarifying information should be re-examined. More is better to educate and address questions up front, e.g., data collection and availability, problems. The value of honest and straightforward reporting on what is known or not known is important.

Indicator 10 – Area of forest land and net area of forest land available for timber production.

- Collect and present information by forest type.
- Data presented at regional level does not reflect regional data and trends--using graphics and summaries, data and trends at regional levels must come through
- Matrix or matrices of information should be inserted here. To address for example the interaction overtime of changes in land uses.
- Insert 2-3 sentences on the public debate ad/or the difficulties of defining availability.
- On the issue of availability and productive capacity--clearly state assumptions and limitations to address the over-arching issue of *site potential* (e.g. ownership, trusts, use, etc.)

Indicator 11 – Total growing stock of both merchantable and nonmerchantable tree species on forest land available for timber production.

- Collect and present information by forest type.
- Data presented at regional level does not reflect regional data and trends--using graphics and summaries, data and trends at regional levels must come through.
- Pp13-15 definitions would be useful. Need a glossary of definitions (for the whole report). Use of footnotes as new terms are introduced would help.
- Regional notations are good.
- Figure 11-1: insert an interim year point.
- Insert 2-3 sentences on the public debate ad/or the difficulties of defining availability.
- All that goes with private ownership on availability, should be captured (social, economic (e.g., taxation, and physical.)
- Cross reference related and complementary indicators.

Indicator 12 – The area and growing stock of plantations of native and exotic species.

- All that goes with private ownership on availability, should be captured (social, economic (e.g., taxation, and physical.)
- Cross reference related and complementary indicators.
- Mention (2-3 sentences diversity within some plantations.
- Characterize exotic species plantations, what and where and for what use.
- Clarify plantation data.

Indicator 13 – Annual removal of wood products compared to the volume determined to be sustainable.

- Is growing stock an accurate measure?
- All that goes with private ownership on availability, should be captured (social, economic (e.g., taxation, and physical.)
- The figures are not visually intuitive--replace.
- Examine the purpose of this indicator and whether meaningful data can be collected.
- Comparison of current harvest with some potential (under an assumed level of management) not defined.
- The term sustainable is "fuzzy", suggesting more than simple sustained levels of product flow.

Indicator 14 – Annual removal of non-timber forest products (e.g. fur bearers, berries, mushrooms, game), compared to the level determined to be sustainable.

- This is not the complete and accurate indicator from the Montreal process.
- Everyone recognized that it is difficult to ascertain baseline data (it may not exist), and impossible to address the later part of the indicator "volume determined to be sustainable."
- Detailed discussion (perhaps at regional levels) on extraction/harvesting will help convey the scope of the activities.

- Anecdotal information is value-able to tell the story (e.g., tribal practices, taxanol).

Session II C

General

- Note: By this point the session participants wanted to speak to form over substance; and what next.
- Measures and metrics on the national scale should clearly reflect the regional and local building blocks.
- More comments stressing the need for the cross-linking of indicators.
- Make greater use of footnotes. Need a glossary of terms.
- Needs some discussion on how the United States addresses the uniqueness (perhaps in rationale) in address each C&I.
- Prepare a synthesis document as raw material, from the data report to support the preparation of this report.
- What is the purpose of this report besides as an encyclopedia?
- The authors should make note that indicators may shift, evolve or be re-defined in the intent of making the report more useful.
- The authors must be aware that the content of the report will/can be used for a variety of purposes. So accuracy and reasonableness are necessary.
- The report may need to take different forms for different groups.
- Definitions of forest and agri-forestry (what is included and what is not in the definitions).
- Identify metrics linked with each indicator with shortcomings.
- Clearly identify ownership groups.
- In many of these indicators referencing productive capacity to address the 3 Es will require cross linking to other indicators.

Indicator 10 – Area of forest land and net area of forest land available for timber production.

- Continuing estimates of land not available is important, to address issues such as fragmentation, urban sprawl.
- Availability must address all implications and values ascribed--physical, social and economic.

Indicator 11 - Total growing stock of both merchantable and nonmerchantable tree species on forest land available for timber production.

- Continuing estimates of land not available is important, to address issues such as fragmentation, urban sprawl.
- Observation by one participant that there is established data, fairly worked out.
- Availability must address all implications and values ascribed--physical, social and economic

Indicator 12 - The area and growing stock of plantations of native and exotic species.

- This session had no specific comments on indicator 12.

Indicator 13 - Annual removal of wood products compared to the volume determined to be sustainable.

- Sustainability in the context of availability, especially at the regional and local levels (masking by national aggregation should be avoided) should be addressed.

Indicator 14 - Annual removal of non-timber forest products (e.g. fur bearers, berries, mushrooms, game), compared to the level determined to be sustainable.

- The session participants took positive note of Sue Alexander's ongoing work to develop a methodology to assess the magnitude of the volume, identify other data bases and to develop data on a large suite of non-timber products that account for as much as one seventh the dollar value of timber products. Sue Alexander's briefing notes and the data from the Data report should replace the very brief summary discussion in the draft report.
- What is the significance (how to estimate) of "working off the books".
- Volume determined to be sustainable was questioned.
- The orders of magnitude on this activity are significant. Many of the numbers are available--they will take some digging around-- and well documented. The gray market will be harder to assess (modeling?).
- Capture indigenous peoples data.
- Is market pricing an index? Explore the economics of products to estimate the supply. (Sue Alexander noted she is trying to look at this).

Criterion 3 - Maintenance of forest ecosystem health and vitality

General

- Good job on an impossible task!
- Criterion 3 is the best of the whole report.
- I would prefer to see the summary report get longer in order to include more detail.
- The summary report needs to include more detail (for example, for Criterion 3, some of the information presented by Andy Mason at the DC workshop should be added).
- Authors may need to be more directly involved in producing the summary report. Consider a new process whereby authors develop abstracts.
- Include explanation of what data were and what data were not used for the report and why, as well as what information is currently being collected to address data gaps.
- The summary should clearly state where data is not available to draw conclusions.
- The report should identify missing information needed for 2008.
- Distinguishing between mechanisms and impacts would be helpful.

- Would it be useful to distinguish between injury/affect and damage (affect vs. impact)? For example, the ice storm in the Northeast cause both injury and damage, in that trees were injured, and financial damage was caused.
- It is intriguing that all indicators in Criterion 3 measure external stressors.
- Many are internal stressors with external sources.
- Can indicator species, such as lichen, be used more throughout to draw conclusions about Criterion 3?

Graphics – Maps, Figures, Legends

- Make sure legends on figures are clear and include definitions.
- Some explanation is needed with each figure to avoid misinterpretation and misuse.
- There is a danger of the reader taking conclusions out of context by disregarding the caveats. Be cognizant of this and try to avoid in the final summary report.
- Carefully word figure and graphic captions so they are not taken out of context.
- Indicate data gaps on maps (e.g. Fig. 17-1)
- Show the state level picture.
- In cases where national data does not exist, use state/regional data and note this. This also fills the need to pinpoint regional problems.
- On Figure 16-1, reverse which information is presented on which axis. Present the percent of forest on the horizontal axis, and the kg/ha/yr on the vertical axis. Or possibly present the information both the way it is currently presented, and the way suggested above.

Definition of Forest Health

- People have very different ideas about what constitutes forest health.
- The definition of forestland that is used should be clearly stated at the beginning of the chapter.
- Definition of forest health needs an explanation of "healthy enough for what"? (To maintain itself? To produce goods and services?) (p.18)
- Separating production ability from health is problematic. It would be helpful to mention relationships between the indicators in Criterion 1-4.

Indicator 15 – Area and percent of forest affected by processes or agents beyond the range of historic variation, e.g. by insects, disease, competition from exotic species, fire, storm, land clearance, permanent flooding, salinisation, and domestic animals.

- The following sources for historical fire frequency and periodicity were provided by Kevin Smith: Elaine Kennedy Sutherland with USDA Forest Service Rocky Mountain Research Station in Missoula, MT for information on oaks in Ohio, and Marc Abrams with Pennsylvania State University for information on Pennsylvania. Gene Huffman at LSU was suggested as a source for information about the South by Carol Goodwin. Bodie Shaw suggested contacting Dennis Martinez at UC Berkeley, and First Nations groups for information about the role of fire, especially in the southeast.

- Include a discussion of the change in fire severity, in addition to the information provided about acres burned. If the data is not currently available, then begin tracking now for use in future reports.
- Integrate acres burned and fire severity with fire condition class to test validity.
- Why not include Condition Class 2 to give the reader an idea of areas that are likely to move into Class 3?
- Add an explanation of Class 3 in the summary report.
- There has not been a system for detecting small fires. Acknowledge this in the report.
- Be clear and careful about how information about fire is presented because of the fear this subject generates in the public. The goal is to avoid misinterpretation and misuse of the information provided in the report. For example, there are places where "outside the range of historic variation" is a positive.
- Impacts of harvesting methods are missing from Indicator 15 and from the introduction of Criterion 3. (It is covered in Criterion 4.)
- Be more explicit about the impact of climate change on forest ecosystem health through changes in precipitation (rain and snowfall), freezing, and thawing (this particularly noticeable in Alaska). Lay out what we want to measure going forward.
- Include information about the relationship between climatic changes and agents and processes in the summary report (this is in the data report).
- Look at the impact of the withdrawal of management on forest ecosystem health, and at the distance from a realistic historical baseline.
- Look at the impact of deer browsing on NE forests. Connie Carpenter (workshop participant) will get a copy of the NE Sustainable Forest Management Report to the Criterion authors.
- It seems like the author is addressing stressors in a binary way – either they are present or not – but what we really need to know is the intensity of the agent or process. (Answer: For insect and disease we are showing outbreaks, which, by definition, have met a certain threshold.)
- Be clear that some changes in the system are expected. As a result, we need to be flexible and able to react quickly, because our ability to predict future events is not good. Partly our ability to predict is reduced because today we are introducing more and more variables into the system.
- The historical context is essential for 15. Ecosystem health cannot be defined without it.
- Establishing a baseline is challenging because plant communities were developed pre-human existence (15,000 years ago).
- Do not let recent variation turn into the only metric for 15 just because it is available and because historic data is lacking. Be more clear in the summary report when recent variation is what is being used.
- Poll state foresters to ask what the issues are in their jurisdiction. This would provide background information based on local expert opinion.
- Modeling could be a useful tool to assess departures from the expected norm. (Contact Lewis Iverson (tree data), and Kurt Ritters for examples.)

- The existing research base on forest ecosystem health is not directly applicable to the emerging management philosophy/regime.

Indicator 16 – Area and percent of forest land subjected to levels of specific air pollutants (e.g. sulfates, nitrate).

- Is actual deposition on the land measured, or is the information from aerial surveys?
- What is the source of the data? Is the monitoring being done in areas of concern, or randomly throughout the U.S.?
- It is difficult to interpret the data for the purpose of determining the impact of ozone on plants because the purpose of the monitoring being done is to assess threats to human health, not to assess damage to plants.
- The notion of an integrated variable from four different pollutants seems problematic. Don't combine them if there is no scientific rationale for doing so.
- Analyze 16 and 17 by a method similar to the one use for 15. Look at the individual aspects separately rather than combining into artificial indices
- Indicator 17 is appropriately cautious about drawing relationships and conclusions. Indicator 16 should be written with a similarly cautious tone.
- Consider monitoring and discussing other pollutants, such as mercury. Information on mercury can be found in EPA's Toxic Release Inventory (TRI), which is available on their website. Also, mercury is being monitored in waterways, and authors can look at where mercury advisories have been issued (e.g. Superior National Forest, MN).
- Classifications are needed that enable identification of ecological sites with common sets of abiotic factors that allow a consistent successional trajectories and historical disturbance regimes.
- Account for the fact that in mature forests a certain amount of mortality is to be expected at the end of the cycle of aging.
- The report does not seem to provide information on area and percent of forest land. Therefore, indicators 16 and 17 either need to be rewritten, or the relevant data needs to be collected.

Indicator 17 - Area and percent of forest land with diminished biological components indicative of changes in fundamental ecological processes (e.g. soil, nutrient cycling, seed dispersion, pollination) and/or ecological continuity.

- More data is needed.
- Balance the need for additional data with the cost of collecting additional data.
- It is better to say that no data exists, than to try to draw an artificial correlation between biological components and ecological processes.
- We are only beginning to understand ecological continuity. What is the relationship between spatial arrangements and ecosystem integrity?
- The tone of 17 is appropriately cautious about drawing relationships and conclusions.
- Note that the indicators are limited in their ability to illuminate the impacts to ecological processes.

- Analyze 16 and 17 by a method similar to the one use for 15. Look at the individual aspects separately rather than combining into artificial indices
- Figure 17-1: This figure may be misleading. If only tree mortality and crown condition are represented, it is accurate. However, my research shows that air pollution is clearly affecting the Northeast. Contact Kevin Smith for data sources on this.
- Look to watershed nutrient cycling studies, such as the one on the Chesapeake Bay, as examples for assessing ecosystem health.
- Does the word "potentially" convey the intended meaning? Consider substituting the word "possibly".
- Thresholds occur at two levels: the area measure and within stand measures. This needs to be addressed in the report.

Range of Historic Variation

- Clearly define what constitutes "out of the range of historic variation".
- A definition of range of historic variation would be useful. Add a statement about the fact that the range is different for different ecological systems.
- Excellent job of reference to historical condition in Indicator 15. The same thing is needed in 16 and 17.
- Historical context is essential for Indicator 15. Ecosystem health cannot be defined without it.
- Regarding Indicator 17, the only way to assess processes is in the historical context.
- Explain why respective ranges were chosen and recognize that not everyone agrees that a return to pre-1800 conditions is the goal.
- We don't want all of the forest to be in a historical condition, but we do need a baseline condition by which to judge.
- The baseline of 1800-1850 is unusual because it is the only time that the United States was free of management. A better baseline might be pre-Columbian (1492). Look at the work by the Forest History Society and a book published by Brown University Professor Neil Ward.

Forest Fragmentation

- Forest fragmentation is the most important impact to Criterion 3 and needs to be covered.
- The problem of forest fragmentation is illustrated by the fact that we have gone from 1-2 million forestland owners, to 10 million owners. Include data and discussion of forest fragmentation in Indicator 15 (or at least mention that it is covered in Criterion 1). Lester DeCoster (DC participant) can provide references.
- The assessment of forest fragmentation or sprawl as "bad" is a value judgment and not necessarily negative for ecosystem health.

Placing Value

- Avoid value judgments to prevent misuse of the Report.
- Acknowledge that Criterion and Indicators are themselves value-laden.

- The Report does a good job of reporting the facts and not making value judgments.

Chapter 4 Thoughts

- Separating production ability from health is problematic. It would be helpful to mention relationships between indicators in Criterion 1-4. (linkages between indicators 13 and 14 and the notion of ecosystem health)

Chapter 5 Thoughts

- State what is being done/will be done to address data gaps.
- Describe initiatives/actions that should be taken to achieve sustainable forest management.
- Include a discussion of the change in fire severity, in addition to the information provided about acres burned. If the data is not currently available, then begin tracking now for use in future reports.
- Either rewrite indicators 16 and 17 or find ways to collect data on the area and percent of forestland.
- Indicator 17 – Fundamental processes don't change. This indicator should be measuring changes in outcomes, not changes un processes.
- For the 2008 Report, look to watershed nutrient cycling studies as examples for assessing ecosystem health. (Chesapeake Bay is an example).
- Lay out what we want to measure going forward with regard to the impact of climate change on forest ecosystem health through changes in precipitation (rain and snowfall), freezing and thawing.

Criterion 4 – Maintenance of soil and water resources

Summary

- As with much of the report, the need for a finer scale of assessment was identified as critical. Local and regional data would be much more useful in understanding the implications of this criterion.
- Some powerful concepts come into play here and they need to be defined. These include "protection," "threshold," and "significant." Such words, when misinterpreted, can create political debates.
- Another political issue is water. Therefore, water should be emphasized over soil if a trade-off in time or other resources exists.
- Writers need to employ BMPs more widely and use existing management data in making their assessments – how well are we complying with our existing system currently?
- Land categories should have statistically significant data supporting their characterization, and it's important to define the temporal scale that is being used. Finally, writers should put sedimentation issues into perspective. It could be eye-opening to the public if a comparison between agricultural, suburban, and forest lands were made. The public sees a clear-cut and worries about the run-off, but suburban run-off is much worse.

