

Soil and Water protection in Forestry

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Legislation, decrees and standards



- Water framework Directive (2000)



- Forest Act and Act on the Financing of Sustainable Forestry (1997)
- Water Act (1961)



- Finnish Forest Certification System (FFCS) Standard (2003)

- Tapio's Forest Management Recommendations (2001)



Act on the Financing of Sustainable Forestry

- **Water protection plan in ditch cleaning and supplementary ditching**
 - Description of water catchment areas, soil types, ditch slopes
 - Water protection methods

Finnish Forest Certification System (FFCS 1002-1:2003)

- **3.14 Forest road plans include an environmental impact assessment**
- **3.16 Bufferzone is left along water-courses and small water bodies to capture solid and nutrient run-off**
- **3.18 Water protection is safeguarded in draining sites**
- **3.19 The quality of groundwater areas is not deteriorated with chemical pesticides or fertilizers**
- **3.20 Use of chemical herbicides and pesticides is avoided in forest management**

Forest Management Recommendations

	Fellings	Mounding and ploughing	Scarification and harrowing	Stump lifting	Ditch cleaning	Fertilization
Site selection				X	X	X
Selection of method		X	X			X
Timing	X	X		X	X	X
Implementation during several years					X	
Control of the depth of ditching and site preparation		X	X		X	
Sedimentation pits		X			X	
Uncleaned ditch sections		X		X	X	
Buffer zones	X	X	X	X	X	X
Sedimentation ponds		X			X	
Dams					X	
Overland flow areas		X			X	
Artificial wetlands					X	

Uncleaned ditch sections and sedimentation pits

- Reduce leaching from single ditch



Dams

- **Dams slow down the velocity of water flow in catchment area**



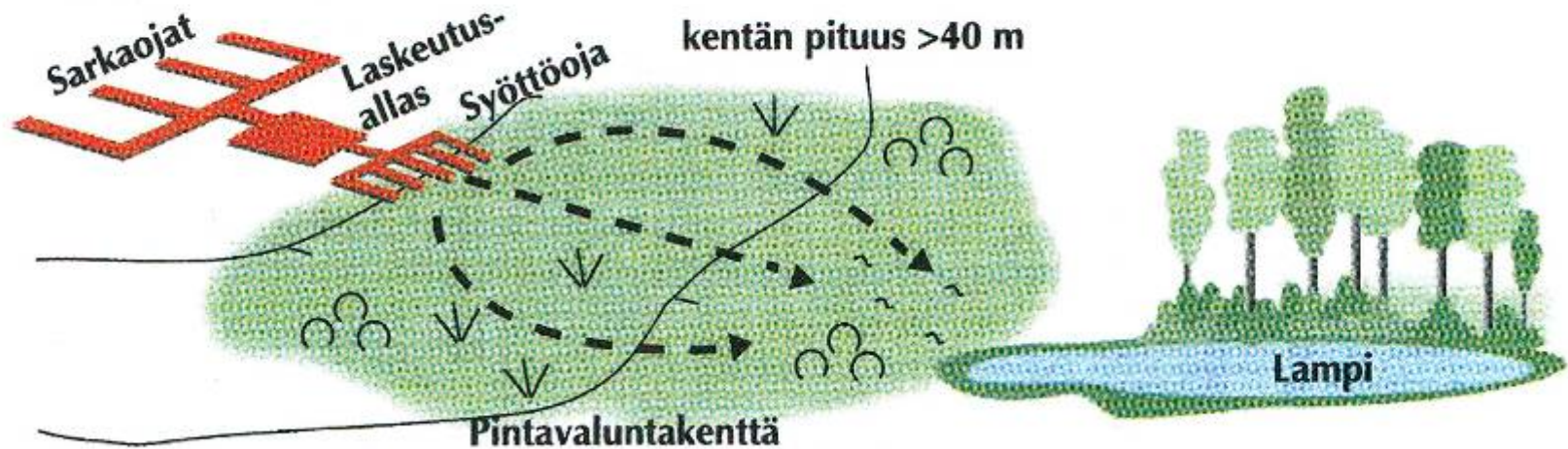
Sedimentation ponds

- **Constructed to prevent eroded suspended solid material from entering watercourses from catchment area**



