

**Can we evaluate the sustainability of
socio-economic benefits from forests?
(using the Montreal Criterion 6 Indicators)**

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Topics

- Possible aims of an evaluation (Possible aims of the Montreal C&I indicators)
- Introduction to the Montreal Criterion 6 Indicators - Brief!
- A framework for evaluating sustainability
- Application of the framework to the 20 indicators
- Findings / Conclusions

Possible aims of an evaluation

(Possible aims of the Montreal C&I indicators)

- Accelerating national learning
 - Awareness, insight, understanding
- **Assess position and progress**
 - Constituent-focused aim
 - Requires a general common vision/ holistic framework
 - Helps uncover challenges/ opportunities
 - Can compare progress across countries
- Provide benchmarks for evaluation
 - Can track progress of policies
- Inform strategic decisions
 - Integrated model identifies interrelationships and unanticipated effects of policies

Source: M.F. Riche. 2003. "Developing Key National Performance Indicators". Key National Performance Indicators Forum, Washington, DC.

Criterion 6 – Maintenance of benefits

- Indicator objectives
 - Measure the level of social, economic and cultural benefits of forests
 - Describe the equity of the flows of benefits
 - Assess the ability of forests to meet the needs of future generations
- Sub-criteria (20 indicators)
 - Production and consumption
 - Investments in forestry and the forest sector
 - Employment and community needs
 - Recreation and tourism
 - Cultural, social and spiritual needs and values

A Framework for evaluation - assumptions

- Suggested Goal – Assess position and progress
- View indicators as measures on ability provide accepted, valued benefits [identified by stakeholders]
- Measures for each indicator can help us judge if we have met necessary conditions to maintain given benefits
- Even if indicators suggest we have attained a wide range of necessary conditions we may not have sufficient conditions to maintain all benefits.

Refined questions

- Refined sustainability question
 - To what degree have we attained necessary conditions for sustaining socioeconomic benefits
- (Set 1) -- Necessary condition questions for each indicator
 - Position - Does continuation of the current level indicator support sustaining a socio economic benefit
 - Progress - Does continuation of the recent trend in the support sustaining a socioeconomic benefit























Refined questions - continued

- (Set 2) Necessary condition questions for each indicator
 - Position - Is continuation of the current level indicator adverse to sustaining a socio economic benefit
 - Progress - Is continuation of the recent trend in the indicator adverse to sustaining a socioeconomic benefit
- Set 1 requires assertion (evidence) of help
- Set 2 requires assertion (evidence) of harm
- **I use question set 2 to judge measures**

Production and consumption – wood and paper products

Recent Trend









Recent Level

Production volume and value & harvest			\$165 billion in 2006	
Consumption volume and value				
Per capita harvest				
Per capita consumption			63 cubic feet	
Import share of consumption			38% in 2006	
Paper recycling (U.S. use) (Paper recovery)		 	38% in 2006 (51% in 2006)	
Wood recycling			10% in 2006	

Production and consumption – Non wood forest products/ Environmental Services

Recent
Trend

Recent
Level

Non wood FP production 	↔	\$175 million in 2006 
Non wood FP consumption 	↔	\$301 million in 2006 
Per capita Non wood FP	↔ ↓ 	\$1 per capita 
Environmental services 	↑↑	\$521 Million in 2006 (up 18% in 2 years) 

