

RESTRICTED

TIM/EFC/WP.1/SEM.42/2

2 October 1995

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE  
FOOD AND AGRICULTURE ORGANIZATION  
INTERNATIONAL LABOUR ORGANISATION

Timber Committee  
European Forestry Commission

**JOINT FAO/ECE/ILO COMMITTEE ON FOREST TECHNOLOGY, MANAGEMENT AND TRAINING**

**Seminar on Exploring Multiple Use and Ecosystem Management:  
from policy to operational practice**

Prince George, Canada, 9-15 September 1995

**REPORT**

(as approved by the seminar)

**Introduction**

1. The seminar on exploring multiple use and ecosystem management: from policy to operational practice took place, under the auspices of the Joint FAO/ECE/ILO Committee, in Prince George, British Columbia, Canada from 9 to 15 September 1995, at the invitation of the Government of Canada.

2. Participants attended from the following ECE member countries: Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Norway, Poland, Russian Federation, Sweden, Switzerland, USA.

3. Participants also attended from the following countries under Article 11 of the Commission's terms of reference: Argentina, Brazil, Chile, China, Côte d'Ivoire, India, Indonesia, Malaysia, New Zealand, Nigeria, Senegal, South Africa, Swaziland.

4. The World Bank was also represented.

### Opening

5. Participants were welcomed by Mr. G. Rideout MP, Parliamentary Secretary for Natural Resources, on behalf of the Government of Canada, Honourable Paul Ramsay, Minister of Health, on behalf of the Government of British Columbia, Chief Barry Seymour of the Lheit-Lit'en First Nation, Professor P. Efthymiou (Greece), Chairman of the Joint Committee, Mr. C. Prins, (ECE) and Mr. P. Poschen (ILO).

### Adoption of the agenda

6. The provisional agenda was adopted.

### Election of officers

7. Ms. B. Beedle (Canada) and Ms. E. Teske (Canada) were elected Co-Chairs of the seminar. Professor Kimmins (Canada), Professor Gilbert (Canada), Professor Hoefle (Germany), Dr Bartuska (USA) and Dr. Poschen (ILO) were elected Chairs of the five working groups.

### Keynote addresses

8. Three keynote addresses presented the seminar topic. The first, by Dr. C. Binkley (Canada), described the challenges faced by the forestry profession to incorporate conservation in forest management. After pointing out the interconnectedness of economic and conservation aspects of forest management and the distortions arising from difficulties in valuing non-marketed goods and services, he recommended a new approach, involving:

- land use zoning where markets fail to signal land scarcity;
- codes of forest practice which first ensure that non-market values are adequately reflected in management decisions, second encourage substitution of capital and technology for land as factors of production (increasing intensity of land use), and finally enable rapid learning from experience and research (in some cases codification impeded development);
- new capital and technology to support new kinds of forest management practices.

9. Dr. L. Fortmann (United States) reflected on what people and the public expect from forestry and foresters in her country. Screening expressions of popular culture, such as the lyrics of songs, horror movies, and t-shirts, for clues to people's thoughts, she concluded that people look to foresters to protect and enhance forest ecosystems and to ensure that forest dependent communities benefit significantly from the economic utilization of forests. This included foresters actively defending ecological values, making the presently high-risk

jobs in the forest industry safer and making sure that more of the benefits stay in the forest dependent communities, which normally ranked among the poorest in the country. It also meant that foresters would have to work as partners with an array of "publics", a mode of operation for which many foresters might lack the necessary competence in social matters.

10. Dr. W. Grant (Canada) summarized indigenous peoples' expectations with respect to land use and resources management decisions and to improving forest practices. As the background to the vision of indigenous peoples on forest management and practices she described their own tradition of resource management based on sustainability, stewardship and respect for all living beings. She suggested that the large body of informal practical knowledge of indigenous peoples could provide answers to the numerous technical questions that still remained open today. Indigenous peoples were ready to share their knowledge with other stakeholders. She also called for more involvement of indigenous peoples both as managers of their own forest-based businesses as in decision making about forest resources. There were promising examples of both in Canada. Finally, she suggested that modern western lifestyles were based on wants rather than needs and therefore were not sustainable.

