Criteria and Indicators for Sustainable Forest Management: Contributions of Forest Managerial Economics and Accounting

Some synthetic features
after two days of presentations and visits

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Participants

- The meeting gathered about 20 presentations and keynote, including about 36 co-authors, in 6 sessions:
  - Introduction, particularly to US Forestry and Policy
  - Carbon Issues
  - Sustainable Forest Management
  - Sustainable Forest Operations
  - Non-Market Values (2 sessions)
- The presentations reached a high quality and led to many questions.
- Few but very good participants and speakers!

US Forestry and Policy

- **Caula Beyl**, Dean of the College of Agricultural Sciences and Natural Resources introduced her institution and its role for agriculture and forestry.
- **Andy Hartsell** described the forest federal, regional and local context and showed the interest of one part of this joint information to understand the other part.
- **Fred Cubbage** presented a comprehensive view of criteria and indicators of sustainable forest management from the origin to the future; he discussed particularly the links between biophysical, economic and institutional aspects, and their relative perceived weights (from the first to the last)

US Forestry and Policy

- In conclusion of these general presentations dealing much with US forestry and policy, some common features and differences appeared between US and Europe.
- Some **common features**:
  - What is at stake (size and health of resources, biodiversity, soil, water and air protection, social concerns, contribution to production and employment…)
  - Impact of economic crisis on the forest sector, forest management regimes, science and policy implication…
- Some **differences**:
  - Joint education, research and extension in US universities
  - SFM C&I processes (Montreal vs. Helsinki)
  - …and the units (acres, gal., lbs, miles, bf….)

Carbon issues

- **Jean-Luc Peyron** promoted a comprehensive approach of forest contribution to mitigation of climate change including sequestration, substitution and emissions
- **Janez Krc** showed that forest activities are emitting carbon but that their emissions are comparatively low and that the most emitting activity is transportation
- **Omkar Joshi** found that many non-industrial private owners are ready to harvest woody biomass. He identified those who have a rather good knowledge (older landowners) and those who should be better informed through an extension program (female and small landowners)

Carbon issues

- In conclusion of these presentations dealing with carbon issues, forestry has the ability to mitigate climate change through
  - carbon sequestration
  - storage
  - avoided emissions, particularly with bio-energy and low carbon footprint of the forest-based sector.

Sustainable forest management

- **Lidija Zadnik-Stirn** analysed with Petra Groselj the opportunity to determine the future management plan for a protected area, through adapted statistical methods and, in the same time, associated stakeholders in the process through an appropriate governance.
- **John Green** showed that forest owners are not well aware of the federal income tax provisions that apply to them. He provided recommendations to overcome this problem.
- **Pracha Koonnathamdee** studied market failures in Thailand as illegal logging or nationally-owned forests instead of community-owned ones. He suggested to transfer property rights to communities and to disseminate more information on forest values.

Sustainable forest management

- In conclusion about this section, sustainable forest management is not easily implemented because of policy failures (tax system) and market failures (externalities, asymmetric information). Better instruments, information and participation to the decision processes should be considered by public policies.

Sustainable forest operations

- **Dalia Abbas** led a survey on forest logging equipment and transportation in Michigan with a 14 page questionnaire.
- **Daniel Reed**, from a LCI of wood fuel pellets manufacturing, assessed the consequences of different allocation rules (mass vs. value). The approach could be extended to integrate that wood is a renewable resource.
- Don Hodges presented **Consuelo Brandeis**'s contribution on the role of primary mills in forest management. The study is based on forest inventory plots and shows a low response of forest management to mill presence.
- **Neelom Piudyal** studied the perception and attitude of landowners and general public towards forest management. Trust on landowners is higher among non landowners!

Sustainable forest operations

- In conclusion on sustainable forest operations, there are many interdependencies between forest operations (including processing), forest management, environment and general public.
- Some of these components are not well known and should be more studied (e.g. forest operations).
- Some interdependencies are not as strong as one could think (e.g. primary mills and forest management).
- Some interdependencies should be better analysed (e.g. interests of the general public for forest products).

Non-Market Values

- **Anze Japelj** estimated the economic value of selected ecosystem services in Slovenia and showed that the social welfare would increase with improved water quality, recreational infrastructure, preservation and with less fires.
- **Mike Bowker** *et al.* analyzed the effects on Georgia State Park budget and visitation of higher entrance fees. A limited increase of $2 would decrease visitation by less than 10% while helping the park to be more financially self-supporting.
- **Neelam Poudyal** *et al*. investigated the impacts of climate change on forest recreation and especially wildlife viewing. There would be a substantial loss of wildlife watching days, still higher with A2 than with B1, thus a lost welfare that could be however compensated by substitution effects.

Non-Market Values

- **James Mingie** *et al*. compared the amenity value of public and private green space with an hedonic method
- **Mike Bowker** et al. assessed the importance of an experiment forest as tourist recreation. They conclude that the forest contribution to the economy through tourism is marginal for the metropolitan area but considerable locally.

Non-Market Values

- In conclusion on non-market values, one still need most knowledge on them in order to integrate them in sustainable forest management and decision-making.
- There are many non-market values and thus still much work.
- Many different methods are available (travel cost, contingent valuation, choice experiment, hedonic price, benefit transfer…)
- Instruments should not be hidden behind valuation.

Conclusions

- These research studies are based on a lot of different methods including experiments, accounting, statistical analysis, simulation, multi-criteria approaches, cost-benefit analysis, operational research, economic models…
- All of them and their results are useful for public policies relative to forestry, although it is not evident to shift from science to decision.
- A good consciousness of appropriate **criteria** could help to improve the link between science and policy.
- Many data come from specific surveys and interviews, showing the need for new information.
- They are the basis to support **indicators**.

Thank you for your participation!

And many thanks to Donald Hodges and the University of Tennessee for their perfect organization!