Globalization in the Wood Products Industry: Some Important Trends

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Dynamic Changes Occurring in the Global Forest Economy

- Changes occurring are often not favorable to much of North American forestry in the long-run
- Change inherently generates disruptions and dislocations
- But, likely to be broad economic and environmental benefits and some newly emerging “niche” market opportunities in the long-run

Provide an Overview

- Of Production Changes Effecting the Global Supply of Forest Resources
- Global demand for wood products
- Some environmental implications
- Issues and implications for the wood industry both regionally and nationally

Major Changes:Supply and Demand

- Forestry in transition from foraging to cropping mode
- Opportunity to introduce technologies, both growing and harvesting
- Are seeing locational restructuring of the Forest Industry

  also
- Major Changes in the Market: Damping of Growth

Table 1: Long-term Transition in Forest Management and Harvests

Type	Period
Wild forests	10,000 BC – present
Managed forests	100 BC – present
Planted forests	1800 – present
Planted, intensively-managed forests	1960 – present
Planted, superior trees, traditional breeding techniques	1970 – present
Planted, superior trees, clonal forestry, genetic modification	2000 - future

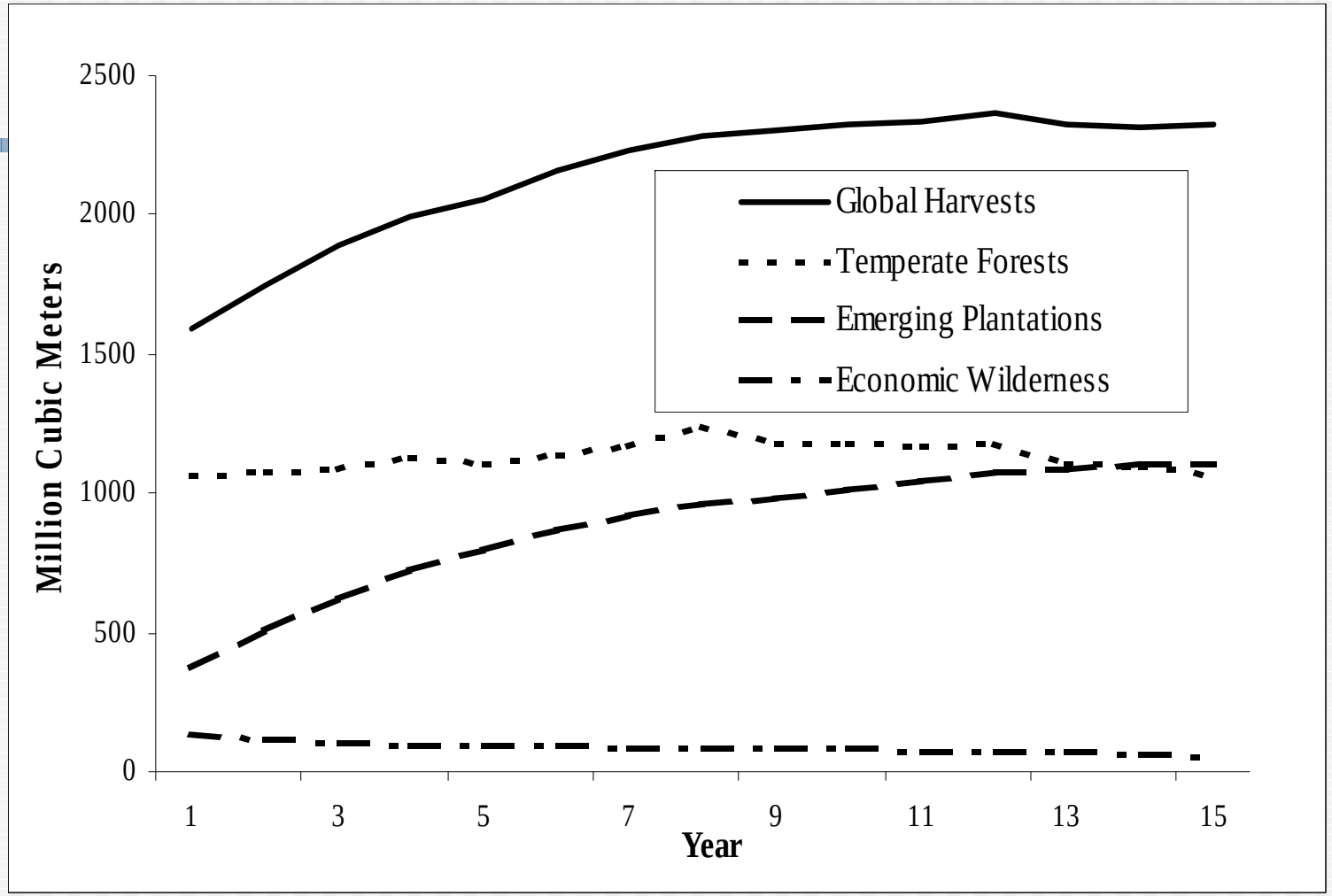
Table 2: Estimated Global Harvests by Forest Management Condition, Circa 2000