11. Each of the five main themes of the seminar was introduced by a keynote speech.

12. Dr. P. Angelstam (Sweden) analyzed the relationship of forest practices to ecological processes. He pointed out how intensive forest management in the boreal forests of northern Europe is reducing structures of importance for biodiversity in stands and landscapes, by the reduction of the amount of dead, old and deciduous trees, modification of important natural processes and the introduction of anthropogenic pollution. Management should be much more closely adapted to the site conditions.

13. Professor E. Koepf (Germany) examined the socio-economic considerations with regard to changes in forest management practices, identifying different historical stages in forest management and the corresponding socio-economic influences.

14. Dr. H. Heinimann (Switzerland) addressed methods of developing and implementing codes of forest practice, including the assessment of impacts and of risks and weighing advantages and disadvantages before establishing precepts and rules of preference.

15. Professor P. Efthymiou (Greece) described planning and monitoring procedures

in response to forest practice, which must take into account the difference between forest stands and dynamic ecosystem response. A holistic approach was necessary as well as the use of modern planning techniques. Better forestry education at all levels was an essential part of improving procedures.

16. Dr. W. Kessler (Canada) described the relationship of forest practices to policy and science. The keys to success of codes of practice were vision, knowledge of the resource, monitoring and enforcement, testing and evaluation and refinement and adjustment of the codes. She recommended adaptive management techniques.

### **Conclusions and Recommendations**

17. The seminar prepared its conclusions and recommendations on the basis of discussions by small groups of the following themes and sub-themes:

Theme 1: Landscape planning for sustained forest ecosystems.

Chair: Prof. H. Kimmins (Canada).

- a) Landscapes and ecosystems.  
Sub-chair: Mr. I. Gschwandtl (Austria).
- b) Ecosystem structure and function.  
Sub-chair: Mr. G. Still (Canada).
- c) Ecological sustainability.  
Sub-chair Mr. A. MacKinnon (Canada).

Theme 2: Socio-economic changes in relation to forest management practices.

Chair: Prof. F. Gilbert (Canada).

- a) Cost-benefit analysis.  
Sub-chair: Mr. K. Blakeney (World Bank).
- b) Non-commodity resources.  
Sub-chair: Ms. L. Husted (Canada).
- c) Socio-economic concerns.  
Sub-chair: Mr. R. Clark (Canada).

Theme 3: Methods of developing and implementing codes of forest practice.

Chair: Prof. H. Hoefle (Germany).

- a) Necessity of codes.  
Sub-chair: Mr. L. Pedersen (Canada).
- b) Who participates?  
Sub-chair: Prof. R. Bigalke (South Africa).

- c) Costs and benefits.  
Sub-chair: Mr. A. Gorley (Canada).

Theme 4: Planning and monitoring procedures in response to forest practices.

Chair: Dr. A. Bartuska (USA).

- a) Planning criteria.  
Sub-chair: Mr. P. Csoka (Hungary).
- b) Flexibility in planning.  
Sub-chair: Dr. V. Tepliakov (Russia).
- c) Monitoring methods.  
Sub-chair: Dr. D. Powell (USA).

Theme 5: The relationship of forest practices to policy and science.

Chair: Dr. P. Poschen (ILO).

- a) Stakeholder roles.  
Sub-chair: Mr. B. Nyberg (Canada).
- b) Using science and operational practice.  
Sub-chair: Ms. J. Kumi (Canada).
- c) Mechanisms of accountability.  
Sub chair: Mr. D. McAree (Ireland).