General Comments

- What the report should say is that we didn't have time to collate and analyze all the data, not that we don't have the data.
- The information is so general and incomplete that analysis cannot communicate the details to the public.
- We haven't identified thresholds, so we don't know how much water there should be. What's the standard we are shooting for? Where are we in relation to that?
- Could we create other indicators that are more helpful? Cross referencing with publicly stated needs or case studies would give a sense of what is going on. The Forest Service Highlands Regional Study is one example that could be captured – Look at the 1992 NY-NJ Report. Marcus Phelps would know about it.
- EPA is monitoring water. It's called STORET (storage retrieval of water data) database. The Forest Service needs to tap into this.
- Wind erosion is a consideration in midwestern states. Mention why it isn't addressed here and address it in future reports.
- It's more important to have information on water quality than soil. The public is more interested in water quality.
- Relate the HUC to the percentage of land forested within the watershed.
- The BMP mechanism should be recognized, and if the mechanisms aren't in place, they should be created. They need to be seen as critical, need to be adhered to and then monitored. Indicate where BMPs do exist. Put them both into Indicator 51 and this one.
- Soil Compaction Report on FIA Plots is misleading. If land is put in a category, make sure you have sufficient data supporting its characterization. Just show plot rather than eco-section.
- In Modeled Soil Erosion Potential on FIA Plots, Fig 18-5 - graphic, clarify that it's a potential wherever erosion is mentioned.
- Mention SERGO and why it was not used. The implications, when looking at a nationally assessed map, are scary when looked at through community eyes.
- Present the very political question about controlled waterways and harvesting – are they causing high/low flow and erosion? Or at least answer what we know/don't know. If data is available for impervious surfaces, cross-reference it or collect it in the future.
- The data report needs to state that we aren't yet measuring the indicator. We are doing the best we can given the information currently available, but what we want to eventually measure is the deviation from some baseline standard we don't yet have.
- We're looking only at data available nationally. There ARE state level or regional databases that should be tapped if they're good. It would be helpful to present state by state data Many people want to see this level of data. Watersheds within states collect data every five years. It is just not consistent nationally. Rather than say there is no national data, quote reliable state data. At the least, include anecdotes or side bars to indicate that there is information scattered around.
- Definitions should be added – soil, urban, suburban.

Indicator 18 – Area and percent of forest land with significant soil erosion.

- What is meant by "significant?" Further research needs to be done to define "significant."
- Use FIA/NRI information along with STATSGO.
- "Mass failure" should be added as a component – Experts to discuss issue with: Dale Wilson, recently retired soil scientist from Oro Fino, Idaho and John Arnold, Boise, Idaho.
- DEM needs to move to a 10 meter scale.
- Clarify what the universal soil loss equation is – that it is a measure of potential.

Indicator 19 – Area and percent of forest land managed primarily for protective functions, e.g. watersheds, flood protection, avalanche protection, riparian zones.

- This is a critical indicator.
- One way to look at it more effectively – what percent of sale units, when monitored, conform to local standards? Consider using state BMPs as the local standard.
- There are some state examples that could be sited as side bars. Give a variety of examples. Greenville, SC manages a watershed just for water quality. EPA's OWOW might have applicable data.
- What kind of protection? Define it – are you talking about SMZ's, set asides, or what? Give examples of the upper end (Greenville situation) and the lower end. Set up different categories of protection and define them.
- This talks about theory. Couldn't there be a quantification of the "intensity" of protecting areas? This is political because protection is perceived, by timber interests, as being taken out of forest land. Check with Portland, Oregon regarding the surface water association that they belong to, AISWPCA – or contact Kathy Summers at GAO.
- "Woodland" is different from "forest" soils. This distinction needs to be made and explained in the document – not just in a glossary.

Indicator 20 – Percent of stream kilometers in forested catchments in which stream flow and timing has significantly deviated from the historic range of variation.

- Steve Blanchart at USGS is in charge of national water conditions. They can pull out statistics for any period of time. It is geographically distinguishable. Good source for stream flow information.
- Are changes in land use - away from forests to human development - rather than dams, having the greater effect on water flow? Critical to understand flows!
- Harvesting is going on at a rate that's changing the dynamics of the watershed – so the level of HUC needs to be at a more refined scale.
- Would be interesting to understand impervious surfaces.
- Need to collect more data – more streams assessed.
- Stratify data by forest type.
- What sort of temporal scale are we talking about? We have to go with what we have, but make clear which one we're using.

Indicator 21 – Area and percent of forest land with significantly diminished soil organic matter and/or changes in other soil chemical properties.

- Regarding compaction – it would help to have a slope overlay. DEM would help clarify compaction/erosion factors.
- Define what the "other," soil chemical properties are.
- The report could be more site specific. Consider using FIA/NRI when using STATSGO.
- Past land use practices need to be mentioned to put it in perspective. Southern piedmont is being improved by the forest. It was damaged by prior land use.
- Look at state BMPs to evaluate whether standards are being met or not met on logging sites. TAC viewed this as compaction occurring outside guidelines which show compaction trend/potential over time.

Indicator 22 – Area and percent of forest land with significant compaction or change in soil physical properties resulting from human activities.

- We should first know what questions we need to have answered about the health of the forests and streams.
- There IS data out there. Look at EPTs and some of the stuff fish biologists are researching.
- Get real about what we know and what we can deal with. What IS bio-diversity really? Identify some indicators rather than total innumeration of bio-diversity.
- Rodger Rider, Maine Forest Service, is working on northeast portion of this question. At least some states monitor this through BMPs (e.g., South Carolina).
- Include land type classification.
- One way to look at it more effectively – what percent of sale units, when monitored, conform to local standards? Consider using state BMPs as the local standard.
- Look at the issue of sludge dumping – EPA may have some data.

Indicator 23 – Percent of water bodies in forest areas (e.g. stream kilometers, lake hectares) with significant variance of biological diversity from the historic range of variability.

- Index of watershed indicators has current information on the web. Watersheds are large and hard to define as forested. EPA and NRCS have completed breakdown to 10 and 12 digit watersheds and the databases need to be populated with data. Bob Pierce is USGS Atlanta has helped developed this. http://www.epa.gov/iwi/hucs/10190001/score.html.
- Look at EPA's OWOW information on watersheds. Get 8 digit code first. This is a large piece of land. Is it valid?

Indicator 24 – Percent of water bodies in forest areas (e.g. stream kilometers, lake hectares) with significant variation from the historic range of variability in pH, dissolved oxygen, levels of chemicals (electrical conductivity), sedimentation or temperature range.

- Index of watershed indicators and USGS STORET are good sources of data for this indicator.

- These are not salient on a regional basis to forests, even if they are for agriculture. How is this relevant to me as a forest stakeholder? Perhaps could state this and then offer a place where someone could go to find information on a smaller scale.
- This type of data is more useful when looked at on a watershed basis than on a regional or national scale.
- Mention sedimentation so that the public understands better, for example, the comparison between agricultural, suburban, and forest land.

Indicator 25 – Area and percent of forest land experiencing an accumulation of persistent toxic substances.

- Well written. When information wasn't available it was stated. What is coming in the future was offered.
- Look at national water quality assessment program, NAWQA, study on shallow wells. EPA E-map. Tim Miller is head of NAWQA.
- Do we need to look at organic phosphates? Methyl mercury? Endocrine disrupters? Forestry pesticides and herbicides? Anything that bio accumulates would be of interest. Look at NAWQA reports for identifying toxic substances.
- Stratify which are most biologically meaningful substances, and then take on a few and include assessment in the report.
- Clarify that amendments are added sometimes to the soil and what these amendments are.
- EPA collected data on sludge spreading on forested lands. Might want to look into it.

For the Future

- Wind erosion is a consideration in the midwest states. Address it in future reports.
- If data is available for impervious surfaces, cross-reference it or collect it in the future.
- Need smaller HUCs -- 10 or 12 digit.
- DEM needs to move to a 10 meter scale.
- If had to choose, emphasize water over soil measurement for Criterion 4. Consider that it is all one system and link the two sets of data.
- Add "mass failure" to Criterion 4 data.

Criterion 5 – Maintenance of forest contribution to global carbon cycles

General Comments

- Authors should ask whether text supplements figures or vice versa, and which is the intended purpose of the report?
- How do you deal with inter-relationship between indicators for criterion #5? Specifically, how do you deal with inter-relationships with indicators in conflict with indicators for other criteria?

Purpose and Applicability of the Report

- More explanation should be included in the summary report. For example, information on the carbon cycle should be included in the introduction, so the reader has the basic knowledge necessary to understand the Criterion #5 discussion. The authors need to keep the audience in mind.

- As a top priority, the report should establish a baseline for future measurements and reports.
- The report should not make recommendations.
- If the purpose of the report is to inform policy makers and encourage dialogue among stakeholders then the report needs to discuss implications and not simply present data. The report should be forward-looking rather than simply historic.
- This report is not an "easy read" because of scientific/technical detail included in the report. Authors need to make more readable. This could be accomplished by:
    - Adding more explanation with each figure and possibly including conclusions under each figure;
    - Increasing the number of graphics included in the summary report;
    - Boiling down information to factoids, possibly fact sheets to accompany larger report for more scientific community;
    - Include a summary at the beginning of the chapter that summarizes the findings for all indicators related to that criterion;
    - Include only the "pertinent details" for each indicator and recognize that this may not be the scientific information; and/or
    - Include information that is relevant to forestland owners / managers (e.g., carbon credits).

Clarifications and Additions for Summary Report on Criterion #5

General Comments

- Current rationale included in the report is insufficient. It does not explain the importance of including criteria and indicators in Montreal Process in general and more specifically in this report.
- Variables and assumptions of each model should be explained and included in the summary report, not just the technical report that will accompany the report on-line.
- Inclusion of forest types, density of trees, and tree size information in the summary report would provide more clarity to the Criterion #5 discussion.
- Summary report should include a list of reference data and reports as well as other current studies on carbon. For example, the American Forest Report on carbon should be referenced in the report.
- In the introduction or rationales, the authors should address whether or not carbon sinks are good, and what the current thinking about carbon credits is in the U.S.

    - Summary report should include some discussion of carbon credits and carbon accounting.
- Need to explain that some changes are due to changes in landuse (area) and/or changes in the amount of carbon.
- Discussion of the criterion and indicators should include some indication of where going (e.g., is the trend positive, negative, or neutral?).
    - Should discuss future goals and projected trends of total carbon pools (forest ecosystem and wood products).
    - Need to discuss what is the U.S. goal in measuring carbon budget and the general trends found to date to make the report applicability to larger community of people.
- Address the ability of old growth to store carbon compared to other forest types (e.g., plantations). Include a comparison of acreage of each forest type.
- Should include some discussion/analyses of successional stages, using forest types as proxy for successional stage.

Comments on Specific Indicators

- Rational of indicator 26 (Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages) on total forest ecosystem biomass and carbon pool should be moved to the introduction because provides explanation for why criterion 5 and its indicators are importance and why they should be analyzed in this report.
    - Rational for indicator 26 would be clarified by explaining the role of forest as carbon sinks (this might be best included in the introduction).
- Summary of indicator 27 (Contribution of forest ecosystems to the total global carbon budget, including absorption and release of carbon) is confusing and needs more clarity.
    - Define the “total global carbon budget.” More explanation on the total global carbon budget, including additional references, is needed for understanding and to illustrate its importance. Is this simply carbon from forest ecosystems and wood products combined?
    - Additional figures for indicator 27 might offer more clarity.
    - Explanation and figures for indicator 27 need to be consistent.
- The discussion of indicator 28 (Contribution of forest products to the global carbon budget) should include discussion of emission in the forest products industry. It should also include emissions from other sources for comparative purposes.
- Should consider policy implications of the summary for indicator 28. By demonstrating increases in carbon storage detracting attention from reducing emissions at the source.

Global Context for Carbon Budgets

- The relationship for carbon budgets to global climate change and global air quality is important because puts the carbon budgets into a global context and offers context for this report. The current report does not put the carbon budgets into a larger context.

    - Snap shot data should be used to discuss relationship of carbon budgets to climate change and mitigation measures.
- Report should attempt to link the data to economic considerations, especially as related to carbon credits. Although this is not significant now in the U.S., it may be in the future and should be considered.
- Should put forests and their roles as carbon sinks into context by describing other contributions (e.g., oceans) to carbon budget.
    - Explain effects of fires and other disturbances on total carbon budget.
- Should explain relationship between carbon and carbon dioxide because report number in carbon unit, but often report in carbon dioxide equivalents in other reports.

Explanation of Figures

General Comments on Figures

- Figures needs more explain so reader understands data being presented and the implications of the data and figures.
    - Explanation of the trends seen in figures would provide clarity.
    - Explain why the data was used in analysis and figures (e.g., why are only 48 states included in the analysis/figures?).
    - Explain inventory used in analysis and figures (e.g. what was the sample size?).
    - Enough explanation needs to be provided, so that the figures are not misinterpreted by the reader.
    - Explain whether the information if for above- or below-ground carbon in each figure.
    - Should note whether changes are due to changes in area or amount of carbon.
- Explanation of figures is sometimes too technical for the general reader to understand. More information should be provided to explain the technical details and to offer clarity to the reader.
    - For example, Figure 27-1 “Average annual net change in forest ecosystem non-soil carbon pools (Mt/yr) for all forest land of the conterminous United States, 1953-1997” needs more explanation to be understandable. Why does forest floor data only included for 1952-1962 and 1987-1996? Why are aboveground standing dead trees not included for 1987-1996? Why are only 48 states included? Why not Hawaii and Alaska?
- When possible, error rates/measurements should be included in the figures and explained in the text or caption for the figure.
- Figures should be made relative to size and amount of forest, or at least, the size and amount of forest should be better explained. For example, why does it look like there were more trees in 80’s than 90’s when the reverse is true in figure 27-1?
- Source of the soil data and its compatibility with USDA-Forest Service, Forest Inventory and Analysis (FIA) data need to be discussed.
- Should include more trend data, not just snap shot.

- Presenting some data in tabular form might be very useful.

Comments on Specific Figures

- Discussion of figure 26-3 needs to address implications.
- Figure 27-1 should explain the gain / loss of acres due to development.
    - Negative rates should be explained (e.g., forest floor)
    - Data may be better represented in a tabular form.
- Figure 28-1:
    - Need to distinguish between "landfill" category and landfills including in the "emissions" category for wood products
    - Needs more explanation because includes both positive and negative trends and this is not clear from the current report.
    - Should include discussion of co-generation.

Additional Figures

- Additional figures illustrating the net rate increase of atmospheric carbon dioxide relate to carbon stock should be included in report.
- A figure illustrating growth rate of trees and the relationship with carbon sequestration would be helpful.

Disaggregating Data

- Although the report provides a fair representation of data, the reader would benefit from having the data presented at levels other than the national level (e.g., regional or local levels, by forest or tree type, etc.)
- Breaking data down to regional level and illustrating regional trends in figures would be useful.
- When possible, data and figures should account for different tree species/wood products/forest types.
- Future projects of carbon pools by age class would be helpful because would illustrate the expected effects of aging and harvesting on carbon pools
- Data should be disaggregated in order to make it more meaningful at smaller scales (e.g., community or county level)

Data Gaps

- How are lands / trees not captured by the FIA definition of forests included in the report?
    - For example, how do you account forests / trees intended to remain forest / tree for agroforestry practices or other purposes that do not wind up in timber / wood production (e.g., Great Plains Forest).
    - A major gap data is that trees in windbreaks are not included in FIA data.
    - Research for the National Agroforestry Lab in Lincoln, Nebraska may help.
- Analysis and figures should account for changes and loss of carbon resulting from harvesting practices (e.g., exposure of sols, drainage, etc.)
    - Should also include how carbon can be preserved through harvesting practices (e.g., minimize residues, reduce impact harvesting)

- Report should try to capture affects of fire on carbon pools and budgets
    - What is the amount of carbon in grasslands resulting from a fire as opposed to forestlands?
    - What are the trade-offs between forests and other land types?

Criterion 6 - Maintenance and enhancement of long-term socio-economic benefits to meet the needs of societies

Overall Comments (which relate to several indicators)

- Graphics presented in by the Criterion's author should be included in the chapter as they provide critical data and relationships that are missing from the chapter.
- To better capture indicators under 'recreation and tourism' and 'employment and community needs' it would be useful to break out the number of jobs related to forest based recreation (both on public and private lands) and the money generated. Participants suggested information could be available from outdoor equipment manufacturers such as REI, etc.
- Consider utilizing non-traditional data sources for getting information on employment, communities or non-timber forest products (NTFPs). Non-government organizations have their own data collection systems that could be tapped. Also note that contracting abuses may affect the wage and employment figures (contact the Alliance of Forest Workers for more information).
- The text should mention the potential impacts to communities when work is 'outsourced' to contractors outside the local communities and reflect how this might affect community viability.
- Since cultural and social data are lacking, the report should clearly acknowledge data weaknesses (to prevent drawing of false conclusions). The report should include anecdotal data to fill in gaps with examples that help show a truer picture.
- The indicators should reflect the sustainability of related activities such as recreational facilities, the # of people using the resource for hunting, fishing or the harvest of NTFPs.
- Indicators should be reported by both absolute and relative numbers (e.g. compared to total employment, forest sector employment is X percent of total employment, employment in timber jobs versus forest tourism jobs is…)
- The USDA Forest Service has guidelines for forest service field units for consulting with tribes under the United State's government's trust responsibilities based on the treaty signed with first nations and this should be consulted in working with tribes to help collect data on indicators under Criterion 6 and others.
- There have been a number of studies and approaches for measuring consumer values and the discussion should reflect work in this field.
- Can the write up for this Criterion reflect the intangibles of community cultural, spiritual values etc and explain what they are and why they are important? For example, community stories, quotes or anecdotes are important and could be used as a proxy for missing data and/or to clarify, add content to or support quantitative data.
- Language used to report on these indicators is important (e.g. collaborative management is a buzz word phrase).