Production and consumption – Environmental Services

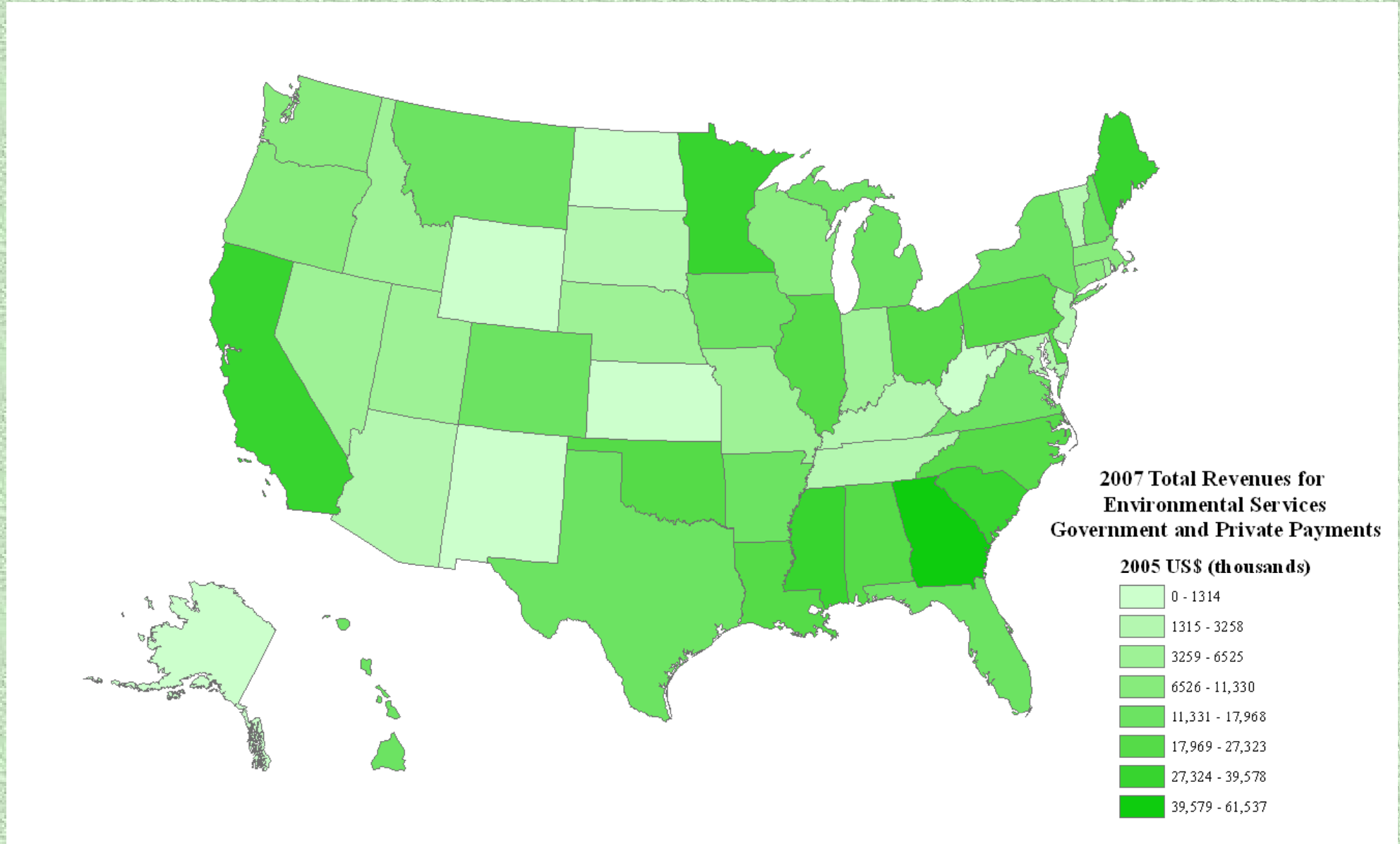






























Figure 27-2. **Total payments** in 2007 from Federal and State agencies and non-government organizations and individuals in constant 2005 dollars (\$1000s).





























Investments in forestry and the forest sector – forest sector

State forestry programs 	↔ ?	\$2.1 billion 
Forest Service Capital investments	 ↓	\$501/ \$390 million in 2005/ 2007 
Wood and paper industry capital investments	 Volatile	\$3.5 billion in 2006 
Private Forest Recreation capital investment 	?	\$1.5 billion in 2006 
National Park concessionaires facility improvements 	?	\$22 million in 2006 
Wood products industry operating expenses 	↑ (to 2006)	\$84 billion in 2006 
Paper products industry operating expenses 	↓	\$107 billion in 2006 















Investments in forestry and the forest sector – research and education

Forest Service Research expenditures 	↔ ↑ 	\$326 million in 2008 
University research 	↑ 	\$282 million in 2006 
Forest science degrees 	↓ ↓ 	1,810 in 2006 (down 20% in 5 years) 
Forest Service Conservation education programs 	↑ 	\$18 million in 2006 4 million people reached in 2006 
Agenda 2020 Forest products research (federal + industry)	? 	\$30 million in 2003 







Employment and community needs

Forest service NFS jobs		↔ ↓	22,867 in 2006	
State agencies jobs		↔ ↑ ?	24,507 in 2004	
Forest based recreation jobs		↑	551,000 in 2006 ?	
Non wood FP jobs		?	Many thousands	
Forest Service Research jobs		↔ ↓	1,760 in 2006	
University & college jobs		?	1,361 in 2001	
Wood and paper industry jobs		↓ ↓	1.3 million in 2006	
Wood & paper industry wages	 	Paper ↑ Solidwood ↔		 
Wood & paper industry injuries		↓		
Distribution of revenues		?	Payroll 80%, profits 18%	
Land used for subsistence	 		AK, HI and native lan use protected	 
Community Resilience		?		