Forest Situation, Industrial Wood Harvest	Percent of Global
Old-growth	22
Second-growth, minimal management	14
Indigenous second-growth, managed	30
Industrial plantations, indigenous	**24**
Industrial plantations, exotic	**10**

Table 3: Worldwide Timber Yields

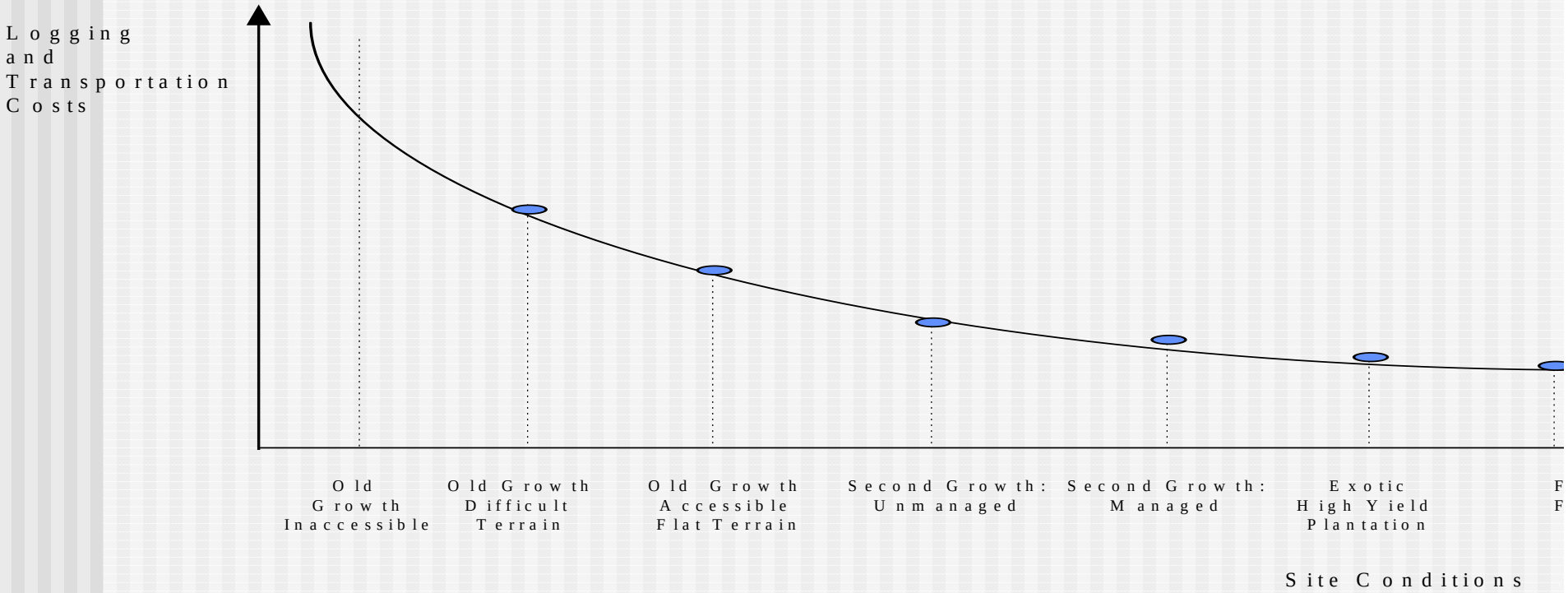
Site	Yield (m3/ha/yr)	Rotation (years)
Temperate and boreal softwood forests		
Canada average	1.0	-
British Columbia	1.5-5.3	-
Sweden average	3.3	-
Finland	2.5	60-100
Russia	1.0-2.9	-
Siberia	1.0-1.4	70-200
Softwood Plantations		
Britain (Sitka Spruce)	14	40
South Africa (Pine spp.)	10-25	20-35
New Zealand (Monterey Pine)	18-30	20-40
East Africa (Pine spp.)	25-45	20-30
Brazil (Pine spp.)	15-35	15-35
Chile (Monterey Pine)	20-30	15-35