- Also consider other nontraditional sources of data such as University studies.
- The emphasis for this Criterion seems to be mostly on the timber sector of the forest economy. Need to emphasize the importance of the recreation economy (e.g. planning for recreation areas, managing facilities, sales of equipment etc.)
- Chapter 1 of the report reflected a full range of uses which are not discussed or reported in Criterion 6. Data missing that could be obtained include Implan data, hunting and fishing license data or even population data.
- The area of forest land used for overall calculations is not accurate so many of the indicator data are inaccurate. This should be reported and explained throughout the report. For example, land less than 20 acres in size is not considered a forest even though a 20-acre tract may be managed for timber.
- For indicators where data are limited, a summary should state this. Definitional and application limits of the indicators also should be clearly described.
- Since this report is THE REPORT it should be comprehensive with respect to reporting on key indicators such as 'investment in the forest sector.' The text should clearly explain what data are missing and why and also note the availability/use of non-conventional data sets.
- Context is lacking for many indicators and is needed, e.g. forest manufacturing is what percent of total manufacturing?
- The report sometimes mentions six regions of the country and sometimes seven and this should be fixed to have the same set of regions reported consistently.
- The role of urban communities in promoting sustainable forests should be recognized. For example, abatement of stormwater runoff is an important contribution of urban forests.
- There should be increased coordination with Criterion 7 since those the indicators under Criterion 7 would share many of the same data sets.
- It would be useful to measure and report on 'spin-off' effects of recreation, investment, or employment. For example, white water rafting often occurs in forested areas.
- Where data are missing illustrative examples from Chapter 3 (Current Actions in the United States) may help to fill gaps.

Format

- Need an extensive glossary in the report to define key terms such as spiritual, especially for the report's use in international circles. Urban and community forestry should also be defined.
- The graphs and charts in the presentation should be incorporated throughout the Report as they are very useful in communicating the findings.
- For each indicator there should be at least one sentence that states what data exist to report on the indicator and where they can be found.
- Many sections under the indicators begin with 'According to the data report…' which is annoying. This should be changed to 'According to this report…'

Comments on Specific Indicators (or suites of indicators)

Production and Consumption

- We do not know what level of consumption is sustainable. Figures reported under these indicators should be linked to imports, exports and actions by other countries.
- Indicator 29 'Value and volume of wood and wood products production, including value added through processing' relates to value added processing but mostly wage data are used. At the national level of reporting, the community-based value added processing is not apparent. We need to report value added processing at the local, versus regional versus national levels.
- Data needs to be reported for small-scale businesses too. In the southwestern United States timber harvest is more for posts and poles. Subsidies of energy markets though local wood energy is also an economic use that should be factored in and reported.
- The value of forest water yield should be included as a commodity since forested watersheds provide groundwater recharge and storage and forests filter water.
- Burn of wood and paper products to produce energy is also a commodity and should be included.
- The characterization of 'return on capital investment' is misleading. It should show actual forestland investment (their capitalization rate) by industry type.
- Timber is a renewable resource and trees taken from the forest can be replanted which is not reflected by the indicators. The equation used treats timber as an annual crop, which it is not (e.g. harvesting trees might not be harvested until after 50-80 years).
- Several participants noted that numbers for hunting and fishing have not been included (user fees, equipment sales etc.) In the Southern United States, the revenue from leasing of private forestlands for hunting is significant. A dollar figure could be obtained for the dollars per acre value of hunt leases. Several participants echoed this point that hunt leases and other leases are an investment choice. There was a Northern Forest Lands Council study on timber production that could be applied. In Maine, Tom Power did a study on a 3 million acre park that could provide some useful data and methodologies. State forests should have data on user fees and user surveys.
- Recycling increases forest economic values as wood is re-used and is an economic resource more than once but recycling may also decrease the value of virgin timber stands.
- For indicator 29, the equation should look at the profit versus capital costs. Also, a change in the economy may cause a change in investment into pulp mills versus .com companies. This macro lens should be applied to help make sense of the indicator. Also the costs of complying with environmental and industry regulations should be captured here.
- Investments in non-industrial private lands should not be separated out.
- For indicator 30 'Value and quantities of production of non-wood forest products' there should be a better, more comprehensive description of the indicator (refer to the discussions under Criterion 7 for guidance).

- Small diameter wood can be valuable both as a source of wood and fiber and this should be discussed under indicators 29 and 30.
- Estimates of the current supply of wood are useful to have for comparison in the future.
- Fuel biomass removal has been subsidized by the federal government and this may be a trend of the future that should be reflected in Chapter 5 of the Report.

Recreation and Tourism

- 'Willingness to pay' survey methods are one way to capture these indicators but will still miss those activities which are free and can be consumed locally so there is no payment unless it's a fee use area. A participant disagreed noting that 'willingness to pay' or 'contingent value' methods are so flawed that they should not be used.
- If recreation and tourism are the second largest source of income for private forest landowners (based on several participant stories comparing hunting lease revenue with revenue from timber sales on their private forest lands), then the U.S. should be doing a better job of tracking and reporting them.
- Would it be possible to quantify recreational employment revenues from taxes (e.g. bed and breakfast taxes near national forests etc.)?
- Indicators include private lands in the total and these lands are not available for recreation except to private landowners and those they invite. This means that the indicators over-estimate recreation opportunities. Most participants in all three discussion groups echoed this point. The presentation slides showed this better and should be displayed with these indicators. If all lands are used then the indicators text should be changed from 'available' to 'managed for' or 'used for.'
- Recreational data are available though the national Fish and Wildlife survey of fishing and hunting and through statewide outdoor recreation plans that have included state surveys as part of the planning process. Several state Department's of Natural Resources also license outdoor guides and may have data to share. Other NGOs such as The National Parks and Conservation Foundation may have data to share.
- Dispersion and size of facilities is important to report (e.g. there is a lot more land available per capita in the West which is lost in national level reporting).
- For indicator 35 'Area and percent of forest land managed for general recreation and tourism, in relation to the total area of forest land', three quarters the forests are non-industrial lands. Some industrial lands also have use for recreation opportunities. We should find a way to report on these multiple uses by the next report.
- For indicator 35, mention that private lands may be leased for recreation (as opposed to generally available).
- The report should describe (briefly) the different kinds of options and opportunities available for recreating on forested lands (hunting, fishing, skiing, rafting, photography, hiking, birding, mushroom collecting etc.)
- A 1994 National Woodland Owner's Survey found that recreation was one of their land management objectives and this should be noted.

Investment in the Forest Sector

- There is a great variability in methods for reporting on 'community values' and even lack of any methods for capturing and reporting this nationally.
- Indicator 42 'Area and percent of forest land managed in relation to the total area of forest land to protect the range of cultural, social, and spiritual needs and values' concerning cultural, social and spiritual needs and values focuses on forest land managed to protect these areas. All forestlands should be captured by this indicator, not just land managed for this purpose. In other words, what about land that is used for those purposes bit not specifically managed for this purpose? IUCN Series 4 has best practices guidance for measurement methods. Indicator 42 states 'area and percent of forest land in relation to total area of forest land but the analysis section does not mention total forest land. The Caribbean lands (e.g. U.S. Virgin Islands and other territories) are not included and should be.
- Indicator 43 'Nonconsumptive use forest values' should also deal with 'aesthetics' such as protecting viewsheds, managing forest appearance to make it look more natural. There is also an issue of aesthetic values versus appropriateness. For example, wind energy is appropriate as a non-polluting industry but a hill full of windmills may not meet aesthetic values. On the other hand, wind energy can mean burning less fossil fuels so the views are improved. The difficulty of reporting on this indicator should be explained.
- Indicator 43 should also explain any caveats to the sample # for the data, and other data caveats and problems.
- Societal values change over time so our understanding and interpretation of aesthetic values may change over time. Our uses and values placed on forest products also change (e.g. we used to not like small diameter trees but in recent years markets have been created for them and we used to not like fire but now understand periodic burns are key to suppressing insects, disease and fire threats.). There may be changes needed to management of the forest to reach a previous vision of what the forest should look like, how it should function, etc.
- Indicator 43 deals with non-consumptive uses and the description of those uses is unclear. Need to explain what is being measured. If only dollars spent on these uses are being measured we will not have a comprehensive picture. Although this indicator is difficult to report, it is very important to understand its implications for the 'political marketplace.' Local data are especially important. Education is mentioned but not fully reported. Look at more diverse data sets such as Extension Service Programs, public education, NGO education programs, programs by state forestry agencies, landowner surveys, sports groups (e.g. hunting, fishing, Columbia Basin Plan).
- For indicator 42, there are figures available for hunting, birdwatching, or hiking as a cultural use that could be broken out to look at various cultural uses.
- Measuring social and cultural values will differ regionally as well as personally based on availability of forested lands locally, traditional uses of the land etc. Wilderness attitudes vary across the United States by region for example. This may necessitate more regional reporting of this data.

- This report is for an international audience which views 'forest capital' differently than does the United States. Use of a 'Timber Capital Index' would be more accurate.
- Our current suite of federal laws and regulations are based on our values system and this could be used to help report on values. A Human Development Index could be created.

Employment and Community Needs

- Unemployment rates or 2000 Census poverty rates could be used to report on community viability.
- Workforce participation needs to report full participation by all sectors (e.g. blacks, Hispanics)
- For indicator 47 'Area and percent of forest land used for subsistence purposes', what is a sustainable subsistence level? Work should begin on defining this for various 'subsistence uses.'
- SIC codes are used to report jobs but the SIC codes themselves do not capture everyone. This should be spelled out and explained (especially for those engaged in part time or side work).
- Need to distinguish between number of jobs in the forest sector and the wages paid. For example, total employment could be growing but wages could be declining which would not make communities more sustainable. There is a current pilot level study through the American Communities Annual Survey.
- Interpretation of employment data should reflect the reason for changes. For example is a decrease in timber jobs due to a decline in harvest or an increase in sector efficiencies/technologies that allow for reduction of the labor force.
- Many of the job indicators still do not tell us is our forests are sustainable (so it's important to compare these indicators with biophysical indicators). Local data are most important report in answering the question of local forest sustainability.
- Perhaps wage data from forest dependent counties could help answer this data set.
- The NMFS has community level data and surrogate data that could be used. The Implan database is also a good source of community data as is the Economic Research Service that has information on community level land uses. A Canadian study on community level indicators is useful.
- Indicator 45 'Average wage rates and injury rates in major employment categories within the forest sector' reports on injury rates in the forest sector industries but the indicator data reported lumps logging and lumber production with other sectors. It would be more useful to segregate injury rates into lumber, paper and logging. Workers compensation firms may have some data (although note that not all timber workers are insured so their injury data may not be available).
- Work done by Jonathan Kussel through the Forest and Community Research organization may provide a useful model for collecting and recording community level data.
- Indicator 46, 'Viability and adaptability to changing economic conditions, of forest dependent communities, including indigenous communities' is misleading and inconsistent. A community can be currently 'viable' but yet not adaptable to future change. What should be captured is the capacity to adapt in the future.

The National Counties and Schools Coalition did a study of forest receipts (which are linked to school funding) and found a link between forest receipts and community poverty and unemployment levels. This data could at least help to capture which counties are in distress. Another participant noted that 'community capacity and resiliency is hard to show and may be easier also to depict with anecdotal stories/data.

Criterion 7 – Legal, institutional and economic framework for forest conservation and sustainable management

Needed Additions

- The wording used to identify the indicators in Criterion 7 should match the full language as agreed upon by the Montreal Process participants. For example, it is insufficient to refer to the first subset of indicators as "Legal Framework," when the full title is "Extent to which the legal framework (laws, regulations, guidelines) supports the conservation and sustainable management of forests, including the extent to which it:" – this is true for all of the subsets.
- Include idea of equity in Criterion 7 – in particular, indicators 49 and 54 should address participation by minorities in forestry sector. Other indicators, such as 48 should address other minority issues, such as land tenure by black population and Hispanics in forest products industry. The National Network of Forest Practitioners and the Jefferson Center in Southern Oregon (weblink on p. 14 of Chapter 3 Draft) may be able to provide information.
- Address how educational opportunities move us toward SFM.
- Information sources: Considering the broad variety of data sources for Criterion 7, it would be useful to explain where the information/data comes from, especially the NGO data.
- Illustrate the links between information gathered in legal, institutional and economic framework and sustainability of forests.
- Intro (page 48) says that extensive analysis is needed – but we can point out failures without extensive analysis. We don't always know why certain things don't work, but we know what isn't working. Note the unintended consequences of our policies.
- Urban and community resources are not given much attention in this criterion, and need to be considered in many indicators.
- Recognize the services delivered through private landowner organizations – they play a valuable role in public education and participation, and are a valuable source of grass-roots information.

Issues Needing Clarification

- Outreach implies a one-way street; collaboration is a better term.
- (Particularly relevant to indicators 50, 53, 54, but throughout criterion 7): There is an implication that an agency does something, and then it goes out to the public for input. The idea of "public involvement" has evolved. The public is now involved in the whole policy process (planning, decisions, implementation). Communities have really moved this forward. The analysis should reflect this evolution. Clarify what public participation means. Use narrative examples, not just numbers (e.g., refer to the Fire Plan as an example of public participation).
- The summary reports are not good summaries of what is in the data report. Be clear about decisions regarding what was put in the summary. Clarify where there are data gaps vs. where the data is simply not in the summary.

Audience

- Consider who the audience is as decisions are made regarding content of summary report vs. data report.
- There is more than one audience – some want snapshot; use multiple levels of communication.
- Clarify purpose and audience of report. Domestic or international? Indicator 62 refers to compatibility with other countries, but this will be a challenge since the report is very domestically focused. Because these indicators are internationally developed, they are challenging for domestic policy making. The introduction does not make this clear; understanding depends on orientation.

Structure/Presentation

- Focus on most important information and ability to monitor change (e.g., what are we going to measure consistently over time so we know the trend).
- Why isn't there a single section dealing comprehensively with economic considerations? It's scattered throughout the report.
- The summaries do not contain enough information to really draw conclusions. Perhaps the report should be 200-300 pages, with a 20-page executive summary.
- There are many (millions) people concerned about forests. Many people want this information, so consider multiple channels of communication and find the appropriate channel for each audience (e.g. NBC nightly news, etc.)

Data Challenges

- Data for this Criterion is not of the same type as data collected for the other 6 criteria; it is "information" data and the challenge is to gather information that allows us to measure consistently. Authors must find a way to include narrative data that allows us to measure change.

- Considering the type of data collected for this Criterion, a data crunch approach to interpretation/analysis of the data is not appropriate. Need to look at big picture. For instance, indicator 48 does not reflect that tribal and other plans are often contested in the courts, or that there is an evolving sense of what private rights are - private rights issues are constantly shifting. How do you get that information in a database? Even if this information is in the underlying data report, the summary report also needs to provide information on these types of issues.
- Regarding the legal (indicator 48-52) and institutional sections (indicator 53-57): focus on the intent/essence of these sections – e.g., what laws do we have on this, instead of focusing on the results of laws or institutions (need to mention the lack of political will (cultural aversion in United States) to develop a national forest plan, unlike in other parts of world).

Interpretation

- We have a lot of data, but not necessarily the right data. Need to look carefully at interpretation of data, and identify gaps in the capacity to gather and interpret data.
- These indicators should not be taken literally, b/c they may not apply to the United States. We need to consider aspects of responsibility, beyond what is suggested by the indicators.
- Avoid use of "should" in Chapter 2. This chapter should focus on what "is," not on what "should" be.

Chapter 5/Future Action Considerations

- Assess our capacity to monitor capacity.
- Need to get more efficient in collecting data.
- Learn from what we don't know now.
- Explore modes of communication – opportunities include Roundtable on Sustainable Forestry and workshop participants spreading the word about the report.
- Invest in research on interdisciplinary education.
- In assessing capacity, don't just look at forestry schools and programs, look at programs across campuses.
- Consider equity issues in future indicator revisions.
- Address relationships between indicators: improvement in one can be deterioration in another (e.g., improvement of private property rights could lead to reduction of minority and traditional rights).
- Define the elements of Criterion 7 as measurable indicators.
- Review the current Criterion 7 indicators to identify gaps and identify needs for additional indicators.
- Public education is a battleground – we need to be able to develop a balanced education program to teach K-12 students about forest resources.
- Consider U.S. investment in global forests through programs like OPEC, USAID. There are no indicators that look at this now, but should be considered for future.

- These indicators are not really indicators – they are goals. Communities are struggling with these. They are not measurable, so do not call them indicators – call them elements; otherwise, revise Criterion 7 to include measurable indicators
- Look for more data on the value of standing forests and the forest ecosystem, not just its products.
- Make sure the government lets people know when new sections are available on the website.
- Collaboration between wood marketing groups and wood products associations, so forest resources can be appropriately valued.

Miscellaneous Comments:

- Landowners concerned with private property rights might be concerned with this criterion.
- The chapter authors have indicated that this is a multi-agency report, but it reads like it is just a FS report.
- There is no section on outreach capabilities.
- Data and analysis is not addressing the 'commons' – lack of accessibility of private lands.
- Consider religious groups as sources of relevant data.

Comments on Specific Indicators and Indicator Groupings

Legal Framework (48-52)

Indicator 48 – Clarifies property rights, provides for appropriate land tenure arrangements, recognizes customary and traditional rights of indigenous people, and provides means of resolving property disputes by due process.