18. The seminar noted that there were difficulties in making operational the concepts of sustainable forest management as articulated in internationally agreed sets of criteria and indicators. There is an urgent need to remedy this: the preparation and implementation of guidelines and codes of practice are an effective way of ensuring that the key values defined in the Helsinki, Montreal and Amazonian processes for criteria and indicators are reflected in on-the-ground practices.

19. Codes of forest practice <sup>1</sup> differ widely, notably in their scope, level of detail and legal status. The appropriate solution in each particular case is determined by national, regional or local circumstances. However, a common set of principles which are generally applicable may be identified.

20. Therefore, the seminar considered that an international, non-binding set of guidelines for codes of forest practice should be prepared. This would be a useful contribution to the international forest policy debate and to improving planning and operational standards world-wide. These guidelines would not

---

<sup>1</sup> See definition in paragraph 33.

themselves be a code of forest practice, but serve as a logical framework for those responsible for setting standards or drawing up codes of forest practice at the national, regional or local level.

21. The seminar laid a basis for this work by drawing up the following preliminary list of some of the major areas which the proposed guidelines might cover:

- (a) need for a clearly stated vision of strategic objectives;
- (b) need to base codes on the best available science, knowledge and understanding;
- (c) need for a definition of the term 'code of forest practice';
- (d) need for a land use allocation process where forestry would be integrated with other land uses;
- (e) need for early and continuous responsible participation of all stakeholders in the decision process;
- (f) need for detailed ecological site classifications and sound understanding of local ecological conditions and processes;
- (g) need to give full attention to social aspects and societal values, including employment, all human rights, including those of indigenous peoples, occupational safety and health, forest dependent communities, non-wood forest products, impact on other land users, cultural/spiritual attributes of forests;
- (h) need to take account of socio-economic aspects and effects on production, such as community stability;
- (i) need for an adequate inventory and monitoring of the forest as determined by data needs for management objectives;
- (j) need to consider ecological processes at the appropriate scale, such as landscape;
- (k) need to weigh carefully and appropriately the costs and benefits of policy options;
- (l) Need for improved economic and social evaluation procedure;
- (m) need for monitoring of the management process, evaluation of results and a system for feedback, notably as regards planning, and dialogue;
- (n) need to design and apply codes in such a way that they can evolve;
- (o) need to consider, at the implementation phase, human resource requirements, and training needs, including further development of education and communication techniques;
- (p) need for a clearly stated definition of accountability;
- (q) need for participatory conflict resolution methods. In general, choices should be made at the lowest possible level.

22. The seminar attached the greatest importance to ensuring that its work and recommendations be transmitted to the appropriate bodies and made operational as soon as possible. However, the seminar itself was not in a position to determine which of the bodies had the correct status and resources to carry out this work. Possibilities included:

- the Joint FAO/ECE/ILO Committee itself, which will meet again in summer 1996;
- FAO Forestry Department;
- CSD, which might delegate the task to a more technical body;
- professional forestry bodies.

The seminar requested the secretariat to contact urgently the appropriate bodies, inform them of the results of the seminar and initiate consultations on how the recommendations of the seminar should be implemented.

23. The secretariat should also explore the question of the resources which would be necessary for the satisfactory and rapid conclusion of this work.

24. The first draft of the guidelines should draw on the material collected at the seminar, notably the contributions of the working groups and sub-groups and take into account appropriate international documents, including sets of criteria and indicators. Once the first draft guidelines are prepared, they should be submitted to a widespread consultation process.

25. Once the guidelines are developed, FAO and ILO should consider follow-up work to assist countries which request technical assistance to develop and implement codes of forest practice which reflect their circumstances, according to the international guidelines.

#### **Reports of working groups**

26. Five working groups considered the items of the seminar. The reports presented by the Chairs of the Working Groups were based on the contributions of the respective working groups. These were presented at the seminar plenary session and are set out below.

#### **WORKING GROUP 1: SUSTAINABLE FORESTRY AND ECOLOGICAL PROCESSES**

27. Maintenance of appropriate patterns, structures and processes at landscape and stand levels is the essential ecological foundation for sustainable forest management. Managing the change over time in both landscape and stand-level conditions and processes is necessary for the sustainable use of forests.