Sedimentation pond

Pintavalutuskentän malliratkaisu



Artificial wetlands

- Designed for capturing suspended solid materials and nutrients



ASSESSMENT OF NATURE MANAGEMENT IN FINNISH COMMERCIAL FORESTS (Ecological control over cuttings)

Results for Private Forests and
Forests Owned by the Forest Industry



Published by:
Forestry Development
Centre Tapio



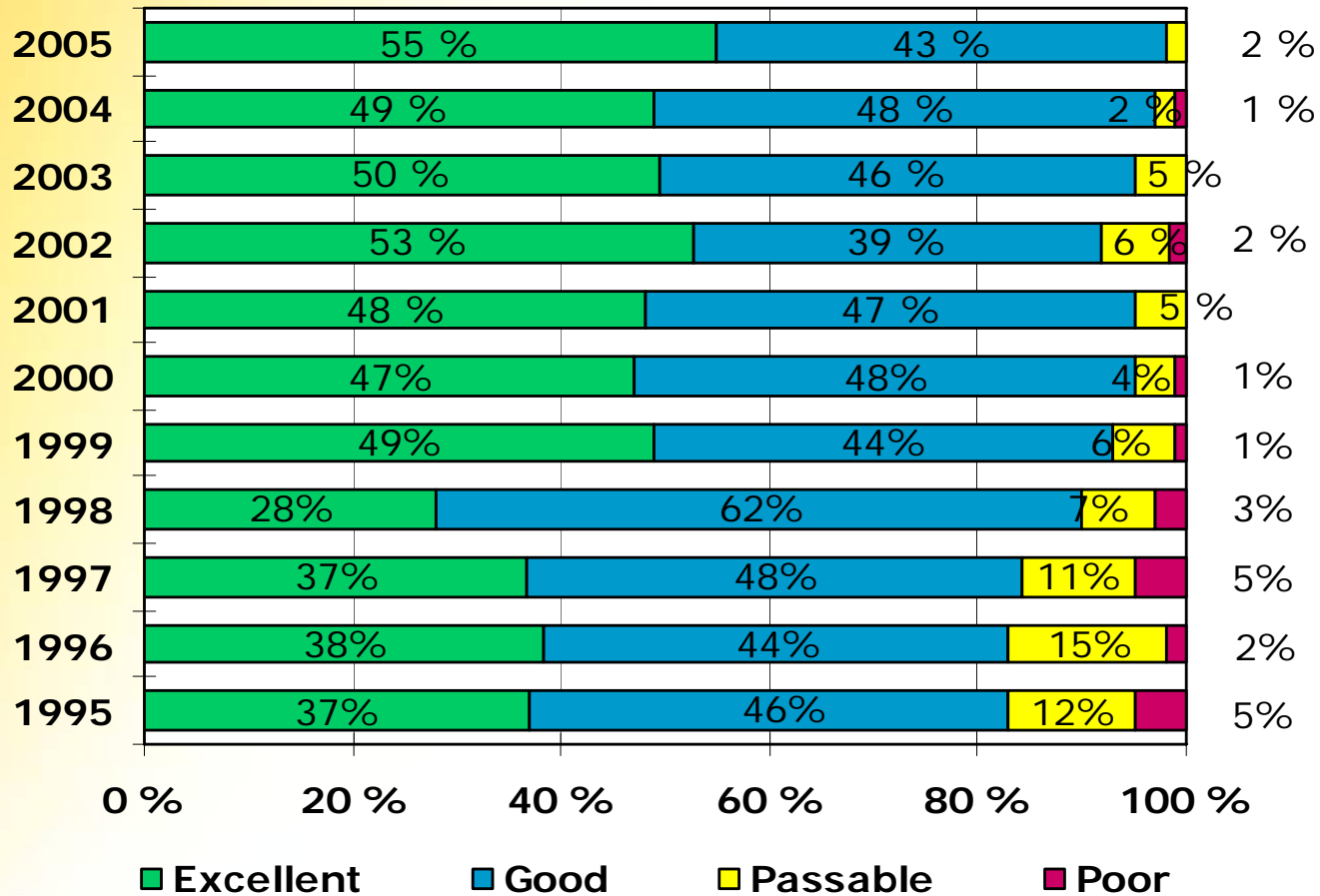
Water Protection Related to Harvesting and Soil Preparation