- Paragraph 2: Analysis should also include legislation in Alaska and Hawaii that gives special status (codified subsistence rights) to indigenous peoples (Alaska does not limit the special status to Native Americans), and treaty law (between state, and federal governments on the one hand and tribes on the other). Also need to look beyond federal laws (e.g., the lake states and Oregon are directly negotiating with tribes, and in some cases even counties are directly negotiating with tribes).
- 2nd paragraph is misleading. It's not just case law – our current system goes back to the feudal system. This needs to mention the Doctrine of Waste, which is the basis for regulation of private property in the United States Case law has merely altered it.
- Expand consideration of 5th amendment. Include mention that some states have passed property rights laws ("right to farm" laws that provide compensation for landowners). The laws have not all been defined yet – this is still in flux.
- Include some mention of treaty rights and nation-to-nation negotiations, such as: "Guidelines for consultation with tribes are currently being developed."
- Mention traditional ecological knowledge of forests and forest management.

- Note that the case law trend had been in favor of private property rights, but that trend shifted with last month's Lake Tahoe case. Make the analysis (in paragraph 2) less abstract and more specific to the trends.
- Define property rights and give a few examples.

Indicator 49 – Provides for periodic forest-related planning, assessment, and policy review that recognizes the range of forest values, including coordination with relevant sectors.

- There is no separate indicator for monitoring trends in the use of forest management plans by forestland owners, so say more about that in the analysis. How many areas or properties have forest management plans? The private sector has a lack of forest management plans. The Tree Farm System could provide relevant information. In assessing the use of forest management plans, keep in mind the different layers: (1) adherence to a forest management plan; (2) adherence to a professionally developed forest management plan.
- Distinguish between Indicators 49 and 54 – they use very comparable language, but are in different sub-sections: (49) requires analysis of relevant laws; (54) requires analysis of institutions for implementing those laws. For instance, 2nd paragraph of 49 is more relevant to the institutional capacity than the laws for planning.
- There is a lot of literature on non-timber values that should be summarized. There is a fair amount of agreement on this subject. Connect back to criterion 6. (This is also applicable to indicator 52.)
- Periodic forest related planning needs to look at non-forest land use planning. States and counties have to come up with comprehensive land use plans, which are important to forests.

Indicator 50 – Provides opportunities for public participation in public policy and decision making related to forests and public access to information.

- Refer to work of Dennis Becker of the University of Idaho on measuring the effectiveness of public participation.
- Discussion on public participation is limited and needs to be improved – include labor, authority and decision making, etc. Capture current research (see Maureen McDonough for info).
- Distinguish between public and private lands. Public participation is not the same for all lands (implying it is will give private landowners heartburn). Many opportunities exist to participate in public lands decision making, but few exist on private lands. "Forests" implies all forests.
- Ensure that the context of public participation is clear.
- Provide better descriptions of the collaborative efforts that are not agency-driven, to make this useful for audiences beyond the FS. (This is also relevant for indicator 53).
- The local capacity to carry out public participation is not "largely unknown" as indicated. States have policies, and public participation is happening.

- Analysis follows the Administrative Procedures Act (APA). Both public agencies and private organizations are required to provide info on the human implications. Note that the trend is towards requiring agencies to look at the scope of affected publics.
- Capture the fact that lots of action is going on at the local level, which in turn feeds into state and even federal policy. Also, people work through their professional organizations to influence policy.

Indicator 51 – Encourages best practice codes for forest management

- Confuses voluntary and regulatory codes of practice. They should be treated separately within the analysis. Mention specific contributions of voluntary practices (e.g., SFI, Tree Farm).
- BMPs are inconsistently monitored. Most monitoring is voluntary.
- Analysis is not balanced – the section of private initiatives should include FSC (not just SFI).

Indicator 52 – Provides for the management of forests to conserve special environmental, cultural, social, and/or scientific values.

- Refer to the National Vegetation Classification System and NatureServe's data.
- Include reference to state tax policies that give tax abatement to non-profits (e.g., The Nature Conservancy) for conserving special values through land ownership.
- Recognize the chronic problem that the tax laws do not treat forests as forests – they are taxed like gas and oil resources, or development resources (extraction vs. SFM). The tax laws do not fit with the purpose of managing forests.

Institutional framework (53-57)

- Acknowledge that we have no coordinated national plan and identify this as a lost opportunity (a gap) in order to inform discussion on sustainable development. In the absence of a national plan, this report should address if we know how we are planning for forests, and if different plans and levels of plans are coordinated. This information needs to be considered for planning indicators and for identifying future needs. Perhaps we need a national review of planning policy and planning processes.
- Closer examination of intent of indicators as developed through Montreal Process would help focus the summary. Considering the data gaps, it is best to focus on the easy questions and try to answer those. For instance including "green infrastructure" in indicator 56 makes data collection and analysis too difficult.

Indicator 53 – Provide for public involvement activities and public education, awareness and extension programs, and make available forest related information.

- The term public involvement is archaic; use "public participation" or "collaborative approaches" in the analysis section (and acknowledge the evolution of participation in the U.S.) We have moved beyond the traditional interpretation of public involvement. Collaborative approaches are being developed and encouraged.

- The idea of collaborative approaches needs to be defined.
- Recognize that programs are not meeting the emerging needs of landowners, especially the rapidly growing number of small-acreage (less than 100 acres) landowners.

Indicator 54 – Undertake and implement periodic forest-related planning, assessment, and policy review including cross-sect oral planning and coordination.

- Give examples of relevant cross-agency efforts (e.g., National Fire Plan, Habitat Conservation Plans).
- Expand on cross-agency planning coordination in the summary, not just cross-sectoral. Recognize the challenges of cross-agency coordination.

Indicator 55 – Develop and maintain human resource skills across relevant disciplines.

- Regarding the dataset, look beyond the numbers to informational data and select information that is most meaningful.

Indicator 56 – Develop and maintain efficient physical infrastructure to facilitate the supply of forest products and services and support forest management.

- Baffled by analysis. It implies that we know nothing, see nothing. There is info about our road systems, log-transport system, ability to move products from the forest to the mill, trail system, recreation facilities, etc., but that is not mentioned here. This indicator needs to be re-examined. Last paragraph makes no sense.
- Don't lose the idea of green infrastructure – it is increasingly valuable for urban environments. It does not challenge traditional ideas.
- Define green infrastructure – is it just on-site infrastructure, like trails? Or off-site ideas?
- Note that loss of infrastructure has been a problem, especially in the interior west, in terms of manufacturing and processing capability.
- More regional data would be helpful, especially where the regional trends run counter to national trends.
- Last paragraph seems to be a veiled reference to the challenges to roads. Be explicit about what you are saying.

Indicator 57 – Enforce laws, regulations and guidelines.

- Motorized access to forestlands is a major issue – specifically the lack of enforcement of regulations – and should be mentioned as an example. This lack of enforcement creates problems for water quality, air quality, etc.

Economic Framework (58-59)

- Include a discussion about incentives (like subsidies).
- Look at state developed licensing programs.

Indicator 58 – Investment and taxation policies and a regulatory environment which recognizes the long-term nature of investments and permit the flow of capital in and out of the forest sector in response to market signals, non-market economic valuation, and public policy decisions in order to meet long-term demands for forest products and services.

- Indicator 58 is essential for the future of sustainable forest management, especially by private landowners. Current tax policies are driving private owners out of business. E.g., the estate tax is a major driving force in forestland fragmentation (this was one of the conclusions of the Forested Lands and Taxation Dialogue). Adding more strength to the analysis will make the report more appealing to private landowners.
- Include in the analysis non-market valuations of Non-Timber Forest Products (NTFPs) and make a link to Criterion 2 (realize that there is a good deal of NTFPs). How do we value exchanges that take place outside the formal market place?
- How do we incorporate non market values? NTFPs can be divided into market and non-market products, but the line is fuzzy (for purpose of the analysis: establish that line, and realize that it may shift in the future).
- Include data on investment policies: value of, for instance, ginseng may be much larger than timber. The report is not looking at all forest values; it does not deal with informal markets (e.g., mushrooms, ginseng). Need an interdisciplinary team to collect data and help investigator analyze the data. Even if we don't know the value of NTFPs, the report needs to make note of such issues, and needs to address inadequacies in government policies on forest products.
- Hunt lease revenue is a significant source of income for owners – constitutes major reason for keeping land as forest. In these cases, wildlife management may be more important than timber sales which influences management choices and property values.
- Perhaps look at incentives that promote use of non-wood, non-renewable products.
- It may be worth mentioning perverse incentives or unintended consequences of tax policies (e.g., Georgia has conservation easement program, but large owners cannot participate so they subdivide and sell).
- Need to monitor impacts of informal activities on NTFP's.
- United States is perhaps the only country in the world that has a federal tax system that discourages reforestation and afforestation, and that disincentive problem should be acknowledged.
- Note the problems with property taxes. Specifically, problems exist with fair market value taxation. Forestlands are often over-valued based on highest and best use.
- Refer to a study by Peterson, at the EPA, which examines the movement of forestry investment out of forestry, as a result of taxation policies.
- Need to consider the value of standing forests and the forest ecosystem, not just its products.

- This analysis hints that there is a problem with the tax structure, but doesn't make a definitive statement. If it cannot appear here, then it should in chapter 4.

Indicator 59 – Non-discriminatory trade policies for forest products.

- Hoping to see a more robust discussion of trade. What are the current U.S. trade policies?
- Include discussion on how trade polices are dealing with invasive species, like the Asian longhorned beetle.

Capacity (60-62)

- Description of measuring and monitoring is all very technical -- include consideration of local/community monitoring and knowledge.

Indicator 60 – Availability and extent of up-to-date data, statistic, and other information important to measuring or describing indicators associated with criteria 1-7.

- Scale is problematic. If you are aggregating state data into a national assessment but are missing one state, then you don't have an accurate national picture. Examine sub-national scale, preferably regions, counties, or even communities. Without that, the analysis lacks meaning.

Indicator 61 – Scope, frequency, and statistical reliability of forest inventories, assessments, monitoring and other relevant information.

- Include experiential data and on-the-ground knowledge.
- Consider whether we know what our long-term monitoring capacity really is – is it going up or down? Evaluate that capacity (including funding for monitoring) or acknowledge if we cannot.
- The three legs of the sustainability stool are unevenly considered in assessments, particularly on the socio-economic front. Recognize that limitation, and strive to be able to make those assessments balanced.

Indicator 62 – Compatibility with other countries in measuring, monitoring and reporting on indicators.

(No comments)

Research (63-67)

Indicator 63 – Development of scientific understanding of forest ecosystem characteristics and functions.

- Consider the research efforts and knowledge of non-profits, not just government agencies, industry, and schools. At least recognize that this knowledge is out there, even if data is hard to gather.

Indicator 64 – Development of methodologies to measure and integrate environmental and social costs and benefits into markets and public policies, and to reflect forest related depletion or replenishment in national accounting systems.

- Consider adaptive management – where is the feedback mechanism? Lots here about measuring and monitoring, but how will this translate into changes?
- Include accounting systems for non-monetary values, quality of life standards. There are accounting systems that you cannot quantify (e.g., Northern Forest index that looks at social elements). Recognize that these types of accounting are happening at the community level, even if it's not at the national level.

Indicator 65 'New technologies and the capacity to assess the socioeconomic consequences associated with the introduction of new technologies.', 66 'Enhancement of ability to predict impacts of human intervention on forests.' and 67 ' Ability to predict impacts on forests of possible climate change.'

(No comments)

Chapter 3 – Current Actions in the United States

Purpose

- This chapter can help elucidate what else the C&I are good for and the ways to use the C&I framework.
- This chapter shows that the Roundtable is a diverse community of organizations that are taking innovative approaches.
- This chapter should challenge and stimulate people to emulate these approaches.
- This is a political document, to illustrate that the U.S. is #1.
- It can also be viewed as an educational document.
- What is the point of the chapter? Use it to challenge people.
- The chapter should demonstrate some sign of "inspiring" progress towards SFM.
- Chapter 3 is a way to capture what is missing in the data chapter, particularly in regard to private initiatives that are missed in criterion 7 legal initiatives.
- In this chapter we are not just building lists, we are enhancing the forestry culture. The value in the report is not just a list of actions, but an expression of beliefs that constitute the culture to which we subscribe.
- The value of Chapter 3 is that it can highlight some unique ideas that show innovative approaches to SFM. The report is a great way to get information like this out to stakeholders. Chapter 3 could also serve to enhance stakeholders understanding of SFM.
- There definitely should be a Chapter 3 – it can illustrate innovative activities in the U.S., and can help inspire people both domestically and internationally.
- Definitely include, in some form – we need the organizations to facilitate the use of C&I and the means to achieve sustainability, and need to illustrate which organizations are doing those things.
- Information has dual purposes: 1) show breadth and depth in report of SFM activities in the U.S. and 2) as a networking/research tool

Concerns About Chapter 3

- Including/listing examples will be controversial because everyone will want to be on the list. Stakeholders will complain if they are not included on the list.
- There is a presumption that examples are showing progress toward SFM. Are we really ready and willing to put these examples out there? The process of selection implies some degree of credibility and progress.
- Updating the list will be labor intensive.
- The report should retain the description of categories on page3-5 to show the breadth and depth of actions and U.S. forestry. However there was a strong sentiment against publishing and maintaining a list. Perhaps a count of stakeholder groups and activities in each category with reference to an Internet site would be better.
- There are problems with the assignment or "pigeon holing" of an individual organization into a specific stakeholder category.
- There is a consistency problem in the use of terms, for example, on page 6 the term private sector is used, but this is not listed as a category on pages 3-5.
- This whole draft Chapter 3 is very raw material and is difficult to work with.
- Current actions for what? This must be defined.
- The emphasis in Chapter 3 on non-Forest Service examples implies that the rest of the report is only Forest Service.
- The report should not come out of the Forest Service, it should come out of the Office of the President, maybe from CEQ. This would convey the idea that it is a national report, rather than a Forest Service report.
- If the list in the report is not exhaustive, a Forest Service endorsement of included examples is implied.
- It does not make sense to list individuals (such as NIPF owners).
- Current actions should reflect/exemplify a commitment to sustainable forest management in order to be included. How does "Current Actions" fit into what is being done now with regard to sustainable forest management? Explain this in the report.
- Define "Forests". This has bearing on who the stakeholders are.
- These are not examples of Sustainable Forest Management (SFM). They are programs related to SFM. They <u>do</u> indicate, however, that we are striving for SFM.
- "I think this chapter could be relevant but not as written."
- "I feel that this chapter is irrelevant to the C&I." So, since space is limited, we need to be judicious about what <u>is</u> included. I would rather see more detail in Chapter 2 than have this Chapter 3.
- This report is not for the international community, it's for the U.S.; the decision about whether to include it should be based on what it does for us.
- The category "instrument" is unclear. Perhaps replace with "function" – the role they play to achieve sustainability.
- While Chapter 3 captures some efforts and learnings that might be missed in Chapter 2, including Chapter 3 may be too controversial and there may be too much of a trade off.

- The purpose is not clear (is it to assist people in their work or show U.S. progress toward SFM?)
- May be too soon to assess characteristics question.
- The list of groups in Chapter 3 provides a good target list for stakeholders with whom we should share the report and related messages about its content and findings.
- Criterion 7 has many data gaps and projects listed in Chapter 3, in many cases, are the data that should be reported under Criterion 7.

Delphi Process

- The Delphi process should be more clearly explained. The criteria used for selection should be clear.
- Is the selection process based on merit or will it be just a selection of 60 familiar projects?
- No lists; make reference to Delphi process (good to provide Internet address) in lieu of exhaustive listing and to distance the report from the Delphi process so as to avoid the perception of endorsement, and recognition of a specific stakeholder, in the report.
- Delphi process left considerable gaps in the list of relevant organizations. Recommendation to leave the Delphi process.
- Define the criteria that the Delphi process used.

Criteria for Example Selection

- The characteristics for screening examples should include merit based on innovativeness; success in achieving positively stated goals, impact, etc. The list should include examples that are important to our story, and need not necessarily be extensive.
- Important consideration should be given to how to choose examples of SFM given the intent of the Chapter; see point "a" above.
- Selection Process: A self-selection and self-categorization process should determine which groups are included. Criteria are needed.
- Proposed Selection Criteria
    - Examples should be related to the C&I
    - Examples should be related to sustainability
    - Examples should be related to sustainable forest management
    - Examples should be organizations that are striving to address the 3 Es
    - Examples should be diverse – ethnically, geographically, and in terms of funding sources and types (e.g. publicly vs. privately funded; local vs. national organizations; etc.)

- The method used to select projects seems subjective at best. For example, the World Wildlife Fund presented their innovative work during the morning session of the workshop but they are not even on the list. The list seems to be dependent entirely on who the panelists knew and liked personally without any objective or apparent selection criteria.
- Chapter authors should consider limiting projects in Chapter 3 to national level efforts.
- Projects that are selected should be related to the Montreal Process and the C&I so that they fit within the context of the report. Projects which are not using the Montreal C&I or are not using indicators should not be included in the Chapter.
- One participant suggested that the Federal Geographic Data Committee might be the most objective group to develop the criteria for any listing or selection process.
- The group largely agreed that, if a database were to be developed, the National Report on Sustainable Forests should include just a small number (5 or 6) of examples. Ideas concerning these examples included:
    - Criteria should be developed to decide which examples to include in the report. Criteria could include: some diversity across stakeholders, geographic scale, and instruments; examples of innovative projects; examples should show concrete results (results could be determined through peer review);
    - Especially the criterion of novelty/innovativeness was stressed
    - Other suggestions for types of examples included: a voluntary and regulatory example; include an urban project, it will appeal to many people; include an example that illustrates the spiritual and cultural aspects of forests. Participants disagreed on whether industry examples should be included; some felt it would make the not included companies angry, others felt that innovative approaches by companies should be included.
    - The group identified 3 objectives of the examples: examples need to excite people about sustainable forest management; examples need to draw readers to the web-based database; examples need to illustrate that everybody is “forest dependent” (we are surrounded by forest products; this is why sustainable forest management matters)
- To achieve the purpose of these examples, include non-scientists in editing of report.
- Chapter should include things happening on the ground (e.g. reforestation), and at multiple scales.
- Give examples of mechanisms and tools.
- More description on what the federal agencies are doing (not to the exclusion of non-federal organizations).
- Intended as a tool for policy makers and people who are reasonably informed about forests to help them make decisions. Therefore, focus should be on strong examples and things that haven’t been available in the past.
- Don’t include economic profiles because that’s not new, but do include certification because it’s leading edge.