Sustainable forest management at the landscape-level must consider patterns of human use, plant and animal distributions, and landscape-level processes. At the stand level, it must recognize the ecological role of the many different organisms in the forest community, including humans, and the vitally important role of soil in forest sustainability.

28. In preparing Codes of Forest Practice to achieve sustainable forest management and use, governments should:

- (a) Develop a vision of the land use and the landscape and ecosystem conditions and values that are to be passed on to future generations, and how these should change over time;
- (b) Prepare an ecologically-based classification of their forest landscapes;
- (c) Undertake an inventory of the current environmental values and ecological characteristics associated with forest landscapes based on this ecological classification system;
- (d) Understand the history and ecological consequences of human activity and natural disturbance in their forest landscapes;
- (e) Develop a land use strategy, a pattern and rate of forest harvesting, and forest management practices that achieve desired landscape objectives.
- (f) Establish qualitative and quantitative goals for the production of wood, food, fuel, and other forest products, services and values, and ensure that these goals are sustainable;
- (g) Set qualitative and quantitative goals for the creation and management of protected areas (parks, protection forests, ecological reserves) and for the restoration of damaged or degraded forest landscapes or local ecosystems;
- (h) Ensure that forest practices conserve genetic and species diversity at the landscape scale, and that the important hydrological functions of forests in regulating streamflow and water quality are not impaired;
- (i) Design site-specific, stand-level practices related to the ecological classification system which will sustain desired soil physical, chemical and biological conditions within acceptable ranges, and desired plant community structure and species composition;
- (j) Provide adequate funding and other arrangements to ensure that the necessary research is undertaken to provide the ecological understanding needed to manage forest landscapes and stands sustainably;
- (k) Make use of available indigenous and local knowledge;
- (l) Ensure that there is an adequate workforce with sufficient knowledge about landscape and stand-level ecology so that they can implement sustainable



forest practices.

**WORKING GROUP 2: SOCIO-ECONOMIC CHANGES IN RELATION TO FOREST MANAGEMENT PRACTICES**

29. Consideration of social issues is central to the success of forest codes of practice. Social values can change rapidly and are not all quantifiable; some in fact, such as human rights and clean air, are invaluable. Any evaluation methodology must have full credibility. Valuation systems based solely on currency lack credibility with many people. There are valid existing valuation systems ranging from technical analyses to public involvement processes. Decision making will be improved if people have a better understanding of the factors and are involved in the decisions. Forest practices are evolving rapidly in response to changing demands for, and attitudes towards the use and management of forest resources. These changes will entail various costs and benefits to society and the environment which should be assessed as part of the decision-making process.

30. The Working group made the following recommendations:

- (a) All land-use planning processes must take into account the importance of spiritual, cultural and other social values as well as environmental values in realizing all human needs related to the forest;
- (b) Recognizing the importance of the international economic system as a current valuation process, and the existence of separate paradigms for economists and social scientists, there is a requirement for improved evaluation techniques developed in co-ordination with social science to assess the value societies place on non-commodity resources. This would include development of a framework that ensures that both timber and non-timber parameters are given specified weights as applicable. This could be carried out by the joint FAO/ECE Working Party on Forest Economics and Statistics, IUFRO, CSD, IUCN and/or other recognized international bodies in concert with national bodies;
- (c) Any code of forest practice must be based on a process that is fair and respects the equity of all individuals, ensures effective participation of all stakeholders, fosters community and economic stability but is open to review and is interactive among jurisdictional levels;
- (d) Processes to resolve and recognize aboriginal lands and other issues and the recognition of aboriginal knowledge as important in any planning process are essential;
- (e) Analyses of changing forest practices should include economic, social, and biological parameters, that relate to the needs to:

- (i) Maintain and increase opportunities for jobs, livelihood and subsistence from timber & non-timber forest products;
- (ii) Consider corporate, industrial, regional & national economic stability when altering forest practices;
- (iii) Include non-timber values - recreation, wilderness, habitat, non-timber forest products and spiritual uses of forests in forest utilization planning;
- (iv) Maintain ecological stability, biological productivity, forest health and structure, biodiversity, etc. in forest utilization planning;
- (v) Recognize the importance of tenures and land ownership and address the issue of equitable land tenure.

