

**Tackling Technical Challenges: A National Workshop**  
**List of Key Questions and Technical Challenges for Discussion**  
**December 11, 2007**

**General Questions**

- How should the information in this criterion (specific indicator) best be delivered and/or presented?
- In the absence of "hard" quantified data, what strategies would you suggest for addressing specific indicators within this criterion and how useful would this approach be to you?

I. **Criterion 1** Conservation of biological diversity (9 indicators)  
*Stephen Shifley, USDA Forest Service*

- Changes in indicators from 2003
- Two new indicators
  - Status of in situ and ex situ efforts focused on conservation of species diversity
  - Status of in situ and ex situ efforts focused on conservation of genetic diversity
- Prioritization of effort
- Scale issues related to forest fragmentation
- Fragmentation vs. parcelization
- Limits to trend analysis
- Need to have a context to interpret sustainability
  - Indicators are value-neutral.
  - Statements about what is sustainable or is not sustainable are not value-neutral
  - Ultimately the goal is to help people make statements about what is or is not sustainable

II. **Criterion 2** Maintenance of productive capacity of forest ecosystems (5 indicators)  
*Brad Smith, USDA Forest Service*

- 14 (2e) Annual removal of nontimber forest products (e.g., fur bearers, berries, mushrooms, game) compared to the levels determined to be sustainable
  - At what scale should we report on NWFP?
  - Which non-wood forest products should receive our focus for 2010?
  - Should fur-bearers be included?
  - What would be the most useful way to report on the data in the indicator (e.g., diagram, other)?
  - What are some (perhaps overlooked) data sources for NWFP?
- Getting complete data coverage of the forest landscape
- Viewing the role of ownership in availability and recent changes
- Developing simple meaningful indices of change

III. **Criterion 3** Maintenance of forest ecosystem health and vitality (2 indicators)  
*Frank Sapio, USDA Forest Service*

- Maintenance of ecosystem health and vitality:
  - What is different about these new indicators?
  - How can we/should we approach the measurement of biotic and abiotic processes?

IV. **Criterion 4** Conservation and maintenance of soil and water resources (5 indicators)  
*Mike Amacher, USDA Forest Service*

- Resource protection indicators: 17) forest lands designated to protect soil & water resources, 18) forest management activities that meet BMPs to protect soil resources, 20) forest management activities that meet BMPs to protect water resources.
  - What databases are available that can be used to quantify these indicators? Where are they and how do we analyze them?
- 4.3.a (20) Proportion of forest management activities that meet best management practices, or other relevant legislation, to protect water related resources such as riparian zones, water quality, quantity and flow regulation
- 4.3.b (21) Area and percent of water bodies, or stream length, in forest areas with significant change in physical, chemical or biological properties from reference conditions
  - What is different about these new indicators and how are we approaching their measurement?
  - How can we do a better job connecting these indicators to our understanding of forests?
  - How do we analyze the vast water quality databases by land use – specifically, forest vs non-forest?

V. **Criterion 5** Maintenance of forest contribution to global carbon cycles (3 indicators)  
*Christopher Woodall, USDA Forest Service*

- As we try to incorporate more empirically derived carbon stock estimates and phase out modeled estimates in the assessment of carbon pools and fluxes, how do we reconcile new estimates with old?
- How do we start to include estimates of uncertainty into carbon pool and flux estimates? Is the variance associated with a population estimator adequate or do we need to pursue a more holistic assessment of uncertainty that includes uncertainty associated with volume equations and wood density?
- The definition of forest land...how does this 2,000 ton gorilla affect this criterion?

VI. **Criterion 6** Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of society (20 indicators)  
*Kenneth E Skog, USDA Forest Service*

- 6.1.c (27) Revenue from forest based environmental services
  - How can we measure environmental services, and what are the most important services for revenue?
  - Where should the USDA Forest Service focus its measurement efforts?
- Challenges with implementing new Indicator 38 -The Resilience of Forest-Dependent Communities
- Challenges with implementing new Indicator 44 - The Importance of Forests to People
- Technical challenges with implementing all of the indicators in the Criterion
  - For which of the indicators is state level data important and why?
  - What is the value of local and state level data? If this scale of data is of value, who is or could collect the data?
  - What would be the most useful way to display information on forest products?

VII. **Criterion 7** Legal, institutional, and economic framework for forest conservation and sustainable management (20 indicators)  
*Fred Cabbage, University of North Carolina*

- Review and discussion on the new indicators
- What kinds of data are available for the new indicators, where is it and how can the data be accessed?