- Showcase under-represented groups – ones that have not been able to use flashy campaigns.
- True community based examples. Where stakeholders are working together – collaborative process; grassroots effort.
- Since we do not rely on a command and control approach in the U.S., focus on efforts that are very democratic, participatory, non-regulatory, voluntary.
- Include examples of actions that are mutually beneficial (e.g., companies that are interested in carbon sequestration have helped landowners plant trees – this action helps industry, landowners, and the public.)
- Should think of categories as GIS "slices"—as a way to slice and present organizations
- Who gets on the list? Win/lose situation.

Examples to Include in the Report

- Examples that should be included in the report
    - State of OR First Approximation Report for Forest Sustainability.
- Minnesota Report – Smart Signals: Economics for Lasting Progress www.mnplan.state.mn.us
- Separate out local, regional, national NGOs.
- Use examples drawn from <u>each</u> region.
- Might need to include social/development organizations as they do on an international basis. Need to wrestle with who's included if this even is a correct category in the United States
- Include 5-7 examples of initiatives and by whom (by type only) e.g.:
    - Forest certification
    - Collaboration
    - Advisory committees
    - Watershed councils
    - Academia
- Categories
    - Add a youth category.
    - Add international organizations that have a national office or focus.
    - The NGO category was seen as problematic and should be broken down to include social/development organizations and environmental/conservation organizations, among others.
- The NGO category doesn't make sense. Eliminate it. It collapses too many groups together.

Balanced vs. Inclusive

- Need to balance who is included (there are 12 pages of NGOs and 2 bullets for non-industrial forest landowners) otherwise this sends an unintended message.
- Balance may not mean equal numbers in each sub-category.
- Curiously unbalanced despite its attempt to be exhaustive.
- Could be viewed as "exclusive"—but will invariably leave some groups out.
- Breadth and depth are good things to show (as a chapter or an appendix—either okay, but it should be inclusive).

Suggestions for Subcategories

- Add to stakeholder list:
  - local communities
  - the other DOI agencies
  - plant and animal *watching* groups (as opposed to just hunters)
- Add to instrument list:
  - Community initiatives
  - Environmental education
  - Environmental protection
  - Outdoor recreation
  - Conflict resolution and consensus building
  - Communication tools (e.g., watershed groups using the internet)
- Suggestions for sub-categories and groups to be added to the list:
  - Forest workers and their organizations should be listed in separate sub category
  - Producers (companies that produce products made with timber or other forest products) should be listed in a separate subcategory
  - Community forest mgt should be separate subcategory
  - Add "green" religious groups to list
  - Add urban forestry groups
- Modification of stakeholders:
  - Add Environmental/Conservation organizations as a stakeholder breaking them down into…
    - Advocacy groups
    - Policy development groups
    - Landowners/managers
    - Research groups

Missing Types of Organizations/Specific Organizations/Clarifications

- National Park Service
- USFWS
- No fishing organizations
- Communities (under stakeholders)
- Local governments (under stakeholders)—county governments/town and municipal governments
- Recreation user groups—NGOs; skiers; river users/water sports
- Socio-cultural profiles (in addition to economic profiles) with sub-bullets 1) industries and 2) communities [Under instruments]
- Need more categories under applied research—e.g., social research; productivity beyond fiber
- Foundations (under instruments and stakeholders)—this is a big omission—Foundations are a massive funder of sustainable forestry initiatives (larger than federal investment in SFM)
- NGO activities are not clear under instruments—make more explicit under sub-instruments (e.g., Appalachian Trail Club does education AND research)

- Why is supply and demand separate from markets (for forest products)?
- What are EHGOs? Do they mean ENGOs (Environmental NGOs)?
- Is GIS included under computer/software? What about remote sensing?
- Need to separate Scale (national, state and local) and Regional.
- There are some key categories missing under the 'Stakeholder' category such as Forest Workers and Personal and Subsistence Users. The National Network of Forest Practitioners would be a good source of information on forest workers. For subsistence users, the Native American Fish and Wildlife Commission (NAFWC) would be another good source of information. There are noteworthy groups in Alaska and the Great Lakes region who are members of the NAFWC.
- Add communities as subcategory under stakeholders.
- Add Park Service under stakeholders.
- Add all 14 agencies that signed the MOU (add under stakeholders).
- Add conservation for multiple use under instruments (e.g., The Nature Conservancy, NGOs conservation easements) and land acquisition for conservation both public and private.
- Add private policy under instruments
- One instrument is the synthesis/summarizing lessons learned from activities listed in Chapter 3.
- Create structure instrument to verify or have those sited describe their actions in their own words
    - Do not use a survey to collect this information.
- Data and information collection capacity and ability, add as a subcategory under instrument

Audience

- Key paragraphs on important activities (retain pp3-5 to demonstrate breadth and scope are especially important in international context and in addressing target audiences.)
- Stakeholders are the target audience.
- Intent of Chapter 3 should not be exhaustive; rather it should be illustrative (general consensus on this one). The illustrations should be related to the target audience(s).
- Useful for both national audiences and international audiences. Make sure that there is a caveat that this is not an exhaustive list.
- Define the audience. You need to answer this before you can determine what goes in this chapter. If the audience is knowledgeable about forestry and these organizations, what do they gain from this list?

Alternatives to Including Chapter 3

- Suggest presenting a selection of about 12 "stories" to exemplify the depth and diversity of actions taking place in the United States. Could show specific examples and emphasize the way each relates to the C&I and what the action achieves.
- There may be some value in providing a few examples – like newspaper highlights. Drop Chapter 3 and go directly to Chapter 4.

- Consider as an alternative providing case studies that are organized around the instruments (e.g., as examples of the United States doing something leading to SFM, such as examples of # acres certified, # conservation easements, etc.) Avoid naming names.
- Incorporate anecdotal stories written by stakeholders in this chapter.
- Who is the "voice" of the report? If Chapter 3 and a set of examples from stakeholders are included, it will be hard for the federal government to be the "voice" presenting this information. Their presentation of this information could result in compromising the credibility of the federal government.
- Another alternative to Chapter 3 is to insert applicable examples in the data for Criterion 7.
- Marry Chapter 3 with Chapter 2 as illustrative examples that would help to solidify what we are trying to explain in the report.
- Is it possible to have a credible report without including certification and other forest stewardship programs promoting good forest practices? It is necessary to:
    - Carefully select topics and show examples as illustrations of these topics.
    - Include some in Chapter 2 as data sources (e.g., stewardship programs).
    - In Criterion 7 in the institutional section, include examples of institutional changes over time.
- All of the organizations should not be listed in the body of the report. The complete list should be available as an appendix.
- For the most part, the group felt that Chapter 3 should be removed from the report. It should either be placed as an appendix or simply on the web – preferably the web, since it was seen as a living aspect of this effort.
- Pulling out examples to be placed in the history section (based on which one was first, which one has grown to the largest …) and in a futures section (innovations that will take us into the future) was seen as a useful and appropriate approach to weaving these Sustainable Forest Management efforts into the report.
- This chapter is misplaced. If it's included in the report at all, it should be Chapter 4 or an appendix.
- The internet is a better place for it since the information will always evolve.
- Another suggestion for how to work with Chapter 3's information:
    - Get rid of Chapter 3 as part of the report
    - Pick out good examples that exemplify an array of sustainable forestry practices in the United States (as compared with other countries) and place those in the new history section of Chapter 1 (advocated for by this group).
    - Take a few other examples of good initiatives and place them in the future section.
    - Put the entire content on the internet. But, don't lengthen the text of the examples. It is good as written; it is value-neutral.
- Should be an appendix rather than a chapter.
- Might be better as an appendix.
- Strong feeling that list should be included in an appendix.
- Several participants agreed that Chapter 3 seems out of place in the report and should be considered for publication as a separate booklet.

Database as an Alternative to Chapter 3

- Chapter 3 examples should be kept and presented in a database format. The purpose would be communication and networking among groups interested in sustainable forest management.
- In the report, explain the intent and location of the database. Also explain that a few examples will be highlighted each year in a separate document (fact sheet).
- Chapter 3 should be put in a database and not included in the report.
- If the list is a database examples should be organized by category. Alternatively, if the examples are included in Chapter 3, they should be organized by the kind of activity or instrument, or something that responds to specific criteria.
- Chapter 3 examples should be kept and presented in a database format. The purpose would be communication and networking among groups interested in sustainable forest management.
- In the report, explain the intent and location of the database. Also explain that a few examples will be highlighted each year in a separate document (fact sheet).
- It is useful to have an overview of all the organizations doing work relevant to sustainable forest management.
- A database would be a great networking tool between organizations.
- A database could facilitate getting public input in decision-making (by governments, but also by private organizations seeking input for their programs).
- Carefully assess the costs and benefits of developing and maintaining a list or database.
- List would be valuable in that it would benefit other countries to see the depth of organizations and players in relation to sustainable forest management.
- The group identified a need for the development of a clearinghouse of information that would go beyond the current list. Suggestions for an expanded database include:
    - Who should be on the list: everybody who works on sustainable forest management and sustainable development issues. However, several questions were raised: do you need a definition of sustainable development to determine the scope of groups involved? Should the list include watershed groups? Should the list include individual companies or should it focus on industry associations (companies will all say they are sustainable but may not be – database should be a mechanism to find organizations that are working towards sustainability. Other approaches include: list all the timber companies, or include information about companies from state forestry agencies (BMPs?))
    - How do you select groups for the database? Options include: self selection or selection based on showing that you are committed to sustainable development.
    - If the database is web-based it could have different layers of information: a basic description – information about programs – etc.
    - If you use the web, include a template where organizations can submit information so that information is comparable to some degree
    - The database should be well organized (e.g., by using the categories used in the report) and searchable.

- Is it the role of the Forest Service to develop and maintain this info database? Website may be housed at a different (probably non-profit) organization.
- The entire group was supportive of development of a searchable database and suggested changing Chapter 3 to an on-line searchable database list which could include search categories linked to the national report such as C&I state level efforts, community sustainability monitoring etc. Finding and organizing project data would work best through a database format because reports could be customized, e.g. sustainable forest management projects in the Pacific Northwest that utilize C&I.
- It would be useful to report a historical context for the efforts, e.g. the growth in the number of groups over time, historic or innovative efforts etc.
  - Having an on-line database that is a 'moderated registry' would provide a way to track the increase in groups over time. Groups could 'self-nominate' and enter their own projects that would be checked and then uploaded by the site's moderator. The moderator's screening would include some simple questions such as 'Is this an actual group? Are they addressing sustainable forest management? Other criteria for listing them?' One participant suggested that criteria for getting listed in the database should be through a 'large holed sieve' – in other words listing is not endorsement but should be a fairly open venue through which groups can network and others can find them. Each listing would have a link to the group's own website to solve the need to update records or store a lot of data about the group, and a disclaimer that the group's inclusion on the website does not constitute endorsement.

Use of Sidebars as an Alternative to Chapter 3

- Consider incorporating a selection of programs or examples to show progress towards SFM as "sidebars" in Chapter 2.
- Show selected examples as sidebars in text boxes – told as a "true story".
- The list of examples could be presented as part of the data chapter for Chapter 2. Bring out selected examples as sidebars.
- Rather than having a separate Chapter 3, use examples throughout the Report as anecdotal examples and sidebars. (Group consensus – 6).
- Chapter 3 'waters down' the message and usefulness of the report. The content of Chapter Three could be better used as sidebars in Criterion 7 to show U.S. institutional structures for achieving sustainable forests (both public and private sector).

Structure and Placement

- The present stated purpose of Chapter 3 is to illustrate how forest management in the United States is spread across more entities than is typical in other Montreal Process countries. This purpose could possibly be met by incorporating an account of this into the Chapter 1 section on history of forestry in the United States. In doing this, the guiding principle should be to illustrate the diversity of interests by category, illustrating each category by one or two examples. These examples (within each category) should be chosen on the basis of relatively objective criteria (e.g., the one that was first to launch into that activity or the organization that has come to be the largest or possibly, for some activities, the one that is widely recognized for its contribution – such as TNC for land holding). The choice of activities to be mentioned is something to be decided after perusing the history of forestry. Examples that come to mind are the emergence of associations of private land-owners; forest land purchase by conservation organizations; forest certification initiatives, etc. Some things chosen for mention might be deliberately chosen to illustrate diversity of management (e.g., one might mention that the scale of land holdings vary hugely in size and nature, ranging from big holdings in National Forests or industrial forests through to town/tribal/land trust holdings. These examples are offered not as comprehensive listings but as seeds for the thinking of this report's writers. The second component of replacing "Current Actions" would be to include examples of striking new initiatives in the Futures Chapter. The choice of what to include again needs careful thought but should illustrate the diversity of "Current Actions." The writers should consider incorporating qualifying statements to recognize existing controversies.

- Synthesize information in subcategories and categories. Abstract different approaches (NGO, public, government) in terms of their activities and types of work done. Create a table/matrix as overview. Pick examples (generic, anonymous) that exemplify the categories. Focus on actions. Refer people to electronic version for organization details and list. It is a more powerful message.
- Organize based on criterion 7 or show how approaches achieve or work toward achieving the criterion. Show how to improve data collection.
- Need to verify claims and work of organizations.
- Have examples that demonstrate actions at different scale - national, local, regional.

Format/Presentation

- A list of organizations does not provide much. Instead, have a list of innovative concepts. Showcase good ideas so others can learn from it.
- Allow the capability of searching the internet from this chapter (e.g., through Google) with key words.
- This should not attempt to be an exhaustive list (Note: consensus among participants on this) – direct them to existing resources. The Conservation Directory (NWF) exists as an exhaustive list. Link to that directory from the report website.
- Have five pages of narrative – first two discussing the thesis that achieving sustainability requires many entities and approaches, and is not just a governmental responsibility. Then use some of the examples currently in Chapter 3, the rest as source material.
- The Keystone Dialogue on Ecosystem Management is a useful model for this chapter. Have an expert group choose the key examples – Delphi Group is good start, but they need to include much more about each example. For each example: Who is the group, what is their approach, what are their outcomes. A page on each.

- Use "instruments" as the organizing framework, then bring in geographic and stakeholder diversity. It's impossible to show all examples.
- Include narrative on how it works in this country. Use sidebars for the illustrations, based on these instruments. Geography isn't necessary – that's just politics.
- Keep it simple. It's a benchmark document. Shrink the list – focus on what is cutting edge.
- Categorize, rather than list. Describe the categories – e.g., certification. Keep it non-political. Try to be broad within these categories, and cover every part of the country, if you can. For example, if you focus only on the east, you might miss some western tribes.
- List one example under each category. Plus some links and other references.
- Emphasize "instruments" as an organizing framework for this chapter (as opposed to geographic scale and stakeholders).
- Do not make this an exhaustive list – rather, refer readers to already existing comprehensive lists of organizations, such as NWF's Conservation Directory.
- If Chapter 3 is retained in the report, it should be moved to after the current Chapter 4 so that flow of the data discussion is not interrupted.
- The format of 'instrument' is a useful way to organize and display information and should be retained if Chapter 3 is included. Another participant asked if simply a bulleted list in an Appendix, organized under instrument along with web addresses, would be a good way to show the breadth of activities and help report users contact the groups directly if they are interested, rather than writing about them in the report.
- The Introduction to the chapter should clearly state that these projects are related to sustainable forests but are not themselves implementing the C&I (unless they are).

Utility

- More in-depth case studies or stories might be more useful.
- There is utility here—identifying regional/geographic and subject/topical approaches is helpful.
- A laundry list of organizations is helpful (and makes sense since report is a one-stop-shop for SFM info in the U.S.)
- It is not intended to be a directory.
- It would be useful as a directory (a click-thru website).

Data Collection and Maintenance Issues

- Fear that list will quickly become obsolete.
- Information must be accurate and up to date.
- Uneven write-ups (and some of it is plain inaccurate)—need to verify information with each organization; some feeling that there should be some hurdle—is the organization doing what it says it does?
- There needs to be more information on each organization so the reader can decide whether or not to drill deeper.
- List needs some sort of clear filter/screen.

- Need a standardized template for data collection.
- Has to be viewed as a work in progress.

Goal Definition

- Accounting for U.S. progress is really getting ahead of ourselves—first we need to define the vision, goals, etc. for SFM in the U.S.; agreement that a clear goal is needed to compile a list of U.S. activity.
- Disagreement with previous point—there is a goal structure—improved SFM in the U.S.