Assessed factors:

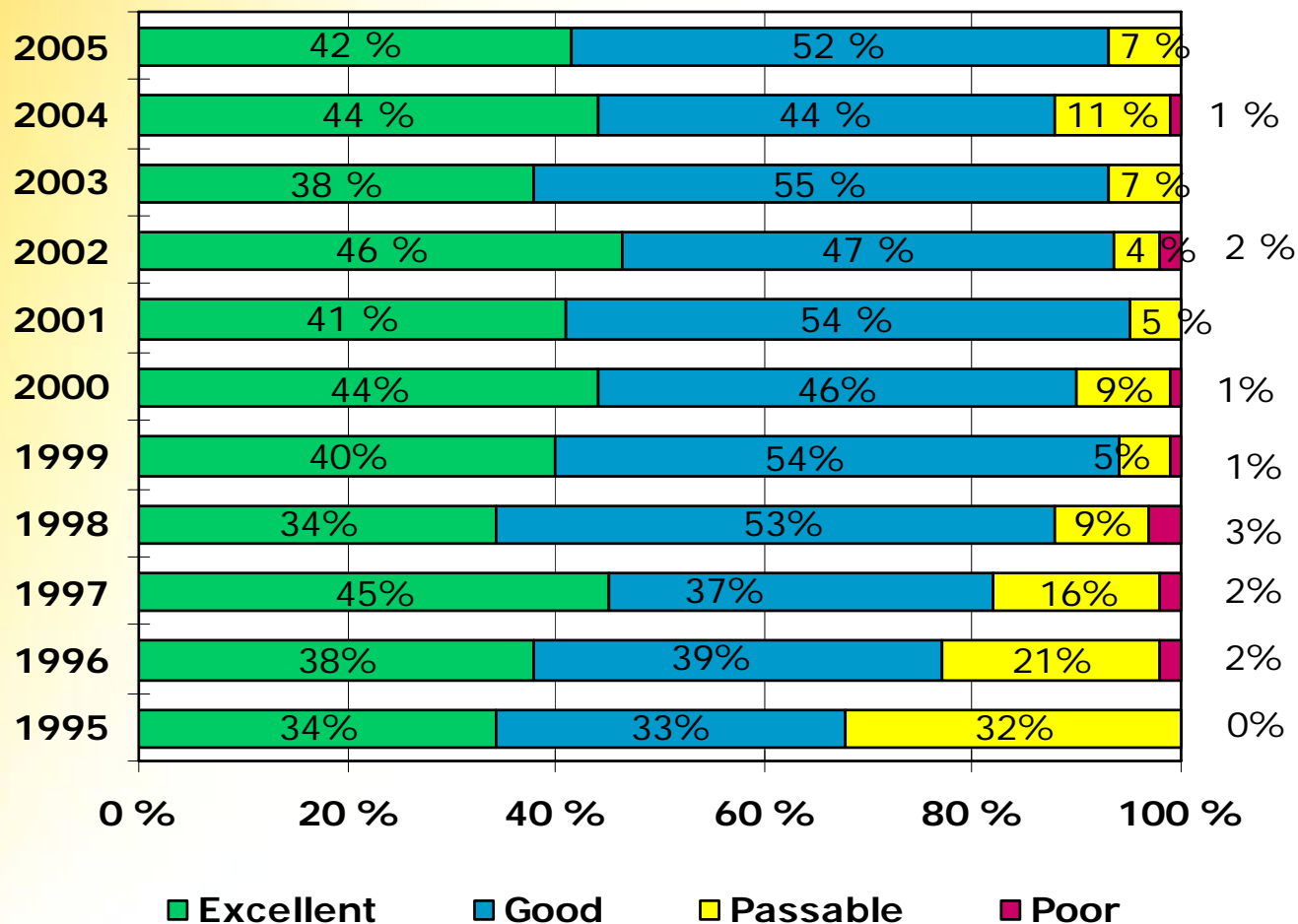
- **Buffer zones:**
length, width and sufficiency
- **Leakage of nutrients and soil particles into ditches and water systems**