Figure 1: Projection of Annual Timber Harvests

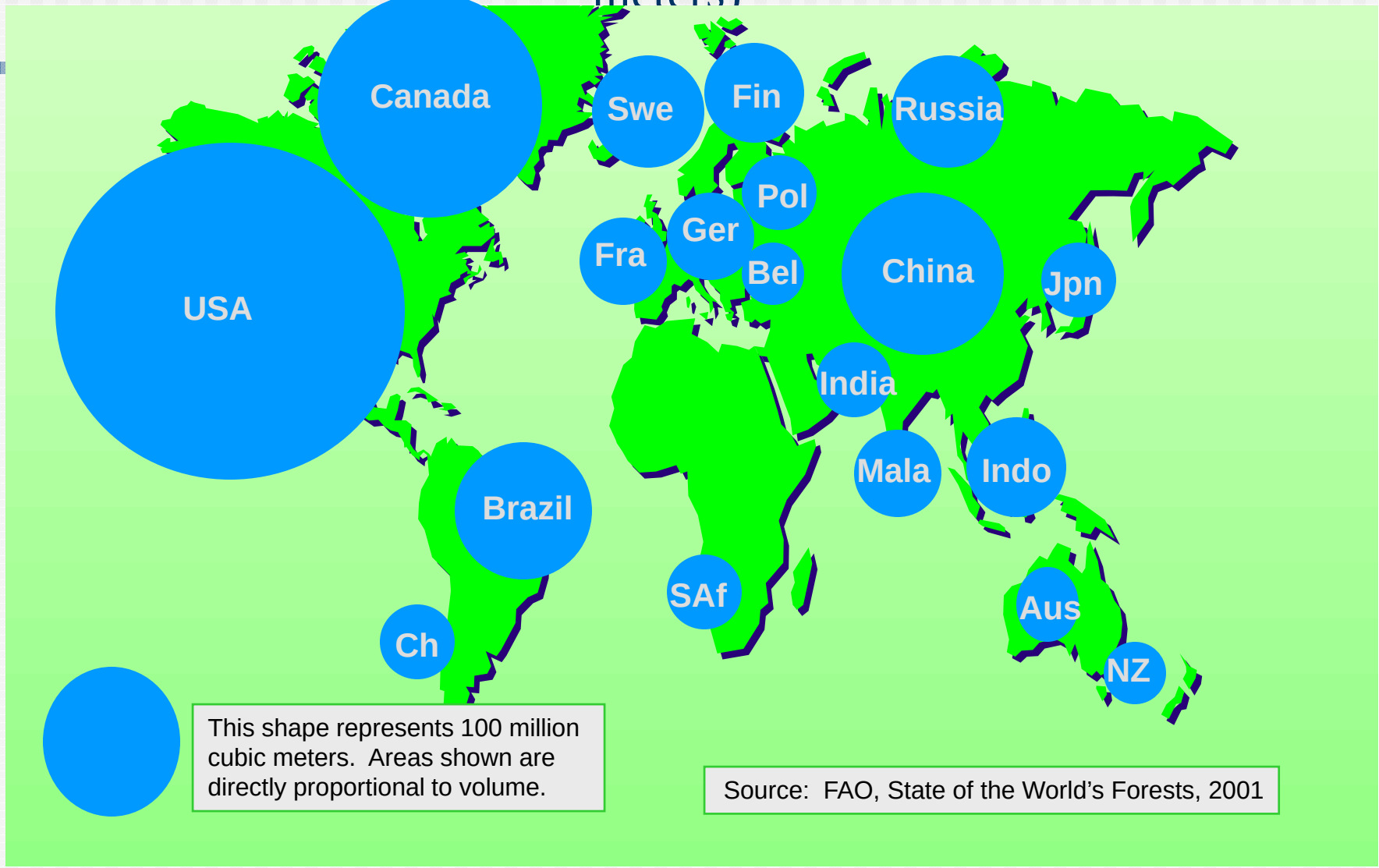


Harvests Projected to rise about one-third over 50-year period and about one-half over a 150 year period. ***Sohngen et al 2001***

Hypothetical Logging Costs: Alternative Site Conditions