Proposed Approaches in Laying Out This Chapter:

- There was a discussion of developing a matrix to illustrate the breadth and scope of activities by stakeholder, geographically and by instrument.
- This chapter needs to showcase the good work outside the government--this work cannot be lost.
- Consider a thematic approach.
- Categorize actors (stakeholders) but do not catalog actions.
- Categorize by what, not by whom specifically, rather by stakeholder type, or specific examples and discuss the diversity of stakeholders doing this sort of activity. In this illustrative approach, make no reference to success or effectiveness. Characterize by longevity or other factors, for example.

Other Suggestions for Improvement

- To help determine whether and how to utilize this kind of information, study how other federal agencies have done similar things (e.g., EPA and the Excel program, and DOC and the EP program.) This approach may be problematic because the FS does not have benchmarks or thresholds, as do other agencies like EPA.
- Chapter 3 should be short; the list implies endorsement--avoid.
- The opening argument should illustrate/showcase/discuss activities.
- Whether on the Internet or in the report somewhere, there should be consistency of information (e.g., sometimes the nation is broken into 4 regions, sometimes 12.).
- There needs to be even representation/balance among the groups listed (there are 12 pages of NGOs and only 4 non-industrial forest organizations listed).
- Should use a standardized template to capture the information and should also verify it with the organization before including it to ensure accuracy.
- Should split "Scale" and "region" out—separate them—they are 2 different categories and national/state/ local do not belong alongside East/Inter-Mountain/West/etc.—these are below national/state/local (if you incorporate regional into this), not parallel with it.

Chapter 5 Issues

- Identify next steps and actions needed to lead to sustainability.

Chapter 4 – Interpreting the Information

Purpose

- No real consensus on the purpose of the Chapter though most members of the group wanted summary discussions of trends (increasing or decreasing), with no value judgments whether the trends are good or bad.
- On the purpose of the Chapter…Some of this discussion follows in the conflicting points made by individual group members
    - One member of group strongly suggested that the chapter simply lay out the processes for interpretation.
    - As a corollary to "b" above--the issues around interpretation should be fully described.
    - One group member strongly felt that there is an apparent disconnect in the present intent of Chapter 4 and the intent of the C&I developed by the Montreal process.
    - The Chapter should make no interpretations and therefore provide no examples. The value of the report lies in Chapters 1,2,3, and 5. The stakeholders will not be satisfied with the content of an interpretive, Chapter 4.
    - Conversely, many group members felt that a Chapter with no interpretations will leave the target audiences unsatisfied (what's the point then). Further, where are we going to discuss potential conflicts? As an example, protection vs. the lack of tax bases.
    - This could be a summary chapter rather than an interpretive chapter…
    - The chapter could be used to set the stage for how to think about the issues.
    - Chapter 4 should set up what the trade offs are. We need to get to this national dialogue. This can help table issues for discussion.
    - Given all of the above there is a sense of nervousness about authorship and value judgment (good vs. bad) interpretations.
    - Stakeholder groups could be given the opportunity to express their interpretations in this chapter.
    - A draft of Chapter 4 circulated for external input is essential.
    - Note for the managers--not enough time and manpower is a common mistake in the analytical / interpretive phase.
    - Value based interpretation is a slippery slope--use examples in lieu of good vs. bad. To this end the scientific basis and component should not be lost in summaries discussions.
    - Time horizons on interpretations are important.

Concerns

- Some members of the group were uncomfortable with the plantation vs. protected area example provided in the draft Chapter 4 pp5-8. This is a classic example of pitting of one over another.

- We need to factor in global sustainability. Are our actions making the U.S. more sustainable by making another country less so?
- Pages 10 and 11 – Yuck!
- Page 13 – if this is "The Skeptical Environmentalist" be careful – you will be up for criticism.
- The C&I intend to span the 3 legs – to introduce the circles is to add another structure that breaks them up.
- Chapter 2 is incomplete in terms of what it tells you about each indicator.
- What do we do for the indicators where we don't know what is going on? Do they get included in chapter 4 as data needs? (perhaps Chapter 5?)
    - If you don't have data, say so, otherwise you lose the trust of the reader.
    - For those indicators, you ask where you need to go.
- Why can't the indicators work like economic indicators? Those don't have conclusions, they have stakeholders.
- Chapter 2 vs. Chapter 4 split – what goes where? Chapter 2 should include indicator-level assessments; Chapter 4 should include criteria-level assessments

Primer on Sustainable Forest Management

- Primer or no primer – There is some value to including a "primer" on SFM in the report. A primer included in Chapter 1 would help to provide context for the report. If included in Chapter 4, the primer could serve as a lead into how to interpret Chapter 4. A third alternative is to not include a primer in the report at all.

Level of Interpretation

- Chapter 4 is the "so what" chapter. Regardless of the level of interpretation, the chapter should clearly explain the level and type of interpretation. It should state whether the interpretation is value neutral and why.
- Lump and boil – the chapter should present the major findings in broad categories (lumps), focusing on indicator linkages where possible. This summary should also indicate where the data gaps are. Those who worked on the interrelated indicators would work together with the chapter authors to determine how the results should be best portrayed. The process of developing the results would be iterative.
- Define what is meant by major findings. Does this mean evidence of change? Some audiences would also be interested in evidence of no change.
- How the data are interpreted is influenced by the perspective and values of the author. It will be difficult to provide normative statements.
- A model for major findings could be - some indicators have data where others do not. The findings would include some evaluation of where the gaps are to focus additional work so that in the next examination we would be closer to being able to comment on whether or not there was progress toward SFM.
- Refer to PCSD Report for potentially relevant ideas for interpretation.

Interpretation of Data in Context of Sustainability

- Sustainability is value based, so should interpretation be content-free or should it be based on a particular perspective (for instance, forest service perspective)?
- Sustainability may be value based, but report should include some indication of sustainability for what, for whom, and for how long (for how long: this is a temporal aspect of sustainability – are we looking at a generation, or are we looking intergenerational).
- Note to authors: use "sustainability" instead of "sustainable development", because sustainability is a broadly accepted term. Environmental groups in particular consider "sustainable development" an oxymoron.
- Can sustainable development be cyclical? This may depend on how we measure goods and services. For instance, one of the indicators (don't remember which one) states that boom and bust employment cycles are not sustainable.
- Key is: are we moving to sustainability in all 3 Es (environment, economy, equity)? This implies that the report looks at the impact of a measure to improve one E on the other 2 Es. Sustainability means that we attempt to balance the 3 Es.

Summary Interpretation

- It is important to include a summary interpretation of all of the indicators.
- It would be helpful to have a graphic representation of where we are based on the available data. Where possible, this representation should show were we are able to synthesize information on related indicators.
- It would be helpful to see the findings of the report in a tabular format by criterion, as appropriate. This listing need not be prioritized. It could possibly be filled in over time as we get the information we need. The tabulation could be used to show progress over time.
- A communication plan is needed to identify target audiences and the levels of interpretation appropriate for each.
- Perhaps highlight three conclusions of interest to the public – one in each sphere of sustainability.
- Two people said that there should not be a summary interpretation because there will be different interpretations.
- Divide indicators into sustainable forestry and sustainable forest management and answer sustainability based on these two areas.
    - Or use the three legs (economic, social, & ecological) or another suitable system to divide the indicators.
- Have an analysis across the 67 indicators. Need to synthesize them and how they relate.
- Relate indicators to each other and how changes could impact each other (e.g., indicator 29 description).
- Develop matrix that lists indicators under critical forest issues (e.g., threatened species, global trade).

- Take Criterion 7, for each indicator see which relate under other Criteria (e.g., Criterion 6 indicator 29, Criterion 2 indicator 11). Using existing information in Chapter 2, create a table/matrix that shows related indicators and assists authors to interpret those related indicators together at the current state of knowledge. (To be improved by the creation of a comprehensive matrix).
- Interpreting the data requires examining existing relevant research that expands and puts the numbers in context.
- Discuss limitations of data aggregation. As you move from regional to national, lose significant information.
- Conditions positive in one situation may be negative in another. Discuss this in the interpretation. Discuss the implications of this.
- Trends can be interpreted in many ways. No historical data to evaluate this.
- Implications or trends of information/data are not given in Chapter 2. Clarify this in Chapter 4 and discuss trends and implications of data.
- Indicators inform what issues exist. C&I inform what are not issues.
    - Use to clarify and validate issues
    - Chicken and egg situation, which comes first
- Criteria are issues, indicators are how we get at issues.
- Get issues from compilation and discern key topics to address.

Interpretation of Interrelated Indicators

- There should be a comprehensive discussion of the interpretation of interrelated indicators.
- More than one person agreed that it would be valuable to discuss interactions and interrelationships between indicators.
- Two people suggested using discreet sets of indicators and use case examples to illustrate the relationships in discussing interrelationships. In these discussions, focus on the best data available.
- Pick a few key interrelationships that show a contrast.
- Present examples of interrelationships among indicators from all three spheres of sustainability. Do this in a specific geographic location or context to make it meaningful.
- The chapter should explain which indicators are related or interdependent and why so that people understand how to interpret the report. Examples would be useful.

Presentation: How to Interpret?

- One way to quickly summarize indicators is a “consumer’s index” model – for each indicator, show whether there is a favorable trend, unfavorable trend, or something in-between. Not instead of a narrative, but in addition.
    - It was noted that that may be tough to do, since there is no baseline to compare against. But perhaps it can be done for the 2008 report.
- You do need a baseline, but this report will not form the baseline. Use science to set that baseline. 2003 to 2008 does not indicate a trend. Without accurate baseline, trend analysis is false. Stick to what the systems are doing right now, rather than indicate if we’re moving towards or away from sustainability.

- Support some interpretation, to the level we can. Help the reader understand what the indicator would tell us if we had enough data (i.e., once we get the data, here are the kind of questions that we can answer).
- Sustainability hasn't been defined, so you cannot do anything with the data except say where we are. Define what our needs are, and the needs of future generations.
- For each criterion, we need to ask whether we are maintaining or degrading.
- Chapter 4 could be viewed as an executive summary, of sorts. If that approach is taken, then the chapter focuses on the interplay of what the results tell us (e.g., like a physical exam where you get a summary of #s (e.g. triglycerides) that tell you how healthy you are). There is a link between what the data tell you and the "lifestyle" indicators. The diagnosis is the "art" of interpretation (not just pure science).
- Medical analogy: The diagnosis helps understand what needs to be done, even if it is not spelled out.
- If sustainability is a journey, not an endpoint, then these indicators are the means to get there. Rather than make conclusions, you show people how to use them.

Content: What to Interpret?

- There should be some interpretation, with those indicators that we are comfortable doing that with (where there is sufficient data).
- Include discussion about species replacement/succession and the impacts on sustainability (e.g., Douglas fir replacing ponderosa pine in fire-excluded forests).
- Chapter 4 should have a management tie. What is man's impact on land? Explain why things are the way they are.
- Some of the indicators are more revealing/robust/interesting than others. Analysts need to sort that out. Perhaps comment on just a dozen that are worthy of significant comment; others can be briefly examined.
- Look to the rationale for each indicator.

Chapter 2 vs. Chapter 4

- There might be some interpretation in Chapter 2, to highlight what the data suggests.
- Criterion leads have not yet had a chance to explore cross-criterion connections – that may occur in Chapter 2 (i.e., first order interpretation). Chapter 4 may take it a step beyond.
- Relegate interpretation to Chapter 4. The criterion leads should provide interpretation of the interactions of the indicators within a criterion, and include that in Chapter 4. Chapter 2 would just be a presentation of data. You cannot have separate authors for Chapter 4 doing all of the interpretation.
- Chapter 2 should include implications of data for each indicator. Chapter 4 should be criteria-level interpretation.
- Include pointers to other indicators, in Chapter 2 (e.g., fragmentation discussion in biological diversity indicator should point to timber availability).
- Chapter 4 is the "take away" chapter – analysis of what is going on.

Indices and Leading Indicators

- Developing an index of leading indicators has some merit. One approach would be to develop a leading indicator for each of the seven criteria. The task of developing such an indices is tough and will take time. It should not be attempted for the 2003 report. If developing an index is pursued, it should be done with the clear objective to improve the dialogue on SFM.
- Selecting leading indicators would imply assignment of value. First we need to address related policy issues.
- Selecting leading indicators might imply endorsement of specific indicators as measures towards sustainability. It might lead policy makers to interpret and prioritize indicators of sustainability.
- Leading indicators may be a good idea. Select one each for the environment, economy, and social equity. Deforestation might be a good one for the environment, and Imports vs. Exports of forest products might be a good one for the economy.
- The problem with using leading indicators is: Economic indicators are more developed than those from the other two spheres.
- Deforestation may be a meaningful leading indicator in the international context, but not in the national context.
- Economic indicators are not a good model to follow – even economists recognize that a lot of externalities are not included in the calculus, and this skews the reality we work from. What would our GDP look like if we actually added the cost of pollution (etc.) in? Let's not do the same with sustainability – or we'll never <u>really</u> get there.
- Look at what Michigan Forest Resource Alliance has done regarding selecting leading indicators.
- No – there should not be leading indicators. That would risk losing folk. This first document is supposed to build a coalition.
- Leading indicators would be of value only if there is a strong correlation across indicators and not otherwise (for additional information on this, contact Raymond O'Connor of the Univ. of Maine). Good to look at interactions, but need to be done in a biologically/ecologically/ socially meaningful manner.
- Don't include an index of leading indicators, but incorporate a medical analogy, which helps assess how far we can go at this point. You can not only diagnose the problem, but can point out where we need further "tests," and identify what actions need to be taken based on the diagnosis. Use monitoring to understand when the problem has been addressed.
- Do not include because:
    - We couldn't index even if we wanted to. Also, it would be telling people what the answer is, which is anathema to dialogue. We need to build broader public understanding.
    - There is a mix of quantitative and qualitative indicators, and the qualitative indicators might get lost or falsely interpreted.
- Idea of "leading" indicators (ala economic indicators)—Planning Rule experience in the Forest Service tells us that this won't work.

- Leading indicators versus lagging indicators (bad things—wood harvested, emissions)—a leading indicator in environmental performance measurement parlance is a management action; thus using the word in the context used in the report is confusing.
- Index of leading indicators too large a project to complete for this report.

Index

- Development of an index would be useful, but it will take time. Look at Human Development Index developed by the United Nations Development Programme as an example of an index for very complex systems.
- An alternative to an index could be to set minimum (desired?) levels for each indicator.
- Or you could develop a tiered approach: pick from 67 Indicators a subset that would be used in decision-making on other, related natural resources management issues (these subsets would be picked by policy makers and the report should not attempt to do this).
- An index is useful to communicate with the general public but is hard to act upon (need a clearly defined purpose first).
- Strong agreement that developing an "index" is "dangerous" as it involves lumping unrelated things.
- Indices could be created under areas such as environmental health, social equity, biological diversity etc. to more clearly be able to identify and flag key trends as to whether something is increasing or decreasing. A 'handful' of key indicators could be identified to track and report on under each Criterion.
- Will we use this report as a baseline, regardless of whether we develop an index?

Data Gaps

- Chapter 4 should address gaps. For example, we lack data from tribal and private lands (for example, Ted Turner owns 2 million acres and we have no data on whether management on his land is sustainable), or data on employment other than in timber.
- It should indicate for which indicators we have sufficient data and where we need more data.
- Chapter 4 should also address scientific uncertainty and new research challenging current assumptions in (biological) science (for example, new research is showing that common assumptions about growth rates may be wrong. Will have impact on assumptions about yields and production).
- It should also indicate what new and different things we are measuring to fill gaps in the future.
- Data gaps should be mentioned up-front and should feed into Chapter 5: what can we do to close gaps (for example, work with Native Americans to gather data).
- Describe how data can be improved, for instance through public participation in developing the database.
- Don't present conclusions where data are not available.
- Ch. 4 should acknowledge data gaps and only draw conclusions where data is sufficient.

- Side note: Chapter 2 should have a uniform disclaimer about data gaps.
- Many indicators are still under development or are under-reported so key indicators may be missing that are needed to do some trend evaluation. The report should acknowledge this and caution the report user about areas where more data will be needed. This means it is more likely that a Criterion level summary would be the only level at which meaningful analysis can take place (at least for this version of the report).

Significance of Regional Data

- Strong concerns how aggregated national data could mask regional C&I and trends.
- The more that data can be used to identify issues at the local/regional level, the more useful it will be. Showing data at the national level sometimes masks problems. This is where equity issues will show up.
- At what scale should we be considering an assessment? 4-5 regions? Every state? Forest type? Much of the data is geographically presented. Summarize sub-national assessments.
- State-level reports are being considered. FIA reports are done for every state every 5 years. Could do eco-region reports (some have already been done). County reports are too refined – the resources to do that consistently are not there.
- Significant interest in regional assessments. But you're introducing new people to this process – might need to introduce some of what is examined at the national level. That will take a while.
- Original mandate for RSF: national (like the FIA) but the buy-in is at the local level (this is problematic).

Other Data Concerns

- When data are discussed, we need to take pause and think about how applicable the data are, and avoid defaulting to proxy data (e.g., don't always default to FIA).
- The text should refer readers to the master database where the 'data report' can be found. The data report is referenced but not explained.
- Detailed suggestions/instructions/examples for using the data would be more important than actually interpreting it. The report should help users understand how to use and interpret the indicators.
- The entire report should seek to use the same denominator for all data sets consistently (e.g. total forest area, total area used for general recreation etc.) so that data can be compared across indicators and criteria and for data reported under the three 'E's (ecology, economy, equity).
- Describe how we develop and maintain the necessary database.