31. This Seminar's conclusions and recommendations need to be harmonized with other initiatives to develop socio-economic parameters related to forest management.

#### **WORKING GROUP 3: CODES OF FOREST PRACTICE**

##### **Preamble**

32. Recognizing that forests generate many different products, services and values;

Also recognizing the need to balance important environmental, social and economic goals;

Also recognizing that codes of forest practice will contribute to the conservation, management and sustainable development of the world's forests and to the promotion of international trade in forest products.

##### **Definition**

33. A code of forest practice is a set of principles, rules and guidelines for the conservation, management and sustainable development of forests. Codes of forest practice may be mandatory or voluntary and may be applicable to different forms of forest land ownership.

**Needs for Codes of Forest Practice**

34. Compelling reasons why a code would be beneficial are:

- (a) to find a balance between environmental, social and economic values at the international, national and regional levels;
- (b) To assist countries in the implementation of the United Nations Conference on Environment and Development (UNCED) Statement On Forest Principles and other international forest commitments and initiatives;
- (c) To contribute to the creation of a level playing field for trade of forest products;
- (d) To protect against unacceptable environmental outcomes while assisting in meeting important emerging social goals in a global economy;
- (e) To give credibility to forest management decisions;
- (f) To reinforce international commitment to protect people's natural resource management and knowledge, including that of indigenous and local people, to maintain important cultural and heritage values.

35. This process is linked to, but distinct from, the international dialogue on criteria and indicators of sustainable forest management and certification.

**Participation in Code Development and Implementation**

36. The FAO/ECE/ILO Joint Committee on Forest Technology, Management and Training should champion the establishment of an international framework.

37. Participating nations should develop their own codes of forest practice guided by the international framework. This will allow for international acceptance while maintaining domestic sovereignty.

38. Participants in this development will be determined by the patterns of land ownership, the interests of indigenous people, existing legal obligations and constraints, and the local circumstances which dictate relevant stakeholders.

39. The participants should represent all interest groups, including industry (all resources), government agencies, consultants, indigenous people, residents (local and general population), non-government organizations (NGOs), academic and research institutes (social, biological, economic), politicians and labour.

40. The Intergovernmental Panel on forests should develop protocols (including responsibilities and timeframes) with member nations for approval, implementation

and monitoring.

41. Member nations will implement their domestic codes in a manner consistent with the international framework. The implementation should be assigned to the profession, and transparency of results be achieved through monitoring and auditing by independent institutions.

42. Participants in the implementation would typically include forestry practitioners (private industry/ government), resource professionals/specialists, and regulators (government/commissions/boards).

43. The level of legislation required to implement the domestic codes will be determined by individual member nations.

#### **Costs and Benefits**

44. The development and implementation of codes of forest practice leads to costs and benefits brought about by the sustainability, renewability, diversity, and distribution of global economic and ecological wealth.

45. Impacts of costs and benefits vary over time.

46. People who benefit may not necessarily bear the cost.

47. Costs and benefits include amounts and flows of forest products as well as cultural and spiritual values and quality of life.

48. To recognise the costs and benefits the following strategies are recommended:

(a) The distribution of costs and benefits requires that codes be developed and managed in a broad context at the same time involving local situations;

(b) Countries are in different stages of development and use of forest resources, and therefore will have different codes of practice;

(c) Codes of practice must evolve over time as costs, benefits and society's values and knowledge fluctuate;

(d) Those who are directly impacted should have more involvement;

(e) The "user pays" approach should be considered in addressing the distribution of costs and benefits;

(f) There exists a need or demand for clear information for the public to make informed decisions.