Industrial Roundwood Production, 2001 (Countries producing greater than 15 million cubic meters)



FAST-GROWING PLANTATIONS

- Million Hectares Hardwood -

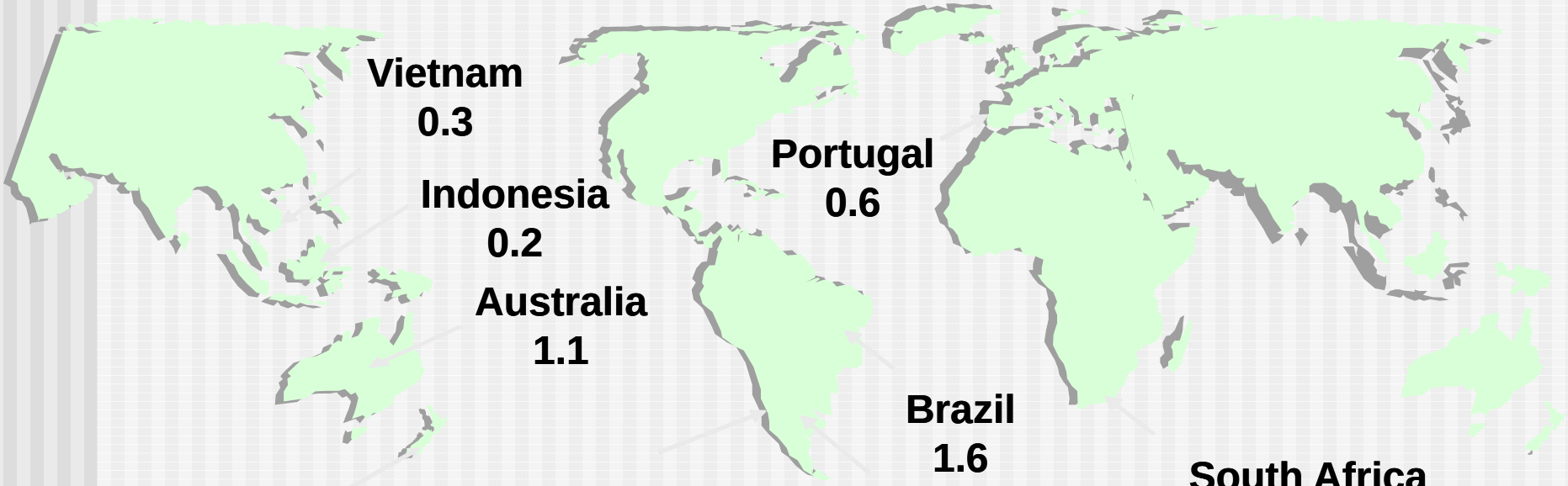
[1/] Incl.. 600 M ha of slow growing teak