Recreation and tourism

Public forest - access		↔	330 million ac, assumed open to the public	
Corporate forest - access		?	137 million ac, some public access	
Family & other forest - access		↓	284 million ac, 11% allow access - 2001	
People engaged in outdoor recreation --		↑	217 million in 2007	
Percent of population engaged --		↓		
Outdoor activity days --		↑ ↑	83 billion in 2007	
Activity days per active person		↑		

Cultural, social and spiritual needs and values

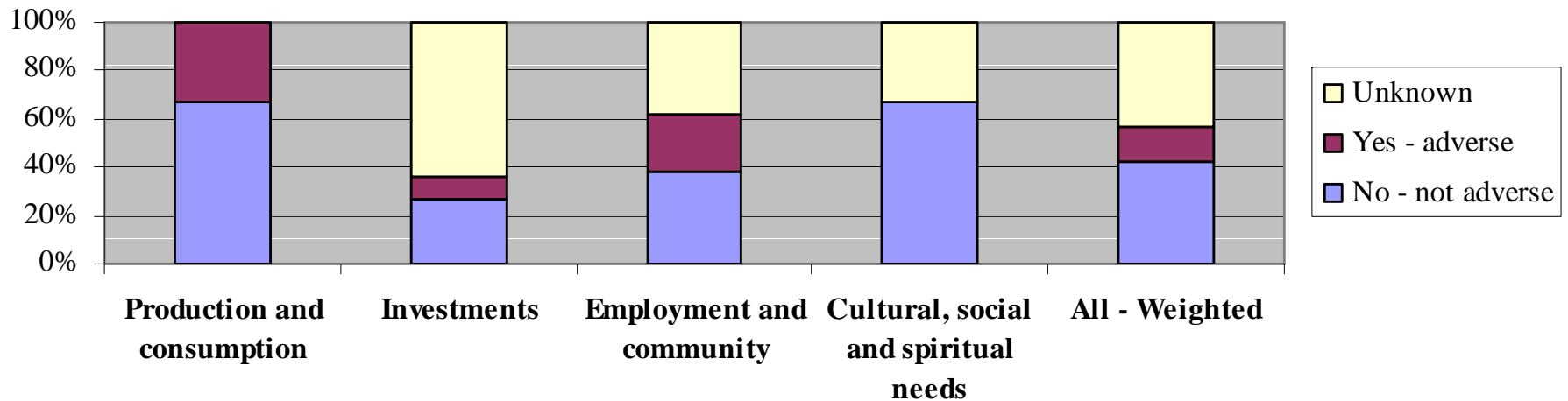
<p>Area protected for range of values</p> <p>Public </p> <p>Private </p>	<p>↔</p> <p>↑ ↑</p>	<p>328 million acres </p> <p>37million acres+ </p>
<p>Importance of forests </p>	<p>?</p>	<p>Focus groups ranking of importance categories </p> <p>Environmental/ biologic</p> <p>Cultural heritage</p> <p>Recreation</p> <p>Products</p> <p>Sense of place</p> <p>Health & well being</p> <p>Aesthetics</p> <p>Spiritual</p> <p>Diversity</p> <p>Education</p> <p>Economics</p> <p>Privacy</p>

Summary – are we meeting necessary conditions? (my judgments...)