**WORKING GROUP 4: PLANNING AND MONITORING PROCEDURES IN RESPONSE TO FOREST PRACTICES**

49. Forest practices for sustainability can be achieved through a planning process built upon clearly defined goals and utilizing the best available information and technology. Planning alone is not effective in the long-term if it is not inextricably linked to a strong monitoring program; a program that can evaluate whether the practitioner is achieving the desired goal. Feedback from monitoring efforts, combined with new knowledge about the resource and new technology, should actively be incorporated into management decisions and plans modified accordingly. This tight linkage between planning and monitoring, with continuous feedback, is the essence of an effective decision-making process for forestry practices. The involvement and partnership of a full array of stakeholders throughout the planning and monitoring process is equally fundamental to success.

**Planning**

50. Planning is a dynamic process that provides guidance and allows for action in a timely manner. Planning for sustainable forest management should be developed with full consideration of diverse ownership patterns, differences in forest practices, social and economic needs and developments affecting forestry. Emphasis should be placed on the exchange of information and consensus building processes.

51. The Working Group made the following recommendations with respect to planning:

- Planning principles should be consistent among all levels: international, national, regional, landscape and stand.
- Planning should be done on a short, medium, and long term basis.
- Planning must recognize that long term economic viability is directly linked to ecological sustainability. No planning parameter should adversely affect long term sustainability. When setting criteria for sustainability requirements, the Helsinki Resolutions and the Santiago Declaration should be a reference.
- Planning must be based on the best available inventory data and scientific knowledge about multi-sectoral values such as ecological, resource (economic), environmental, historical and social.
- Information and knowledge must be easily accessible and mutually shared

between all stakeholders.

### **Monitoring**

52. Monitoring programs are used to measure the achievement of management plans, to assess the effectiveness of objectives, and to validate plan assumptions. Monitoring systems must be designed to address clearly the objectives of the forest plan. They must be designed to work at the appropriate scales, both geographic and temporal, and they should include an assessment of environmental, economic, social, cultural, and scientific needs. Research is a necessary component to ensure the use of the best science and technology available. A long-term, stable infrastructure with adequate funding and support to conduct monitoring is essential. Stakeholders (such as foresters, environmental groups, landowners, indigenous peoples, and scientists) need to be included in defining the monitoring program.

The monitoring process and resulting data and information need to be open and accessible to all interested parties.

53. The Working Group made the following recommendations with respect to monitoring:

- Once key international indicators for measuring sustainability have been adopted, FAO should organize a conference to develop a monitoring program, including responsibilities and procedure to collect and maintain information on these indicators.
- IUFRO should develop a mechanism for sharing the latest monitoring technologies.
- The international model forests should test newly developed monitoring methods.
- Because other external non-forest activities have an impact on forests, the Joint FAO/ECE/ILO Committee should coordinate with other environmental protection agencies so that their monitoring information is used to its fullest extent by the forestry community.

### **Flexibility and managing change**

54. In order to ensure flexibility and adaptability in the decision-making process it is important that there is early, responsible participation of all stakeholders. There should be unbiased participation and mutual respect for other people's opinions. It should also be recognized that time is an essential

component in effective team-building. The following statements should be considered as over-arching guiding principles for any planning/monitoring process:

- Equal access to information for all stakeholders should be provided;
- Existing conditions should be understood before adopting changes;
- A system for feedback and dialogue should be developed early in the decision-making process;
- Terms of reference are required to clearly define levels of responsibility;
- Review and evaluation of the decision-making process must be ongoing.

**WORKING GROUP 5: THE RELATIONSHIP OF FOREST PRACTICES TO POLICY AND SCIENCE**

**Conclusions and recommendations common to all sub-themes:**

55. To meet their objectives, codes of practice must be grounded in operational realities and built on a high degree of consensus and trust. Effective communication between policy makers and stakeholder as well as full, open and meaningful participation of all concerned at all stages are crucial for a code to succeed. This requires access to information, education and awareness raising among policy makers, stakeholders and the general public. Some stakeholders may also need economic or social support.