[2/] Mostly medium and slow growing

Source = Jaakko Pöyry

FAST-GROWING PLANTATIONS

- Million Hectares Softwood -

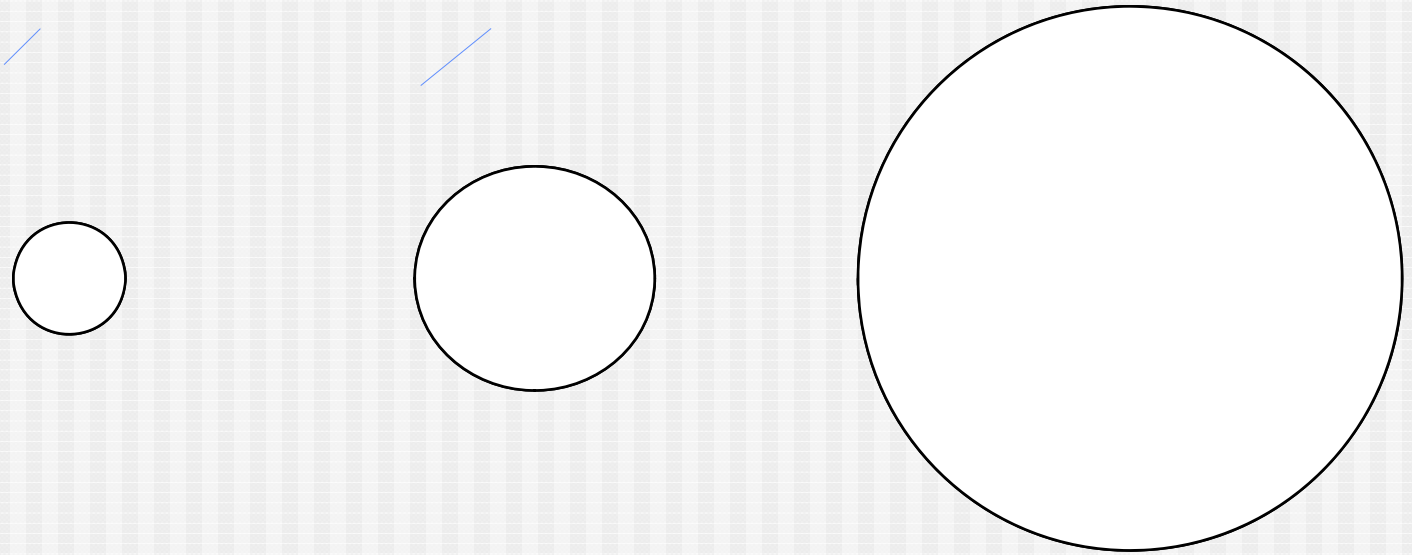


Source = Jaakko Pöyry

LAND AREA REQUIREMENTS

- Truly a Significant Contrast -

Fast-growing trees and short harvest times result in significantly less land area in the fast growing plantations regions required to support a world class pulp mill with today's biological technologies



Brazil **Indonesia** **U.S. South**

Tree Breeding and Biotechnology

- Traditional Tree Breeding has Yielded Substantial Productivity Increases
- The Potential of Hybrids
- Genetically Engineered Trees?

Table 4: Gains from Various Traditional Breeding Approaches: Loblolly Pine

Technique	Effect
Orchard mix, open pollination, first generation	8% increase in yields
Family Block, best mothers	11%
Mass pollination (control for both male and female)	21%

Source: Westvaco Corporation

Table 5: Biotechnology **Tree Improvement Potentials**

Important Attributes:

- **Growth rates**
- **Disease and pest resistance**
- **Climate range and adaptability**
- **Tree form and wood fiber quality**:
  - straightness of the trunk
  - absence of large or excessive branching
  - amount of taper in the trunk.
- **Desired fiber characteristics may relate to ease in processing**
  - e.g., the break-down of wood fibers in chemical processing.