Sub criteria	Trend			Current level		
						
Production and consumption						
--Wood products	5	3		5		3
--Non Wood products	2	1		3		-
--Environmental services	1	-		1		-
Investments						
--Forestry and forest sector	-	-	6	2	-	5
--Education and research	3	1	1	2	2	-
Employment and community needs	5	3	5	11		2
Cultural, social and spiritual needs and values	2		1	1		2
All Criterion 6 measures	18	8	13	25	2	12

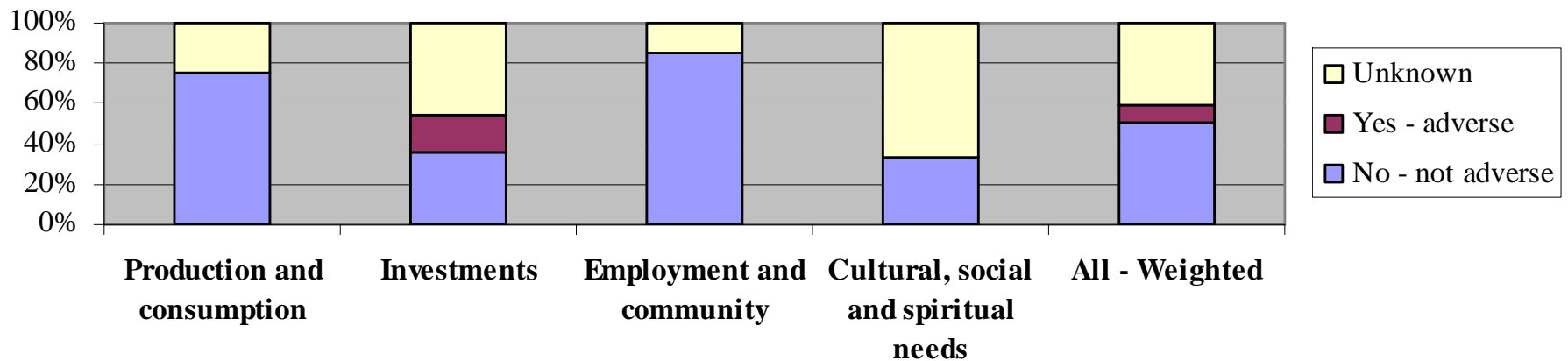
Briefer summary

Are TRENDS in Indicators adverse to sustaining benefits?



Weights **17%** **50%** **17%** **16%**

Would CONTINUING CURRENT LEVELS of Indicators be adverse to sustaining benefits?



Summary – Unmet necessary conditions – adverse trends

Value	Adverse Trends
Production and consumption	Decline in harvest, increase in import share of consumption, decline in per capita use of non wood products
Investments	Decline in Inv in forest products Industry, FS capital investment, No. of degrees in forest science, jobs in FS / FS research
Employment & Community	Decline in forest industry jobs
Recreation and tourism	Decline in recreation access for family and other forest, decline in percent of population engaged in forest recreation

Summary – unmet necessary conditions? – Unknown trends

Value	Trend unknown
Production and consumption	none
Investments	State forestry programs, private recreation capacity, National Parks capacity, Forest Industry research
Employment & Community	Non wood products jobs, Distribution of revenues, Community Resilience
Recreation and tourism	Corporate forest access
Cultural, social and spiritual values	Public area protection, Importance of forests to people

Conclusion

- **If** we have necessary conditions to sustain each type of socioeconomic benefit identified by the Criterion 6 indicators then
 - We have trends adverse to sustaining a number of the benefits
- AND
- We have insufficient information to judge if we are sustaining a number of the benefits

Questions?