Evaluation of Water Protection Related to Harvesting



Evaluation of Water Protection Related to Soil Preparation



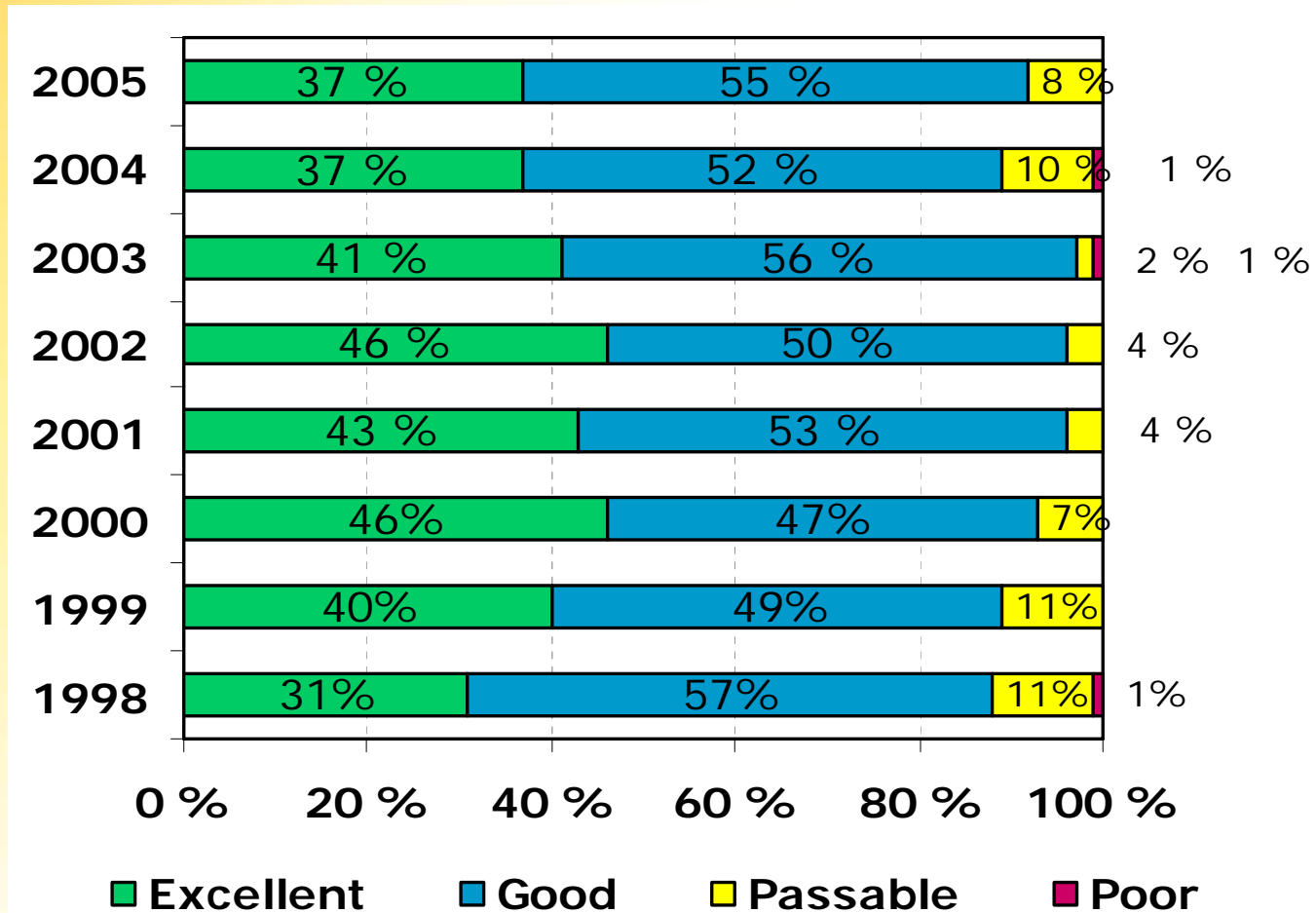
Soil Preparation and Forest Transport of Timber