Table 6: Possible Financial Gains from Future Biotech Innovations

Innovation	Benefits	Additional Operating Cost
Clone superior pine*	20% yield increase after 20 years	$40/acre or 15-20%
Wood density gene	Improved lumber strength	None
Herbicide tolerance gene in eucalyptus (Brazil)	Reduce herbicide and weeding costs, saving $350 or 45% per ha	None
Improve fiber characteristic	Reduce digester cost $10 per m^3	None
Reduced amount of juvenile wood	Increase value $15 per m^3 (more useable wood)	None
Reduce lignin	Reduce pulping costs $15 per m^3	None

Source: Context Consulting. * non transgenic

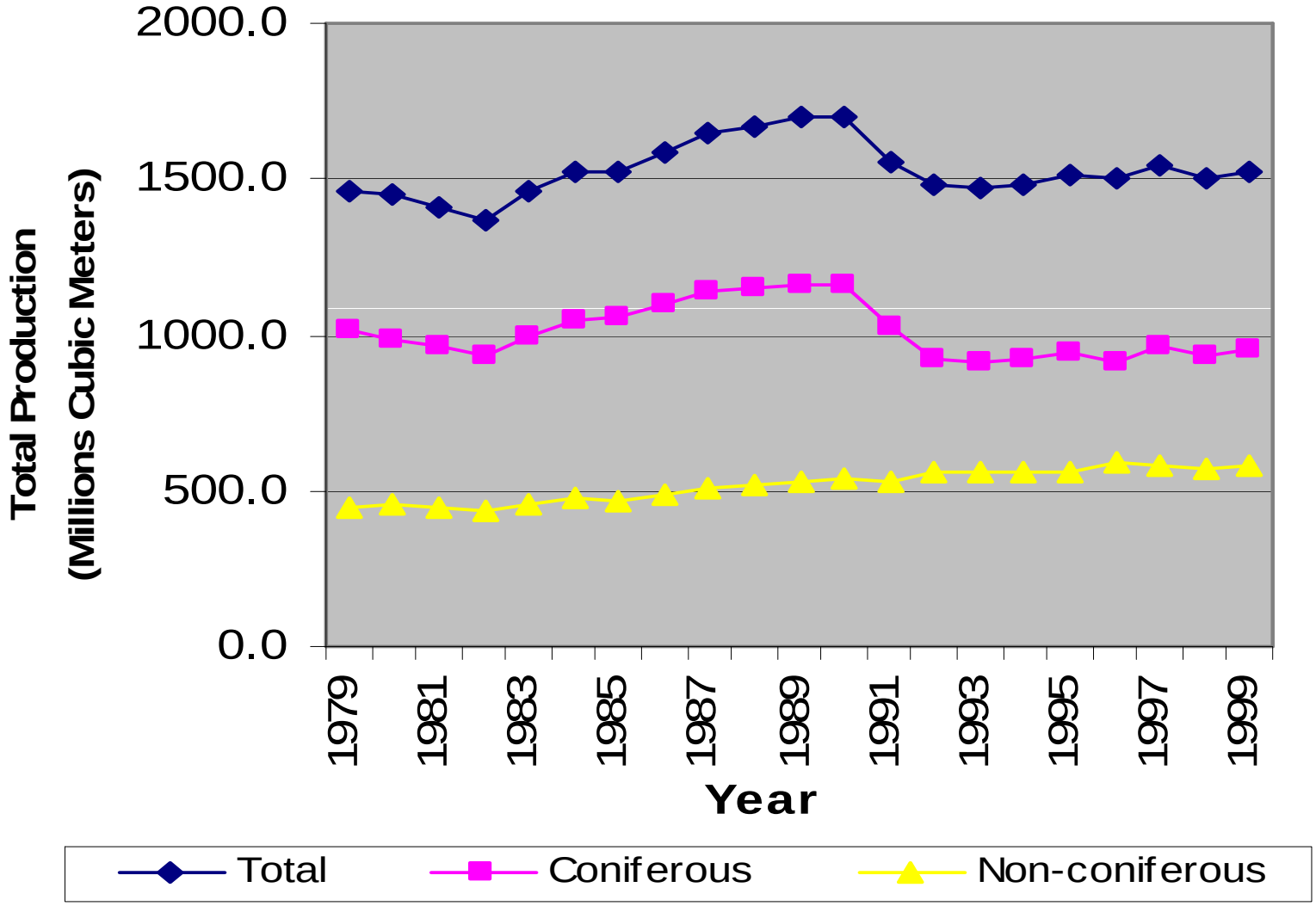
Sobering Potential: Brazil

- Use Traditional Superior Tree
- Insert gene to increase pulp content
- Increases pulp content by 40%
- Use 6 year rotations

  But
- Brazil doesn't allow transgenics
- Legal Changes??