56. There is a wide range of stakeholders in sustainable forest management, not all of which are obvious. It is therefore important to actively identify all who need to be involved.

57. All sources of information, including science, operational experience, local and indigenous knowledge, must be recognized and included in code formulation. Code design and implementation must provide for mechanisms of continuous learning and regular updating in response to changes in society, new knowledge and experience. Mechanisms for monitoring, evaluation and accountability need to provide information and feedback to this effect.

58. The considerations presented under roles of stakeholder and mechanisms of accountability mainly apply to legally binding codes.

**Conclusions and recommendation relating to the roles of stakeholders**

59. In identifying stakeholder and defining their respective roles it is useful to conceive of a three-step process of: (i) establishment of a structure and

process for code development and implementation; (ii) code development; and (iii) implementation, monitoring and revision.

60. Government will often play the lead role in code development. It must ensure consistency with other legislation, assign roles to agencies to ensure good coordination, and provide education and assistance as required. The lead agency in code development, whether government or private, is responsible for taking into account the requirements of all relevant cultural and social groups.

61. Code development and implementation will result in conflicts. Governments must provide mechanisms for the resolutions of conflicts. Such mechanisms are key factors for code design and implementation. An example of a suitable mechanism is the appointment of an independent board to hear concerns and advise government on how to resolve the conflicts.

62. Landowners (public or private) are essential components in code development and implementation. They must therefore be key players in delivery and are primarily responsible for implementation.

**Conclusions and recommendations relating to the use of science and operational experience**

63. Policy development must adequately consider science and operational experience. Policy makers have to ensure mechanisms are in place to incorporate this information in policy decisions in an atmosphere of open participation. Information must be timely, relevant and of the highest quality. This can be facilitated through broad-based independent panel review and the establishment of clear objectives and standards.

64. Flexible codes provide greater opportunities to utilize both operational and scientific information. Regulators and practitioners should focus on achieving explicit forest management objectives.

65. Feedback mechanisms need to be built into the policy development framework to continually improve forest management. The concept of adaptive management needs to be evaluated for relevance and applicability to forest policy development. Information should be well documented to support feedback. The achievement of measurable objectives should be monitored and evaluated through auditing, advisory boards and review commissions. Management structure needs to be geared for a rapid response to policy issues. A standing committee supported by a secretariat could serve this purpose.



**Conclusions and recommendations relating to mechanisms of accountability**

66. Accountability mechanisms should serve both enforcement and learning. They must make it possible to trace a failure back to its source and to establish its causes.

67. Accountability means being answerable to do things right in accordance with general principles of sustainable management and, where they exist, national policies or codes that have been derived from these principles.

68. Mechanisms for accountability need to be transparent, providing clarity of responsibilities within and accessibility for outsiders. They have to establish for what an individual or agency is accountable and to whom. The mechanisms should be proactive, not only relying on sanctions and penalties, but also on motivation and reward for achievement.

69. Ultimately accountability for the functioning of the whole system rests with the Forest Authority. The Authority may delegate certain functions to other stakeholders.

70. In general, the individual or agency who takes a decision is accountable for it, if they are also able to take the necessary action and to mobilize the corresponding resources.

71. Accountability should be seen as a process including the following steps: consultation with all relevant parties; deciding who is accountable for what and to whom; designing mechanisms to measure and evaluate compliance; monitoring and auditing; enforcement; review, updating and amendment. Mechanisms for monitoring compliance include consultation, complaints, audit reports, inspection and consumer advocacy.

72. Independent review boards should be established to ensure the process of accountability functions. They should be established at various levels, local to international.