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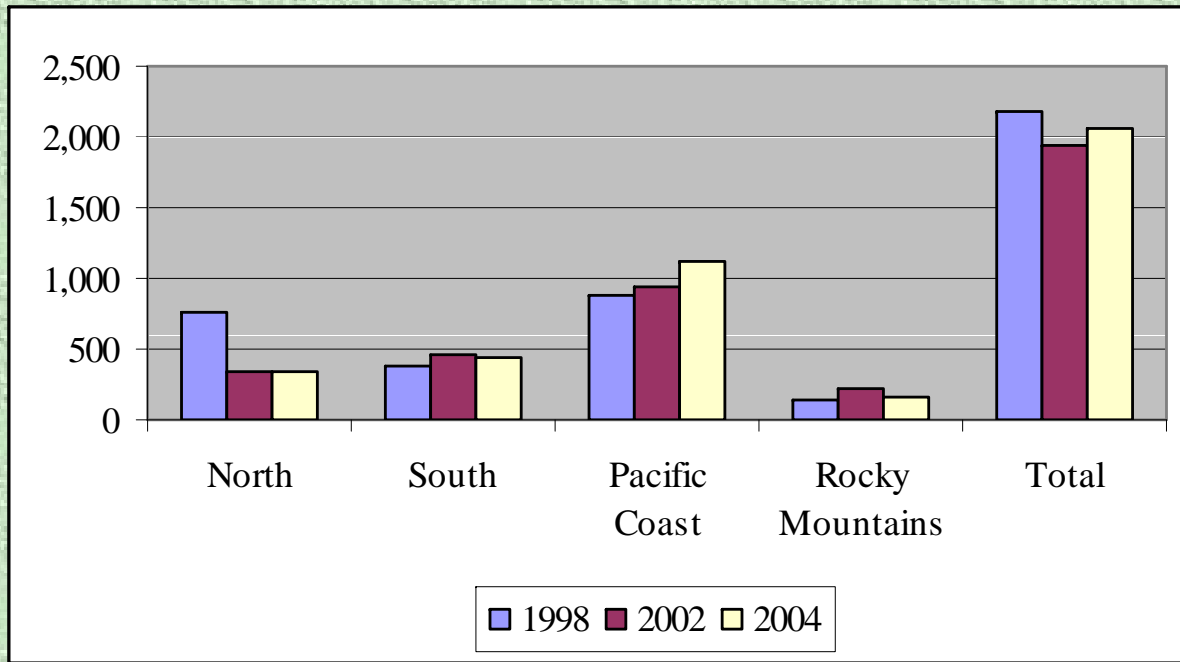
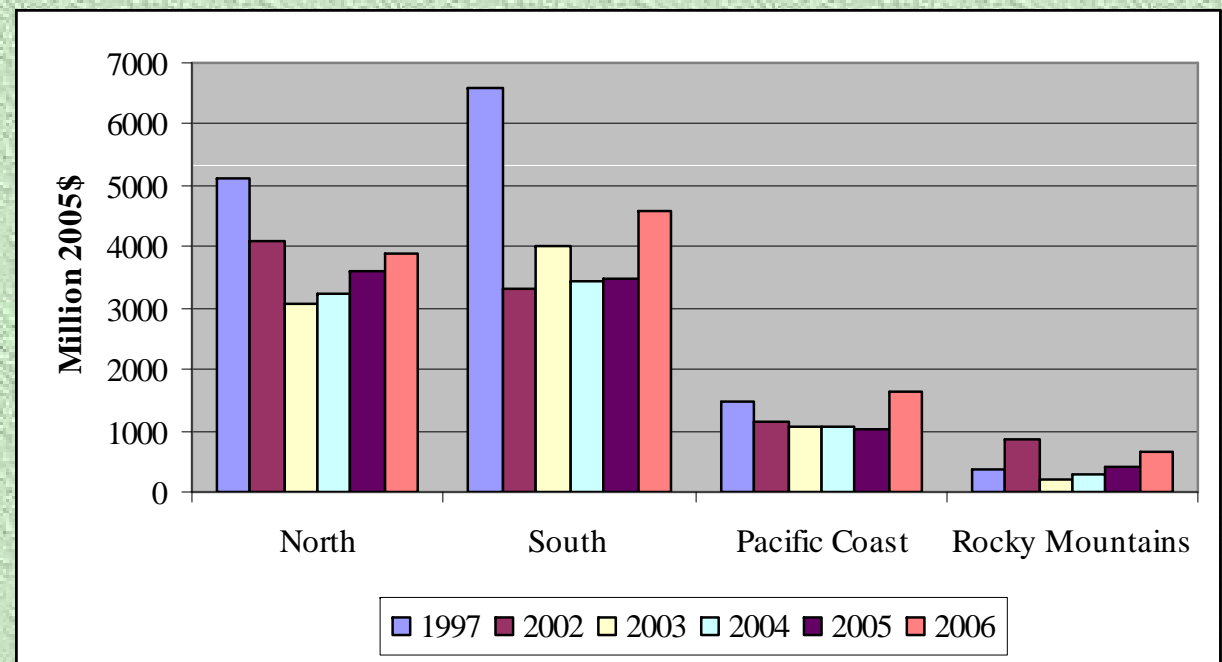


Figure 34-1 Annual state forestry program expenditures/ costs by region (million 2005\$)

Figure 34-3 Capital expenditure in wood products and paper products industries by Region, 1997 and 2002 to 2006 (million 2005\$)



Production and consumption – wood and paper products (selected details)