Demand Considerations

Figure 2: World Industrial Roundwood Production



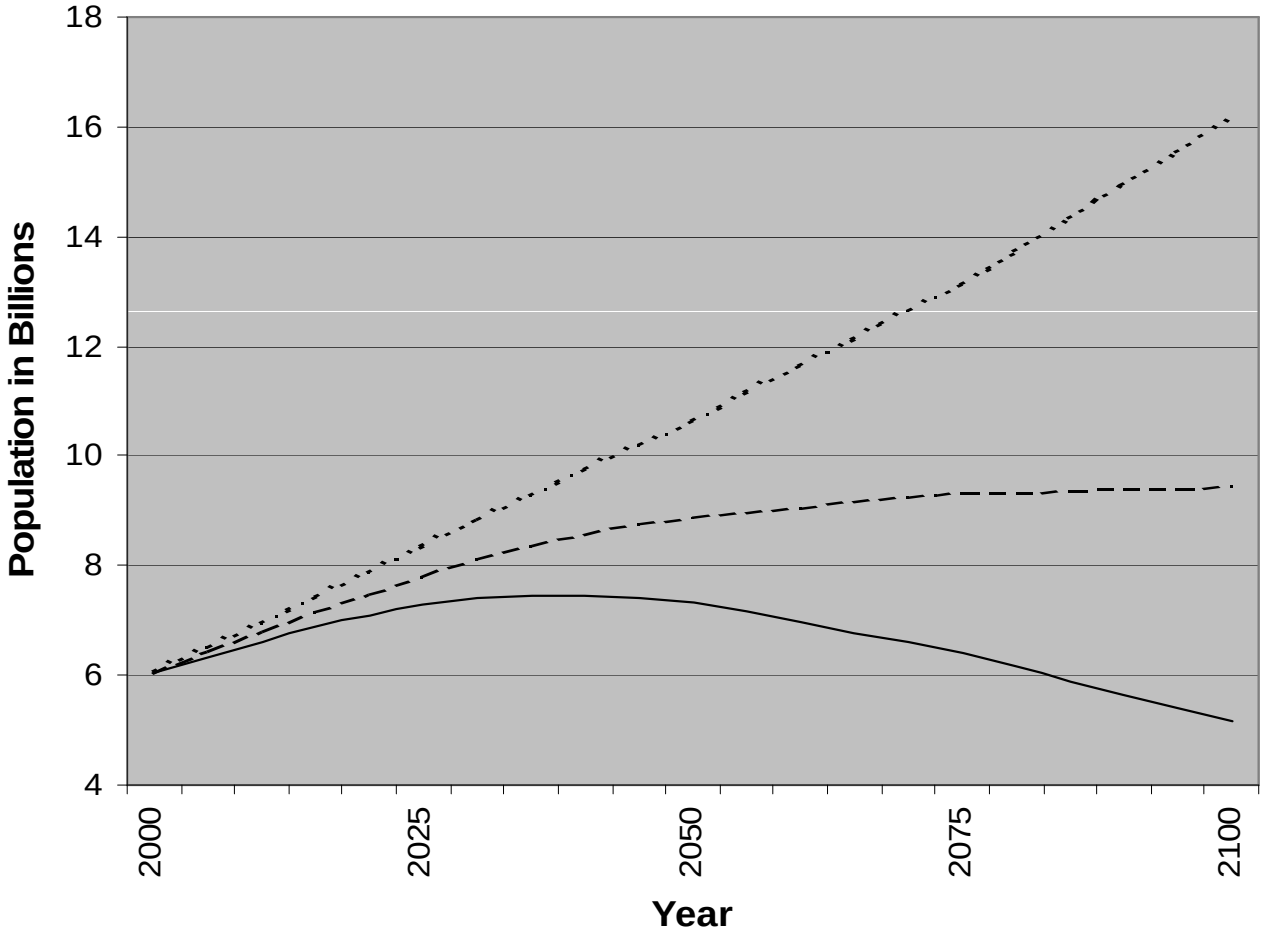
Source: FAO, Rome, selected years

Table 6: Worldwide Annual Percent Growth in Consumption of Industrial Wood, 1950-2000