**Other business**

73. Participants were also addressed by:

- Mr. G. Rideout MP, Parliamentary Secretary for National Resources Canada
- Honourable Andrew Petter, Minister of Forests of British Columbia

- Mr. M. Apsey, Council of Forest Industries of British Columbia.

74. During the seminar, there were two and a half days of study visits. An overview of these visits is presented in Annex I.

75. The seminar was informed that the Canadian authorities would prepare and publish the seminar proceedings very shortly.

76. The seminar expressed its heartfelt thanks to the Governments of Canada and of British Columbia and to all those who had contributed to the organization for the seminar itself, the study visits and the generous hospitality extended to participants.

**Adoption of the agenda**

77. The seminar adopted its report, on the basis of a draft submitted by the secretariat, with some modifications which have been incorporated into the present document.

**ANNEX I****Study tours connected with the seminar**

Notes by the secretariat

1. Sunday 10 September

Participants visited forests in the Prince George Forest Region and were informed of their ecology and management. The Forest Region is very large (30.7 million ha, of which 17.8 million ha productive forest). Annual harvest is over 17 million m<sup>3</sup> of wood.

1.1 Interior Cedar Hemlock (ICH) Zone (morning visit)

The ICH zone occurs between 400m and 1500m in south-eastern British Columbia and contiguous states of the USA. It has an interior continental climate with mean annual precipitation of 500-1200mm, of which 25-50% in the form of snow.

Climax forests are dominated by western redcedar (Thuja plicata) and western hemlock (Tsuga heterophylla).

Presentations concentrated on the following:

- Damage by the western hemlock looper: 44 000 ha are affected, of which 27 900 ha, containing 7.4 million m<sup>3</sup> of severely degraded wood, are estimated to be available for salvage harvest. Concern was expressed by tour guides that spruce and balsam fir stands, including some of high quality, had been affected in addition to the western hemlock.

- Watershed management: interagency coordination and consultation with all stakeholders are an important part of taking decisions which must reconcile the sometimes conflicting demands of fisheries, forest management and the provision of domestic water supplies. Research is being carried out on the consequences for watersheds of different forest operations. Hydrological concerns are fully reflected in the new code of practice.

- Ecology of old growth stands: the roles of dead wood and lichens were presented and discussed. Interest centred on the role of lichens which are sparse in younger stands but play an essential role in nutrient cycling in older stands, where the role of the litter layer is reduced. The relation between silvicultural practices and wild life habitat, especially for the mountain caribou, was also

presented.

- Discussion centred on silvicultural options for the climax forest after the salvage harvest (if approved) and, above all, on the implications of the new British Columbia Code of Forest Practice.

## 1.2 Engelmann Spruce - Subalpine Fir (ESSF) Zone

The ESSF zone is the highest forest zone in southern interior British Columbia, ranging up to 2100m in some areas. The climate is continental and relatively cold, moist and snowy with most of the precipitation in the form of snow. Engelmann spruce usually dominates the canopy of mature stands, while subalpine fir is most abundant in the understorey. Lodgepole pine also occurs, especially after fire.

The site visited was a ski area with high recreation, visual and wildlife values. Selective cutting systems are being developed to mimic natural disturbance patterns in the area.

## 2. Tuesday 12 September

Five separate tours were organised, to forest lands managed by Canadian Forest Products (Isle Pierre and Clear Lake Divisions), Northwood Pulp and Timber, the McGregor Model Forest, Lakeland Mills Ltd. and the BC Ministry of Forests.

The main themes, covered by all five tours, were:

- undisturbed forest ecosystems;
- management of riparian areas, floodplains and valley bottoms;
- clearcut and partial cut systems;
- regeneration and productivity.

Participants had the opportunity for detailed site visits and discussions. Again the new Code of practice and its implications were the major topic.

## 3. Friday 15 September

There were local tours, to value added facilities, a pulpmill, a sawmill the Prince George tree Improvement Centre the University of Northern British Columbia and a demonstration of a Geographic Information System.