Benchmarks

- We need to define what we mean by progress.
- Define what we are now, as compared to what. Must compare against some historical benchmark.
- Establish a standard to help us keep within historical norms.

- This report provides the standard for policy makers.
- Be clear in the report that the issue of establishing thresholds and standards were not addressed.
- Data is meaningless without interpretation. Begin by setting benchmarks and thresholds.
- The report and the C&I data do not lend themselves to 'benchmarking'. Whatever interpretation of the report is done should involve many diverse points of view.

Identifying Trends

- Many in the group agreed that interpretation of data should focus on describing trends and their implications/consequences, and that interpretation of trends should be as objective as possible. One participant suggested that indicators for which there is broad agreement on values (e.g., acid rain is bad) can include interpretation based on value judgments. A few others suggested that interpretation could be based on value systems of audiences of the report or "affinity groups".
- The implications of trends for data needs should also be addressed in Chapter 4.
- Instead of just describing trends and their implications, the chapter could include projections (UC Berkeley has developed useful models).
- Several participants noted that Chapter Four has a huge potential for impact but in order to be effective it will need to project trends into the future based on past and current trends in order to show possible implications of the data. For example, the number of forest users will likely increase but the area of forest lands available (for recreation, timber etc.) will likely decrease (due to sprawl, population increases etc.). The report should comment on whether the data imply a need to look at various management needs or options.
- I have a concern that all trends would be positive and therefore not very meaningful or useful.

Organizing the Interpretation of Data and Trends

- Based on the data in Chapters 2 and 3, Chapter 4 should identify the implications of trends indicator by indicator.
- Instead of indicator by indicator, interpretation could take the following structure: this is data; this is trend; these are implications for 3 sustainable development pillars). The implications of trends can be illustrated by describing what forests would look like (in sustainability terms) in the future (5 years).
- Another suggestion for structure of interpretations: identify broad public policy issues (not too broad); identify the Criteria and Indicators relevant to the policy issue; describe trends relevant to issue. You could take, for example, the issue of tax policies and their effect on sustainability. Describe the implications for each of the 3 pillars of sustainable development.

- The examples on pages 10 and 11 are useful to illustrate that everything is inter-related (such examples should be included in the final report), and they show that if you pick issues for which to interpret data and trends, these issues should be narrow enough so as not to make interpretation of related data and trends too complicated.
- Find a way to illustrate what the data is telling us: What is the story that the data is telling us?
- Present and explain multiple interpretations of trends, e.g. "One way to look at it is...
- Suggest an interpretation of meaning of trends in order to stimulate dialogue.
- Let individuals interpret the data for themselves—there are very few indicators for which the data has a single interpretation.
- Trends should be reported under each Criterion.

Summary of Trends

- Many agreed that a summary of trends (↑↓) is important. Not good or bad--i.e. No value judgments are essential that will feed into the executive summary of both the report and the chapter.
    - Need for multiple summaries.
    - Summary of summaries.
    - Highlight areas of mixed trends.
    - Cross-referencing to other Indicators is important. Some members of the group were impressed with the thoughtfulness of the cross-referencing in the draft pp10-11. NOTE: Indicators cross-referencing is important in both Chapters 2 & 4.
    - Make extensive use of footnotes.
    - These trends (increasing/decreasing/none, N/A (no data)) could be displayed in a summary matrix. Blank cells can depict the absence of information and data--an important recognition.
    - The objectives of these matrices could be used to express the complexities of inter-relationships.
    - This approach should be viewed as a necessary precursor to a political process.
- Present a tabular summary of trends. Leave judgment to the readers.

Need to Include Examples

- A lot of discussion on the need to include examples:
    - Case examples of the web of indicator linkages & inter-relationships are essential
    - Use of dialogue boxes can highlight the linkages.
    - It is also important to show that more than one interpretation of the indicator and trends is possible.
    - Examples can show how the impact on indicators can vary.
    - Examples can be used to foster dialogue and an appreciation & understanding of inter-related aspects and different interpretations (↑↓).

- It might help to provide some tangible examples for how different groups might use the data in the report so that a community group, a state forester or a congressperson could understand the report's potential applications.

Post Report Dialogue

- Convening a dialogue on interpreting the results of the report would be valuable. It would help to lay the groundwork for the next report in 2008.
- Include in this discussion the issue of establishing a threshold and standards.
- Publishing the interpretation of others should be thought through. There is the potential for conflict if the federal government publishes this information because it could be perceived as endorsement. If the information is published by others outside of the federal government, the process used to select the publisher will be controversial. Publishing this information could be done through a confederation of stakeholders.
- Avoid this dialogue unless it is carefully managed by something like a consortium of stakeholders. Avoid having one stakeholder group manage the process.
- Focus the process of helping to advance informed policy development.
- Convene a dialogue to reach consensus on the pros and cons of the status of C & I data and identify data gaps and steps to be taken to address gaps. This would be the first step to arriving at consensus about thresholds.
- Dialogue is needed to come to agreement regarding acceptable tradeoffs. A bottom-up process would be best.
- Continuing the dialogue is a good idea because we don't have all the answers yet.
- It is important to institutionalize the collaboration on sustainable forestry so we don't lose it over time.
- In order to get national action, we need to reconnect with local efforts.
- There is no merit in publishing various interpretations of the report, because it would just rehash bad data.
- A rollout strategy is needed. It would be valuable to convene political leaders to identify actions.
- It would be useful to convene a dialogue regarding proposed thresholds.
- Not sure what would be achieved by convening a dialogue about different interpretations of the report.
- The group generally favored an on-going dialogue on the interpretation of data. However, one participant cautioned that the additional investments for continued dialogue should be taken into account and indicated that ongoing dialogue should depend on the public's will to promote sustainable forest management. Suggestions about an on-going dialogue include:
    - Give us a draft Chapter 4 to comment on.
    - Discussing data and interpretation of data should happen in parallel and simultaneous with on-going dialogue.
    - Dialogue should involve broadest perspective possible. Continued dialogue on interpretation and next steps should be based on data and analysis that is as broad as possible.
    - We are at the beginning of a process in which we are beginning to define the concept of sustainable forests.

- There should be follow-up dialogue – not necessarily the Roundtable, but new groups, at the regional level.
- The Roundtable could sponsor a dialogue about those conclusions.
  - Optimism for this report could cause some harm if we take it to the end. Slow this down. Stop the report after the "blood work interpretation."
- Don't limit the dialogue to just the Roundtable. Reach regional/local groups as well, so they can assess the trends closest to them.
- Roundtable is limited by FACA. C&I is a tool for coordination. Let the document stand on its own for organizations to use. Do what you can with chapters 4 and 5.
- Publish post-report dialogue/interpretations?
  - Perhaps not worth the time/resources. Instead, keep it in mind as we move towards the 2008 report. And therefore we might be able to go further in interpretation n the 2008 report.
- Organize comprehensive discussion around issues.
- Chapter managers decide on key issues for "comprehensive discussion."
- RSF convened dialogue/compilation of various interpretations
  - Yes, useful to advance dialogue on sustainable forest management.
  - Maintain a record of the diverging interpretations and views from this process.
  - Yes, have compilation of various interpretations.
  - Have more than one interpretation in Chapter 4.

Possible Approaches to the Chapter

- The group played with the following possible approach to the chapter but reached no consensus on this. The purpose of the chapter would:
  - Provide interpretations of each indicator related to the criterion.
  - Provide a summary of and overall interpretations of all indicators related to each criterion.
  - Cross reference other indicators and infer interpretations.
  - And last, carefully and with no value judgments (e.g. good or bad) interpret all criteria against SFM.

    The following are thoughts about these questions from individuals in the group (i.e. no consensus):
  - The sequence of these 4 questions will promote the policy dialogue.
  - An attempt at developing an index for SFM will promote policy dialogue.
  - Chapter 4 should set the stage for policy dialogue (e.g. seeds of information and seeds of controversies).

Projections

- Two people said that it would be very useful for Ch. 4 to feature projections. Both suggested providing multiple possible scenarios.
- Be careful about projections. They may be too speculative. Let readers speculate.

Goals and Objectives

- Disturbing to interpret without clear goals and objectives.
- Some feeling that goal is clear—expressed by Montreal Criterion Indicators.

Writing/Presentation

- Make sure the entire report is usable, audience-sensitive and audience-accessible.
- Cross-check the actual Criteria and Indicators. The report authors missed chunks of text as they summarized.
- Graphic interpretations are risky because they will distill too much.
- Don't present a map of who is doing a good or bad job.
- Don't need sidebars of theory. General comments indicating the effort to create a balance among the three legs of the stool is sufficient. The rest is academic wonking!
- One organizing approach in visual format: See Attachment One.
- Order of information: chapter 4 should immediately follow Chapter 2. Existing Chapter 3 could then follow, and could include examples that highlight the inter-relatedness of indicators.
- The sustainability information (bottom of page 1 to page 3) and the benchmark, threshold and standards information should go into Chapter 1 along with definitions of C&I. This is good information and needs to be up front.
- Need a citation on Figure 1 (Fricke 1983).
- Would sustainability definition be best in Chapter 1?
- Sustainability material is good—should be upfront in Chapter 1 (strong agreement).
- Attempt to cross cut (to create matrices) is good.
- Would like to see 1) ecosystem health vs. community health and 2) economic well-being by region, state, etc. (page 11).
- The seven criteria should be the organizing framework for the chapter with criteria-level summaries (one page each).
- The report should be written to avoid direct policy recommendations to keep it out of the political process so that policy decision makers and administrators will not have a hand in approving/editing the report.
- The report will get some editing as part of the 'political process' so Chapter 4 should go as close to the policy/interpretation line as possible since it will get edited down anyway. One participant suggested the report should be 'bold' in the draft stage since editors/approvers will water it down.
- Lead off with the "short or lead story" on how we are doing. Provide the reader with a one-page summary of what they will read in Chapter 4. The summary should provide a listing of prioritized findings.
- Could provide a small number of findings up front in the chapter, followed by a lot of discussion on how they were arrived at.
- More conclusions do not mean a longer report. Often it's describing a graph. Be creative and get to conclusions. Eliminate much of the text, use the graphics, add meaning to the graphics.

Staying Credible

- Write this as a long version that is widely circulated/peer reviewed before the final report is done. Give it the kind of attention other drafts have gotten. The chapter should be put out with the intention of getting shot at.
- Need to have a balanced interpretive assessment of indicators. Careful about staying credible. Use lots of caveats along with interpretation. Risky but important chapter.
- Make sure the group doing the interpreting and writing is made up of a balance of interests. Don't have this written exclusively be someone from the National Forest System.
- This is a timber-dominated discussion and is, therefore, skewed.
- Recognize that this report is about traditional forestry for the most part. In the future, need to recognize other types of forestry (e.g., agro-forestry) as well.

Other Comments

- Support including a side-bar on environmental economics.
- Need to find a place to address the implications of global trade, especially the future coming on U.S. market of foreign softwood (could fall under Indicator 31 - supply issues). If nowhere else, address it in Chapter 4.
- This chapter was seen as very important but risky. The authors were encouraged to be as sensitive as possible to the issue of who may feel excluded. It is critical to keep everyone under this big tent that has been built.
- This chapter must not even appear to be written from a Forest Service perspective. To avoid the potential of offending or skewing the writing, the draft should be peer reviewed by a broad cross-section of interested parties.
- The sidebar suggestions are unnecessary, at least as written. They read as academic "wonking."
- Authors are struggling with products of this process (e.g., summary report, data report). Tried to keep summary report to 100 pages – but participants are suggesting that it does not have enough material. Maybe 200 pages? Perhaps then there needs to be a 30-page summary.
    - Make it as long as it needs to be to cover the material.
- Some "red flags" may come out in report, but may be at regional or local levels instead of national level.
- Chapter 2 should include "statements of condition", including a narrative of graphs/data that are included (the group was not comfortable with interpretation given the data gaps/inconsistencies and the unclear purpose of the report).
- With respect to Question 4 (about dialogue after report is released): 1) Should sort indicators to "determine if they are ready for prime time"—this means that there is sufficient data that will hold up to scrutiny; 2) an expert panel should review the indicators; 3) "sound" indicators should be interpreted by the panel (that is the expert panel goes beyond the "statement of condition" in Chapter 2 and interprets the data); and 4) panel determines at what scale indicator is meaningful and implementable.
- The general direction is important (is there progress?), not just the data itself.

- Chapter Four discussed two of the 'Es" (ecology and economy) but leaves out 'equity' which should also be described if the framework of the three 'Es' is retained.
- The chapter should not draw conclusions (e.g. good or bad) but should provide an indication of the trends and flag indicators related to those trends, e.g. if forestland for recreation is decreasing and population is increasing this could concentrate increased demand on forest land.
- One participant suggested that Chapter Four is not needed since most interpretation will occur through the lens of each organization or individual based on their background, perspectives and interests.
- Give a clear statement on the state of the nation's forests
- Amazon.com idea - if you are interested in this indicator, readers are also interested in these indicators.

Interpretation/Fate of Chapter 4

- Is there much interpreting that can be done given the current state of knowledge? Can only interpret hard data, not soft data. There are many gaps.
- Question 4: let individuals interpret for themselves; very few indicators for which the data has a single interpretation.
- The report is an opportunity to highlight areas of concern (red flags)—see what "jumps out" at local and community levels—feeling here that majority of indicators are "not good enough" to undergo interpretation given the availability of meaningful data.
- Chapter 2 and Chapter 4 should be combined—a "statement of condition" should be included with indicators (strong feeling here) including a narrative of graphs and data sets; could combine the indicators where meaningful (this is in lieu of interpreting the indicators).
- Chapter 4 could be a summary of the conditions laid out in Chapter 2.
- Possible to marry a couple of indicators (e.g., industrial round wood and fuel wood—compare to the amount of wood available for harvest)—combine to create meaningful trends (this would require more research).
- Strong agreement that interpretation is impossible/fraught with peril.
- Could use Chapter 4 to talk about different scales (national vs. regional vs. local).

Chapter 5 Issues

- A rollout strategy is needed. It would be valuable to convene political leaders to identify actions.
- The report should indicate the need for future dialogues on what the data mean but could also provide some ideas on how to use the report to interpret data so users can apply the report to their interests, needs and perspectives.
- The dialogues would require facilitation and some negotiation because many different perspectives would be offered. At a minimum, it would be useful to get diverse organizations together to examine what areas/findings they agree or disagree on.

- Chapter 4 should document areas where more attention is needed in terms of data gaps to be filled (e.g. criterion and indicators for which new methods, more data etc. are critical to begin addressing in the near future since many other indicators or the entire Criterion depend on their assessment.)
- The report will need to identify some thresholds or critical values that should not be exceeded so that the report can go beyond 'just the data' to what do the data mean in terms of moving toward or away from sustainability. Some work may be needed to begin to develop these thresholds. Small scale, landscape-level pilot studies could be developed to help begin to determine these thresholds.

Chapter 5 – Future Actions

Improving the Dataset

- Recognize that the Forest Service has done lots of work collecting data. For example, Atlas, Global Trade Model, TAMM, RPA Assessment, JCBMP (also includes community based data). The report should reference this.
- Given the variety of audiences, look beyond traditional data and include information from, for instance, community-based organizations.
- FEMAT refers to lot of information beyond traditional data.
- UC Berkeley, and groups in California and Oregon have used models to include contributions by non-industrial land owners to sustainable forest management in data sets.
- We are dealing with both good data sets and data gaps. We need to identify data gaps and how to address them. We can look at how the FIA has addressed filling data gaps in the past.
- When we make efforts to expand the FIA to include data relevant to the criteria and indicators, we should encourage the people on the ground who collect the data and add this work to their regular workload.
- Data collection program needs to be flexible to adjust to input received and changing data needs.
- A large number of NGOs is involved in sustainable forest management, as illustrated by the content of a letter signed by NGOs regarding the Draft National Report (ask Ajit for copy of the letter). Report should acknowledge this.
- The National Report should be driver for consistent databases both within and outside traditional groups that collect data – institutionalization would help.
- Sort out the chasing of data. Clarify what the data collection strategies are (e.g., how to describe the assessment of all organisms). Focus on the quality of the data and more selective about the data we collect.
    - The challenge is to identify metrics.
    - There are problems with the scope of all organisms.
- Be more deliberate about tracking data of social equity to provide more information on social efforts. Evaluate expanding the FIA database to achieve this.
- Where are the big data gaps for the biological data?