Period	Production/consumption
1950 – 1960	3.54
1960 – 1970	2.20
1970 – 1980	1.10
1980 – 2000	0.34

Sources: 1950-1980 from Sedjo and Lyon (1990) table 3-1, page 56; United Nations, FAO 1997. 1980-2000 from FAOSTAT, FAO online statistical database.

Figure 2: UN World Population Projections (High, Medium & Low)



Source: World Population Prospects, 1998 Revision, United Nations, 1999.

Stagnating Wood Demand

- Stabilizing and aging populations
- Wood Substitutes
  - Nonpaper packaging
  - Nonwood Construction
  - Newspaper substitutes, electronic

Not quite the “paperless” office, but …

Summary of the World Situation: Supply expanding with stagnate demand

- More wood from less, but more intensively managed forest land.
- More low cost off shore competition.
- Potential future increased supplies from more plantations, biotechnical change, other innovations.
- **Stagnant Global Market for raw wood: Will it continue?**

Table 7: **Forests Today and Tomorrow: One View**

Circa 2000	
Forest area	3.2 billion ha
Industrial forests	0.9
Croplands	1.5
Potential for 2050	
Forest area	3.4
Industrial Plantations	0.4
Croplands	1.1

Source: **Victor and Ausubel,** *Foreign Affairs,* 2000

ISSUES: How should society manage these lands?

- INDUSTRIAL: How does the NA remain competitive in timber?
- ENVIRONMENTAL: For what ends do we manage the large areas of natural forest that increasingly will have low timber values?
    - For What Uses? Bioreserves? Dispersed housing?
- What are the long-term implications for Canadian Forestry?

Table 8: Industrial: Exchange Rates

1997	1 EU	$ 1.15
2002	1 EU	$ 0.86
2003	1 EU	$ 1.17

Note: Lower $ provides cost advantage

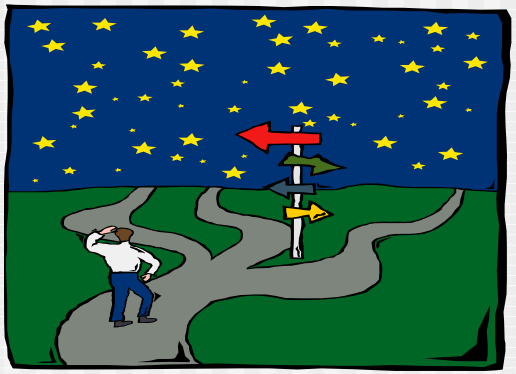
US $ declined roughly 37% since 2002

Environmental

- Good news is that we are producing more agricultural and forestry products from less and less land
- Overall eases pressures on the environment
- Opens options for other types of land uses including those devoted to the environment

THE BALANCING ACT

- Although Boreal Forest Growth Conditions Are Far Outpaced by Fast-growing Plantation Regions --
  - There is more than one roadway to a balanced tomorrow
  - Significant growth rates have been achieved in Northern cottonwood plantations & new biotechnology is emerging for southern pine
  - The US South, PNW, US North & Canada can all show much improved growth with enhanced forest management
  - Are the economics there?



Forestry in Canada

- Low cost (often naturally regeneration) resource
- Much accessible terrain, but..
- Often well developed infrastructure, can make for low cost harvesting

- **Almost sure to be a player in wood resource market.**

But, to conclude, in Canada and elsewhere

- forestry will be competing with other foreign low cost producers
- other uses, e.g., reservation, recreation and dispersed development
- Opposition to tree cutting by some “greens”
- Will there be enough land provided for recreation, development and forestry?
- And, can producers make a sufficient profit?