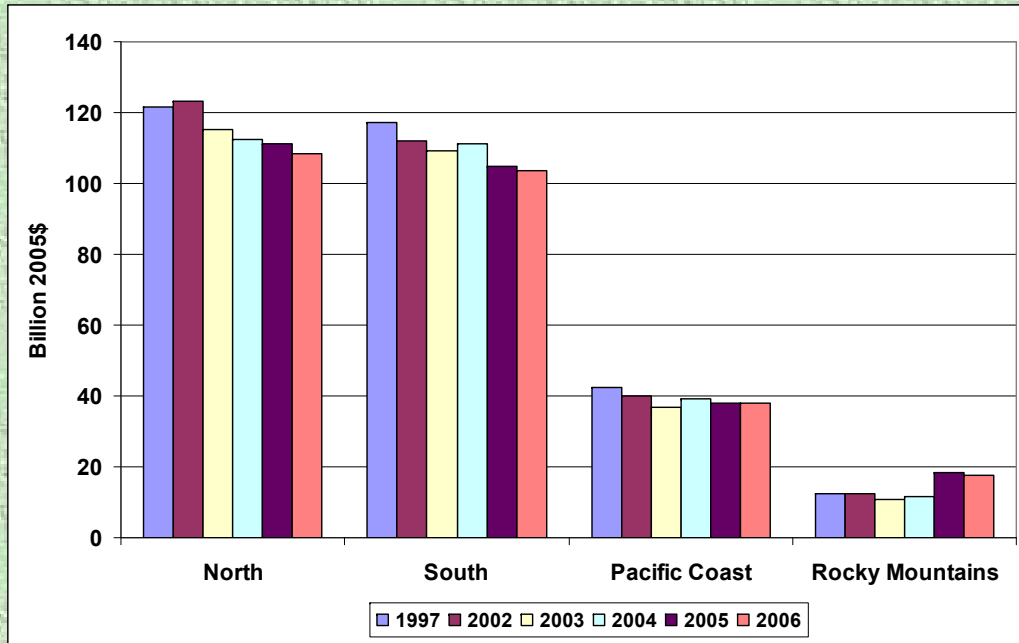


Figure 25-6 Value of shipments in wood and paper products by region (billion 2005\$)

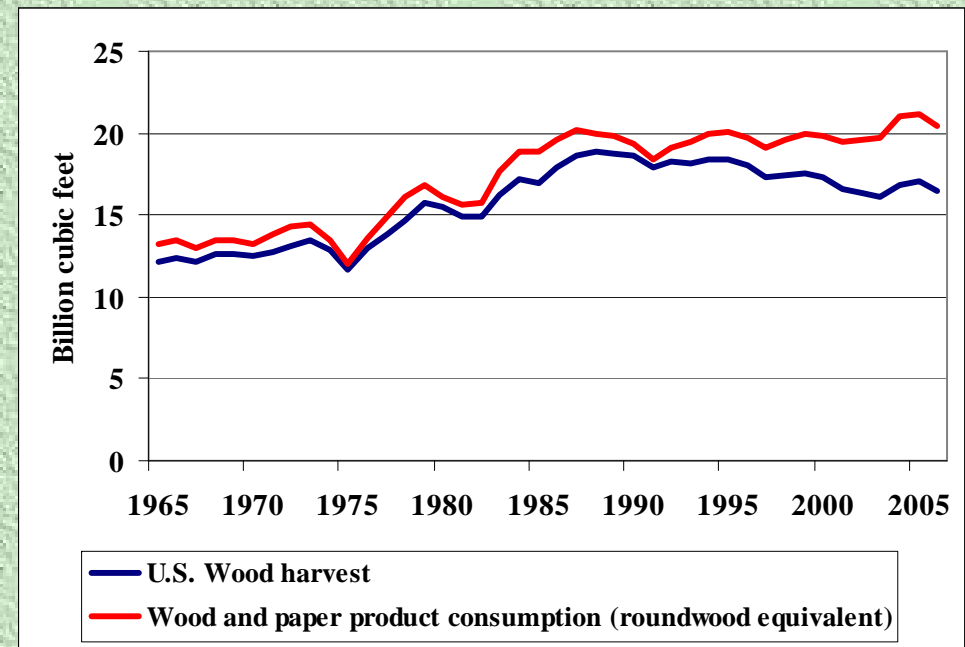


Figure 28-1 U.S. Wood harvest and wood & paper product and fuelwood consumption,