- On the non-timber – take advantage of a variety of databases from various sources (federal and state agencies and others including STARS, NatureServe's map on ecosystem data).
- National Hierarchical Framework of Ecological Units is one way to help coordinate and make better use of data from different states to better answer the C&I.
- SAF classification does not meet research needs. There is a need for refinements. Suggest a marriage between SAF and other databases like NatureServe's database for the National Vegetative Classification (ongoing).
- Hunt-based revenue data that generates significant income (~$200 million/year) should be captured to help sharpen up the database on revenue from non-wood products.
- Summary data needs to be scaled to the local and regional levels to help the "step down" access to data (e.g., data need to be statically available).
- "Snap shots" of data are not enough. Need to assess the meanings of changes in forests.
- In the next round involve a lot of outreach to states and landowners in the private sector (regarding the economic health of forests).
    - Increase efforts to obtain more data from new sources of information.
    - Get a better handle on forest economics in the private sector.
- There are only a few indicators reflecting economic factors. Using indicator 58 as a reference, in the next round of economics (private sector land owners), look for secondary sources of information such as state tax departments (e.g., separate tax on timber).
- Centralize at least government data collection and reporting functions geographically and administratively (perhaps a National Center for C&I Data).
- Standardize to ensure practicality and consistency.
- For criteria 6 and 7, much more work needs to be done on economic and social data (data gaps). In particular, there needs to be better integration of data from non-federal sources.
- There is no method for examining information in an over-arching way, especially for the public. See the Canadian report on model forest systems for a good example.
- Be careful how data is aggregated -- Do not mask important trends by scaling up.
- Majority of indicators can fit into a GIS database – use that tool for presenting the information.
- Include more data on spiritualism, recreation use, and hunting/fishing.
    - Refer to State Assessment of Need plans produced for the Forest Legacy program for some of this information.
    - Keep a running database to keep that information updated.
- How can spiritualism be captured? Perhaps aesthetics data can be used as a proxy for spiritualism data, which is lacking. However, spiritualism is defined rigidly by BIA, in regards to tribes. Also, lumping spirituality and aesthetics might be dangerous.

- For data needs, go back to the TWGs and the key 14 issues that have been identified.
  - Integrate that process into Chapter 5.
- Can Chapter 3 help us achieve integration of local info? Perhaps the organizations listed are good sources of data.

Writing the Report, Outreach and Education

- Participants in the workshop should take purpose and ideas of report home, and should educate their constituencies.
- Small woodland owners need to know how this report is relevant to them. How can they use it?
- Organizations such as Tree Farm or Walnut Growers Association can help reach woodland owners.
- How do we use the report and C & I to promote protection of forests? Step 1: identify audiences (scientists, public, students, etc), step 2: develop a report for each audience, step 3: plan of action for each audience. Subcommittees made up of various stakeholders could write different reports for different audiences, or you could use "town meetings" to reach different audiences.
- Include stories to make reading of the report interesting to a variety of audiences. It may be necessary to designate several authors instead of relying on people to take on writing the report in addition to their regular tasks.
- Positive stories in media can have positive impact on public.
- Education of the public about the dynamism of forests will be a challenge but is essential.
- This effort has been an exciting beginning and the coalition that has been built is quite unique. Efforts must be made to sustain and spread it. So, the most critical next step is dialogue. Take this out to the regions – now!
- Let's keep learning while we do. In the dialogue, keep building the consensus process around critical issues that emerge for them from the report. Concurrently, there is great need for a public relations campaign. Take this to the people!
- And make the information accessible to the people. Consider creating a centralized information source - at least for government data collection and reporting functions (both geographically and administratively).
- Need an outreach/P.R. effort to publicize this: We, group F, commit to taking this out to our constituencies and challenge everyone else involved in the Round Table to do so as well.
- The findings of the report should be shared with and linked to the World Summit in Johannesburg at the end of August.
- There should be a big media roll out for the report, e.g. it should be released by the Secretary of Agriculture at the National Press Club.
- Other materials to help share the report's content should be developed such as table top display, entertaining venues and messages to raise poplar awareness, etc.
- The role of state foresters in the process should be spelled out as should the role of the states in general in the data collection and future actions of the data interpretation and application. There should be an on-going and transparent process for states to engage.

- Materials should be prepared for other venues such as professional journals as well as popular magazines such as Nature, Scientific American etc.
- There is an issue concerning equity of participation in who participates in commenting on and contributing to the national report (e.g. are minority landowners historically black colleges and their researchers or forest workers represented?) Targeted efforts should be undertaken to reach and engage these constituencies.

Institutionalizing Criteria and Indicators

- Responsibility for Criteria and Indicators should be institutionalized. Designated teams should continue to work on it and build up to the next version. The teams will coordinate data collection efforts; connect databases, etc. Current approach of relying on individuals to take on writing the report on top of their other work is not sustainable.
- Need better coordination between Criteria and Indicators effort and direction to planners, monitors, etc. (for example, foresters and planners are not required to use C&I in reporting to congress, which is a disincentive for them to use the C&I)
- Need to develop public and political support for Criteria and Indicators and sustainable forest management. Political will depends on constituencies calling for action.

Labor, Institutional Knowledge, Infrastructure

- Political clout for sustainable forest management is limited because there is no labor (forestry jobs are now only 2% of national workforce, down from 40% 100 years ago). There is a need for people who are ready to take on both the intellectual and physical aspects required in forestry. We also need to create jobs (there is lots of work but there are no jobs) and better pay, for instance by encouraging small business development.
- The lack of available labor needs to be taken into account in planning for sustainable forest management.
- Great projects are being developed, for instance Flagstaff project (ask Greg Nolan), but there is a problem with on the ground execution due to disappearing infrastructure and institutional knowledge (1 logger and 1 mill in Flagstaff area trying to keep up with demand).
- Great numbers of upper management retiring in the near future is an issue in both the public and private sector.
- Loss of labor, infrastructure and institutional knowledge could become a future indicator.

Missing Elements

- Recreational values in general are missing in the report. This omission needs to be addressed (e.g., fees for hunting, fishing, etc.).
- Another example of a product that is missed in the accounting process is pine straw mulch.
- In future data collection and reporting recognize the valuable support from non-foresters expertise in addressing the SFM 3 Es.

Other Issues to Address

- Address the future impacts of the aging of U.S. population. Many owners are 65 and older, and as they pass away the current estate tax system will force heirs to sell the land. This will affect sustainable forest management as much land will be sub-divided and sold for development.
- Future developments can be taken into account by using projections (for instance, effects of increased population density).
- C & I effort should take invisible economies (agro forestry = systems put together) into account (e.g., windbreaks also play a role in carbon sequestration).
- Federal, state and private programs that assist small woodland owners should be referenced, e.g. Forest Legacy Program, and Timberland Preserve Zones (in the West).
- How do tax issues affect sustainable forest management? Are we addressing estate tax in our long-range planning? The effect of fast increases in land values and estate tax exemptions, and capital gains issues should be addressed. The National Report could really help emphasize this issue. This is an issue over which landowners and environmentalists can unite, although the estate tax issue is much bigger than just the effects on forest management.

Writing/Presentation

- There should be consistency across write-up: Follow the same format throughout Chapter 5 and specify throughout the report what we know or don't know.
- Title: Rethink it. It should suggest next steps towards something. It should indicate action!
- Chapter 5 should include a table of data gaps and degree of gap.
  - This would be useful both for 2008 report and for groups to take future actions (e.g., foundations, NGOs, and agencies/FIA).
  - To do this, chapter 2 needs to admit what we don't know.
- Be very clear in the intro about the purpose and audience.
  - Is this for policy making or not?
  - This will affect what you say in Chapter 5.
- Deal with definitions, in all chapters (e.g., re: C&I, benchmarks, goals).
  - Move some concepts from Chapter 4 to the front.
- The list of Chapter 3 organizations should be included as an appendix and as a frequently updated website.

Evaluating the C&I

- Give high priority to evaluating the criteria, both for its international and domestic applicability, and also to potentially update the indicators.
- Review all 67 indicators and insure that they are measurable and meaningful.
- Review the indicators with local groups -- not just what is there but what is not.
- Evaluate the C&I:
  - Identify opportunities for changing indicators.
  - Evaluate them with respect to data gaps and needs, esp. socio-economic.
  - Build on previous work, such as the TWGs.
  - Consider how reporting can be done better – use GIS to represent info.

How Best to Use the C&I as a Tool

- Do both learning and doing at the same time. Do it now! Take this out into a dialogue seeking consensus among the various groups regarding critical issues that they identify as having emerged from the report.
- Become accessible and user-friendly: indicate clearly who is in charge, who can be contacted for information and input and how. Make it useful to local and regional partners.
- Caution agencies not to use this to build their budgets.
- There are conflicting politics relate to resource management problems. These conflicts sometimes result in obscuring data that could be accounted for by the C&I. For example, the ramifications and costs associated with deer over population problem are not well accounted for, nor is the loss of forestland loss due to strip mining (e.g., land reclaimed to grass as opposed to forests). The report needs to better cover and address some of the big issues (e.g., deer over population, old growth forests).

MOU/Federal Agencies' Roles

- The eleven MOU agencies must have greater ownership of this process. Spread the responsibility and activities across the agencies.
- Need someone in charge of maintaining institutional capacity of MOU agencies. Make a formal responsibility.
- What happens between now and the 2008 report? Does the Roundtable on Sustainable Forests expand? Contract? Need to get ahead of where resources are allocated in federal funding to getting funding for this process. Involve MOU agencies and EPA in this process.
- Federal agencies need to be encouraged to incorporate report results/data gaps in their strategic plans and annual performance plans.
- Figure out how to engage landowners. The federal government currently funds technical and financial assistance for landowners. Need a more holistic approach with emphasis on landowner engagement. NGO's and feds both need to address this. This also relates to indicators involving stakeholder participation.

Roundtable on Sustainable Forests (RSF) Role

- The RSF TWG needs to figure out data gaps and charter groups to develop protocols for data collection.
- RSF take on interpretation of report and encourage further federal involvement in the process of producing federal reports. Establish central coordinating organization (CEQ - Council on Environment Council), a non-voluntary organization to put pressure on agencies. The current situation with the MOU agencies in involuntary voluntary.
- Take results to RSF for interpretation including divergent views. This interpretation informs data collection process.

- Make sure lessons learned from instruments in Chapter 3 are captured and used to improve future reports and actions. The agencies and civil society (e.g., NGO, community and private sector, corporate and non-industrial landowners) that evaluate the effectiveness of their actions pass the information onto the Forest Service and Roundtable on Sustainable Forests.
- How are we going to encourage public discourse? Is the Roundtable or Forest Service tracking current divergent points of view to feed into future public meetings?
- Include a feedback on the utility of the report for people to complete and return to Meridian.
- Is there room in the report for reporting on or evaluating the process of making the report?
- State the condition of the nation's forest in the next report.

Scale

- Consider scale: Enable local level to use this info (some is already useful, some needs refinement) -- Chapter 5 should highlight the process to do this.
  - Consider the delivery mechanism for sharing information, particularly to the local level (e.g., consider EPA's surf-your-watershed as a vehicle for reaching the local level).
- All sustainability is local: change the scope to be able to apply locally. We cannot get there through a top-down report. This doesn't necessarily mean changing the indicators (although it might) – but shifting the focus to use local-level data.
- Is there a place in the report to lay out the framework for response to the wide range of individuals and organizations with respect to conditions and trends at the local, regional, national levels, and reflect progress to addressing findings?
- Some indicators may be more important to the national picture whereas other indicators may be more critical to the local picture. For example, erosion under Criterion 4, Indicator 18 is both caused and cured at the local level and would vary greatly across the country.

Communications

- How do we get further input?
  - Email every workshop participant (and others invited) when a revised draft is available on the web.
  - There is no time for another workshop but we can gather further input through the web.

Criterion 4, Chapter 2

- Need smaller cut of HUCs. Currently it is 8, needs to be 10 or 12.
- If a choice had to be made, emphasize water over soil measurements. Consider that it is all part of one system and link the data.
- Add mass failure data.
- As you move from national to regional and local interpretation of the data, the scale needs to be refined. National data is scary at local level and could be misinterpreted.

Report Application/Discussion

- What are the practical applications of this report and information?
- Involve stakeholders in how they relate to the Criteria and Indicators (C&I). What indicators are they working on or towards?
- Information coming out of the reports needs to trigger discussion on policy and how this information affects policy and the future.
- How might people use the C & I for their own purposes at various scales? How might authors facilitate this process or service?
- Discuss impact of public policy on private sector and formulation of private policy.

Indicator Matrix

- Develop matrix to display all 67 indicators and develop an exhaustive analysis of their relationships to all other indicators in the set.
- Identify list of forest related issues through which to identify association of or links between 67 indicators. Develop matrix of issues and related indicators.
- Develop process from matrix (an interrelation of indicators). Derive the key indicators that need data collection and interpretation.

Data Collection Protocols

- Develop national protocols for social data that supports the indicators.
- Look at how we are aggregating data up and down, so data is useful at both the local and national levels. How do we go up that ladder?
- Identify, integrate and expand our existing infrastructure to collect, process, and analyze data in a consistent way where feasible. Don't reinvent the wheel.
- Criteria 6 & 7 pay particular attention to challenges and constraints with obtaining information and data for these criteria. Need institutions to address biological aspects. Set up a protocol to collect data. This is important because Criteria 6 & 7 define what you do with information and how you get to sustainability.
    - Develop new set of indicators for the U.S. We have a different legal system that could use information if set up properly.
- Criteria 6 & 7 - What gets measured? What gets done? Criteria 6 & 7 in the report will help inform policy change. Criteria 1-5 information will be used by local communities. How is the translation happening between the reporting and policy/action? If people see data collection drives change, they will want involvement in data collection at the community/local level.

Overall Comments

- Chapter 5 should have a conclusion with the outcomes of the report and lay out related policy initiatives as well as legislative initiatives that could use, be affected by or steered by the report.
- Chapter 5 should conclude with the key conditions and trends that we should track in the future since it is a future leaning chapter and should help us to set future directions. The Chapter should create a sense of urgency for why identified data gaps need to be filled.

- The Chapter should take a strategic approach in providing a way to link with current efforts, avoid duplication of efforts and target which entities should fill data gaps and other needs.
- Chapter 5 should lay out a method for local C&I efforts to link their data to the report and a framework for using and aggregating data from local to regional to national levels and visa versa.
- The chapter and the report should seek to integrate and utilize participatory research knowledge, local knowledge and non-traditional sources of data and involve those people who most affect and are affected by the report's data.
- Some indicators may be more important to national policy, e.g. those under Criterion 7. These indicators should be flagged for those interested in forest policy.
- The report should acknowledge that the notion of sustainability is not a static state but changes over time as our values and knowledge change. Today we are in a dynamic state. The report should acknowledge this concept.
- The report should acknowledge that doing nothing (e.g. not actively managing our forests) may also have consequences so people understand there is a need to use the data and act based on what the data are telling us.
- Several participants asked if no data = no action. One participant suggested an 'action with humility' framework where we can still point to areas where action is needed even though we do not yet have all the data in yet.
- There was concern regarding this five year plan. Will we really get enough accomplished in only five years? Do we need to wait longer to do the next report?
- Develop a model to show the dynamics or linkages between indicators (e.g., like the gages for an automobile that monitor the engine.
- The report needs to recognize dynamic (special and temporal) components of forests and forest management (e.g., plantation today can be old growth tomorrow).

Issues to be Addressed by 2008

- How will the 2008 report relate to processes like RPA/RCA? Need to not duplicate.
- Will we get enough value out of only a 5 year period? Do we need to wait longer to do the next report?
- We need a "basket" to collect ideas, lessons…relevant to 2008 and beyond.
- The framework and indicators need to be better defined and measured.
- A possible role for the Roundtable is to invite response from key stakeholder groups on the report findings to help determine where and how to focus data collection efforts for the 2008 report.
- The chapter should lay out the key gaps to be filled by the next report and point to areas where research is needed as well as a process for researchers interested in filling those gaps to engage in the process.
- The report could identify constituencies and institutions to engage in filling data gaps such as universities, the National Commission on Science of Sustainable Forestry.

- Several participants commented that 67 indicators is probably too many to use to develop a 'leading index' so a key subset would likely be needed as a base.
- The report could suggest creation of a 'National Institute for Sustainable Forests' to carry forward on coordination of filling data gaps, applications for the data etc.
- Many indicators refer to deviation from a historic norm which we don't know so the report should acknowledge that this report collects some of the initial data points against which we can compare indicator data in the future.
- One participant cautioned that the use of 'indicator species' (under Criterion 1, indicators #6,7) when looking at biodiversity could lead to dangerous (misleading) conclusions. It would be better to take a species systems approach when collecting and evaluating data.
- For setting future priorities the report could include a survey instrument for ranking issues of greatest importance for achieving sustainable forests and help to determine which data gaps should be filled first and which issues should be tackled by researchers, funders etc. via future reports, dialogues etc. One participant added that if a survey is done there should be a systematic approach to conducting a survey (following basic principles of survey methods such having an adequate sample number, diversity of people, groups etc, sampled, identification of who participates etc.).
- Future reports should consider adding new indicators to the set of 67 or modifying or refining existing indicators. One participant suggested the addition of a Criterion 8 that would include indicators directly relevant to people 'on-the-ground' and local efforts to achieve sustainable forests. It was also noted that the 7th American Forest Congress is working with the Federal Geographic Data Committee to develop indicators and measurement methods for community level indicators (e.g. some of these indicators are found under Criterion 6).

Future Actions

- Dialogue - in order to prioritize critical forest issues and data challenges – keep everyone in the big tent.
- Use the report to identify "disincentives" and barriers to private forest ownership and sustainable forest management.
- Manage expectations.
- Future Actions:
    - Need for better data – through interagency action or Roundtable.
- Need to discuss scale – how can we relate this to the local level?
- Examine implications from Chapter 4, as these will highlight/identify needed future actions -- this needs to be done in an interagency context and through the Roundtable; if this is not done, then the exercise is academic and not worthwhile.
- Chapter 2 needs to feed into Chapter 5, but there is insufficient information to lead us to clear future actions.
- Regarding improving the data (question 1a), some participants felt that we cannot determine future actions based on what we know now.