Assessed factors:

- Choice of cultivation method
- Quality of treatment
- Terrain damages (trails)
- Damages in the tree stands

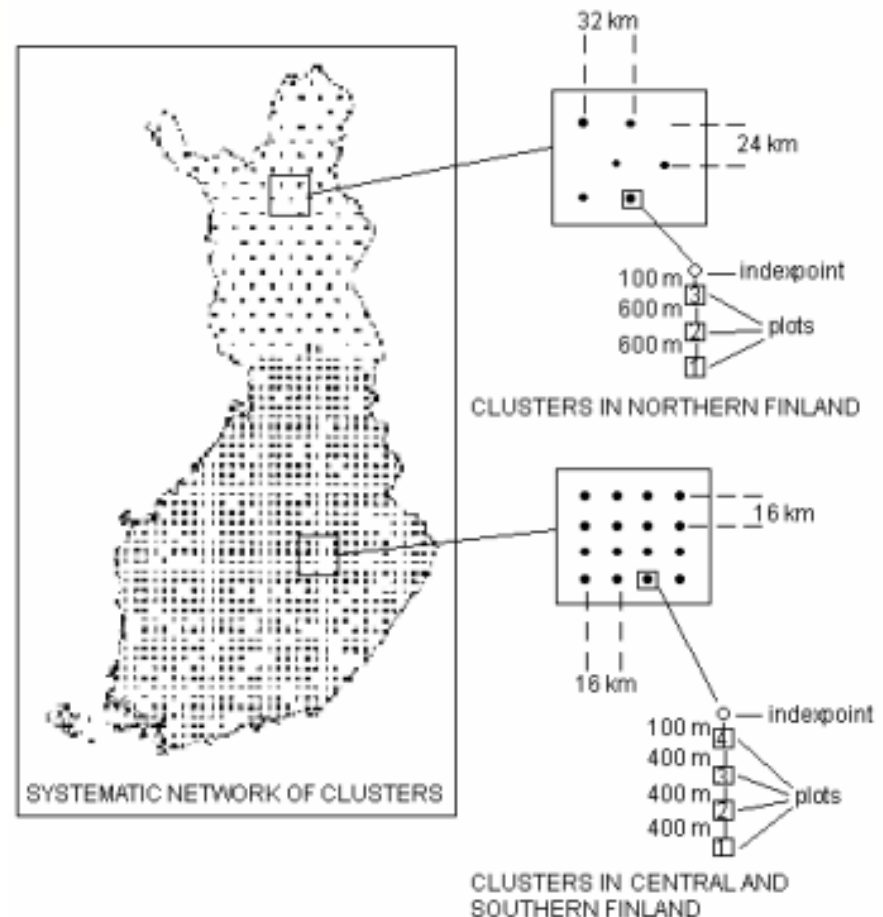


Evaluation of Soil preparation



Forest soil monitoring

- Atmospheric heavy metal deposition in Finland
- Made by Finnish Forest Research Institute



Forest soil pH

